

KELVIN® ENGINEERING IN SCHOOL

BIG CATALOG #321 2024

#321 • All Catalogs in 1 PDF

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S.T.E.M. RESOURCES KELVIN® ENGINEERING IN SCHOOL



Find S.T.E.M. RESOURCES on pgs. 3-2)

ARCHITECTURE & DESIGN KELVIN® ENGINEERING IN SCHOOL



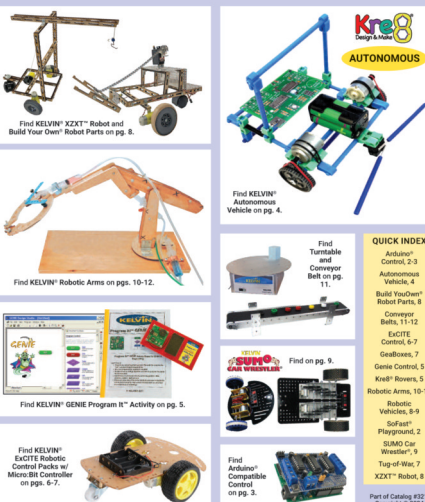
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TRANSPORTATION KELVIN® ENGINEERING IN SCHOOL



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ROBOTICS KELVIN® ENGINEERING IN SCHOOL



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ELECTRONICS KELVIN® ENGINEERING IN SCHOOL



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KELVIN®

For KELVIN®'s Latest Catalogs and Products, visit www.kelvin.com

Dear Educators & Friends

KELVIN® is excited to share our latest 2024 combined catalog for **S.T.E.M.**, **Architecture & Design**, **Transportation** (Air, Water, Space and Land), **Robotics**, **Power & Energy**, **Project Resources**, **Science** and **Electronics**. Products are geared towards supporting Engineering, S.T.E.M. and Makerspaces in schools as well as helping students explore problem-solving, technology and career paths. More products are available online at www.kelvin.com.

On behalf of KELVIN®, I wish you a good school year and, thank you for your support.

— Avi Hadar, President, KELVIN® LP

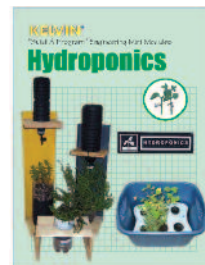


Avi Hadar,
President
KELVIN® L.P.
avi@kelvin.com



P.O. (w/ USD pricing) are accepted from USA and Canadian Public Schools (GST added). Ships from NY, USA and Ontario, Canada. Prices listed in US dollars.

Grow Plants Without Soil!



Find the KELVIN® Hydroponics Engineering Mini Module in the **Science** chapter on pg. SC 5.

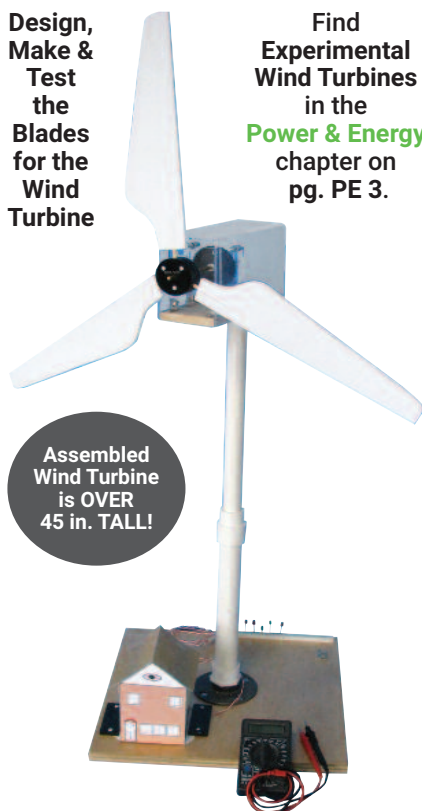


Find the KELVIN® Autonomous Vehicle in the **Robotics** chapter on pg. R 4.

Design, Make & Test the Blades for the Wind Turbine

Find Experimental Wind Turbines in the **Power & Energy** chapter on pg. PE 3.

Assembled Wind Turbine is OVER 45 in. TALL!



NEW
Updated Design



Find the KELVIN® Variable Power Supply w/ Polarity Box in the **Electronics** chapter on pg. E 20.



Find the KELVIN® New Standards® S.T.E.M. Lab: Work, Machines & Gears in the **S.T.E.M.** chapter on pg. S 9.



Find all the KELVIN® S.T.E.M. Bin Fillers in the **Project Resources** chapter on **pgs. PR 2-7**.



Find the Shipping Container House in the **Architecture & Design** chapter on pg. AD 22.



Find Air-Powered Dragsters in the **Transportation** chapter on pg. T 19.

S.T.E.M. RESOURCES

KELVIN® ENGINEERING IN SCHOOL



Find KELVIN® New Standards® S.T.E.M. Labs on pgs. 2-11.

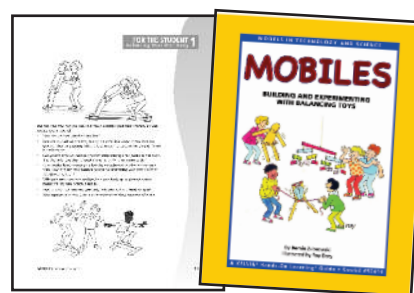


Find KELVIN® Engineering Mini Modules on pg. 12.

Find Design It!
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Find KELVIN® Storage Units on pg. 20.



Find Models in Technology &
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Find the
S.T.E.M.
Mechanical
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on pg. 8.



Build 20 Models
from 1 Kit!



842545



KELVIN® New Standards® S.T.E.M. Lab: Cars

Focused around the book, *Car Models that Zoom: Creativity in Motion*, by Ed Sobey Ph.D., this lab provides students the tools, guidance, and freedom to explore car designs. Students learn about gears, motors, propulsion, solar, propellers, and more. Basic wheeled car designs eventually advance to more complex motorized solar cars. Activities incorporate materials that can be found in the student's environment such as cardboard boxes, plastic bottles, plastic plates and cups.

Lab w/ **Black/White Book & Parts ONLY** (No Glue Gun, Multimeter or Bin)

842539\$54.95 or \$49.95 ea./10+

Lab w/ **Full Color Book**, Glue Gun, Multimeter, Parts & Bin (Shown Above)

842545\$75 or \$69.95 ea./10+



Lab w/ **Full Color Book** (842545) is packed in a storage box with a Glue Gun so students can start right away!

S.T.E.M. RESOURCES

KELVIN® ENGINEERING IN SCHOOL



Find KELVIN® New Standards® S.T.E.M. Labs on pgs. 2-11.

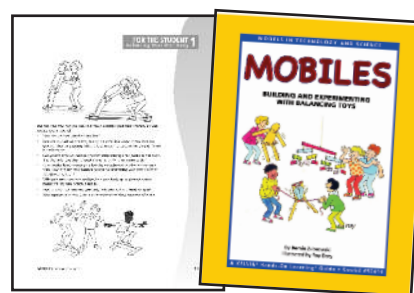


Find KELVIN® Engineering Mini Modules on pg. 12.

Find Design It!
Lesson Guides
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Find KELVIN® Storage Units on pg. 20.



Find Models in Technology &
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842545\$75 or \$69.95 ea./10+



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**KELVIN® New Standards® S.T.E.M. Lab:
Land Transportation**

An entry level lab that helps students investigate things that move on the ground. Connect lessons about force, motion, friction and Newton's Laws with hands-on activities.

Students can design their own display board (like sample shown) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included. Gr. 4-7.

Includes:

- Corrugated Plastic Display Board
- Penny Racer Track
- [10] Penny Racer Kits
- Economy Foam Cutter (assembled)
- [5] Balloon Racer Kits
- [3] Recycled Bottle Car Kits (bottles not included)
- [5] Balloon Hovercraft Kits
- [5] Solar Racers Kits

Lab w/ Track and [26] Kits
842493\$275

Find More KELVIN® New
Standards® S.T.E.M. Labs
at www.kelvin.com



KELVIN® Science Fair Pack for Transportation - 8 Kits to Explore



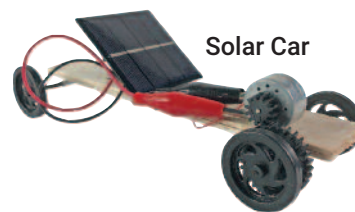
Universal Platform Car



Rubber Band Racer



Balloon Racer



Solar Car



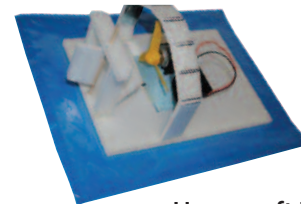
GR Cruiser



Gear Box Car



EV Racer



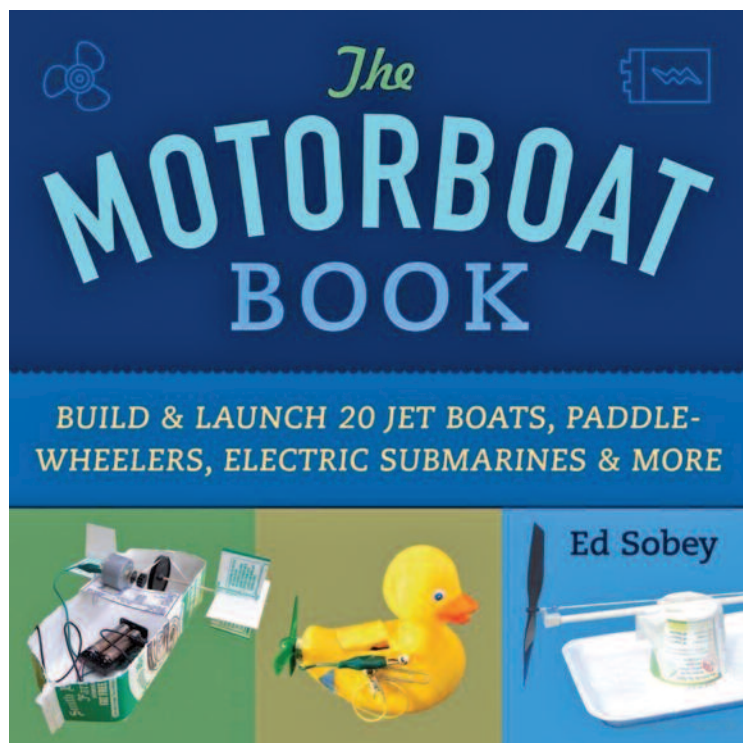
Hovercraft Racer

These selection of kits, with related instructions, are ideal for exploring land transportation at home or school. Single kits include: Universal Platform Car, Solar Car, EV Racer, Balloon Racer, Gear Box Car, GR Cruiser, Rubber Band Racer, and the Hovercraft Racer.

In addition, parts are supplied for more open-ended designs. These parts consist of a Motor Holder, Propeller, Gear, Pulley, Battery Holder, Motor, [2] Foam Pieces, and a Corrugated Board.

842592 KELVIN® Science Fair Pack for Transportation - [8] Kits & Parts\$85

KELVIN® New Standards® S.T.E.M. Lab: Boats



The MOTORBOAT BOOK

BUILD & LAUNCH 20 JET BOATS, PADDLE-WHEELERS, ELECTRIC SUBMARINES & MORE

Ed Sobey



Student Examples



Using *The Motorboat Book*, this lab explores how to build more than 20 different boat models and six submarines through step-by-step instructions and photos. Electric motors, balloons, gears, water jets, belt drives, chemical reactions, steam, and even gravity are used to propel models over water. In addition, author Ed Sobey PhD., Includes: instructions for building accessories like a working fog horn or an "ocean" to test boats.

Lab w/ Full Color Book & Parts

842549\$69.95 or \$59.95 ea./3+

Cool Melt Glue Gun w/ Glue Sticks

842552\$14.95



KELVIN® New Standards® S.T.E.M. Lab: Water Transportation



From buoyancy to hydrodynamics introduce students to the principles that govern the design of water vehicles. Using a series of hands on learning by doing activities, students design, build and test boats and submersibles. Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Basic Lab

Includes: Reusable Corrugated Plastic Display Board, [4] Basic Buoyancy Kits, [4] Rubber Band Powered Pontoon Boat Kits, [4] Basic Submarine Kits, [4] Motor Boat Kits and instructions. Grades 6-12.

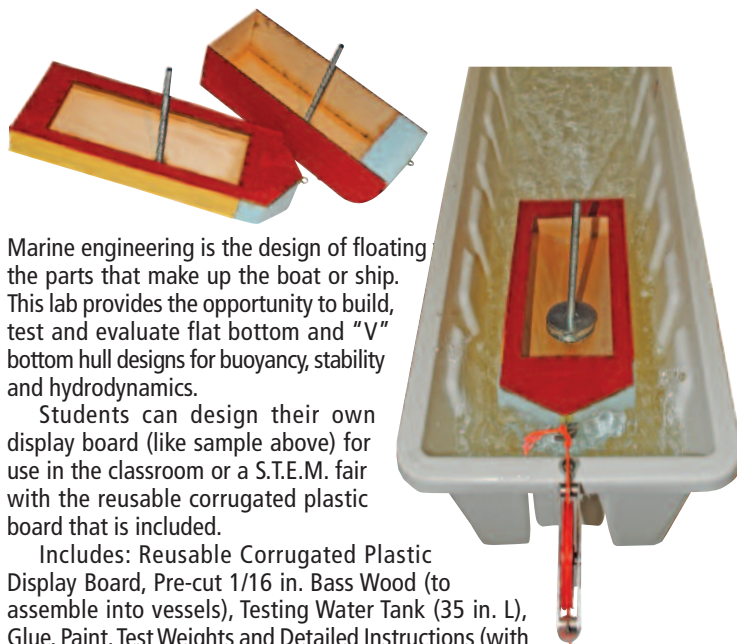
842497 Lab - [16] Kits & Instructions\$175

Advanced Lab

Includes: Reusable Corrugated Plastic Display Board, [3] Basic Buoyancy Kits, [3] Adv. Sub Kits, [4] Solar Boat Kits, [2] Kre8® Sea Explorer Kits, [2] Super Capacitor Hovercraft Kits and instructions. Grades 7-12.

842498 Advanced Lab - [14] Kits & Instructions\$325

KELVIN® New Standards® S.T.E.M. Lab: Marine Engineering Gr. 8-12



Marine engineering is the design of floating the parts that make up the boat or ship. This lab provides the opportunity to build, test and evaluate flat bottom and "V" bottom hull designs for buoyancy, stability and hydrodynamics.

Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Includes: Reusable Corrugated Plastic Display Board, Pre-cut 1/16 in. Bass Wood (to assemble into vessels), Testing Water Tank (35 in. L), Glue, Paint, Test Weights and Detailed Instructions (with background material).

842526 Lab w/ Water Tank, Bass Wood & Instructional Manual\$195

**KELVIN® New Standards® S.T.E.M.
Lab: Aeronautics & Flight Gr. 4-7**

Students will learn about flight principles from a variety of activities. Build and test gliders and lift by forming a glider wing and control flight by adjusting wing flaps. Set the dihedral wing angle and wind the propeller that provides thrust for a balsa plane. Assemble double rotors to fly the helicopter simulator.

Students can design their own display board (like sample right) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

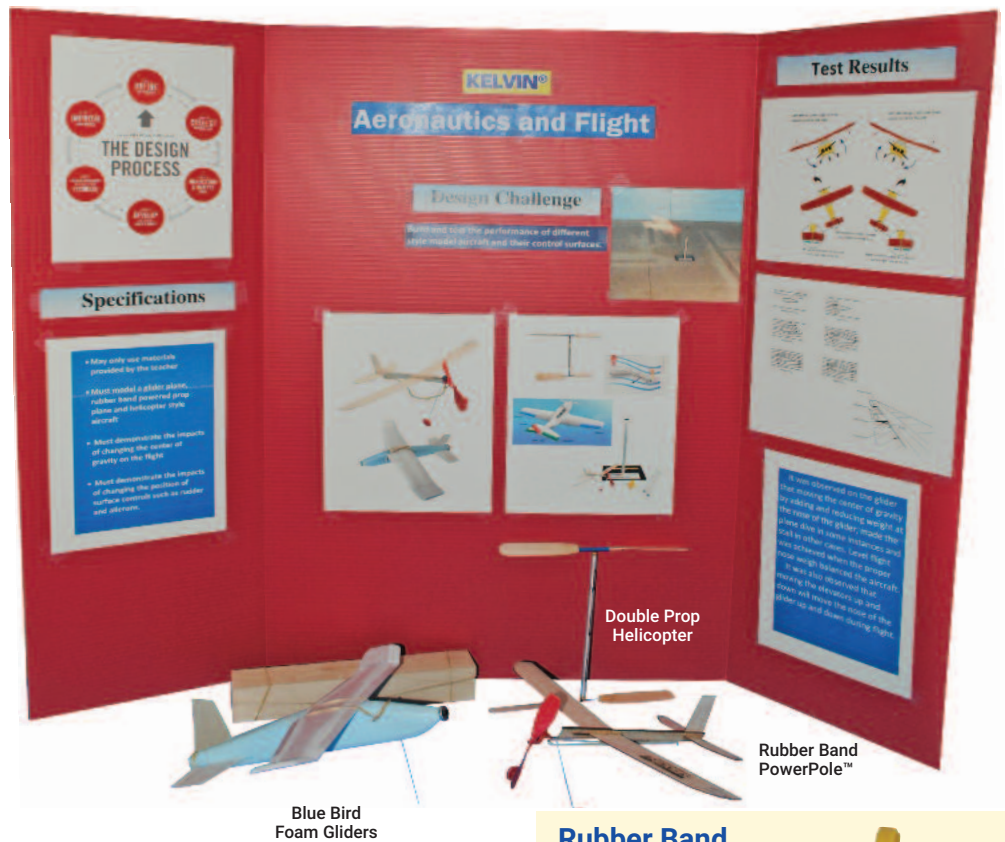
Includes: Reusable Corrugated Plastic Display Board, [5] Blue Bird Foam Glider Kits, [10] Rubber Band Powered Plane Kits, [5] Double Prop Helicopter Kits, Wing Forming Jig and Abrasive Paper. Extra parts and an instruction manual complete the lab. All kits require assembly with hand tools.

842484 Lab\$165
842485 Class Pack - [3] 842484 PLUS 1 Board\$395

Advanced Lab

Includes: Basic Lab (842484) **PLUS** Rubber Band PowerPole™ (fly balsa planes tethered to the pole), Reusable Corrugated Plastic Display Board and **BONUS** Rubber Band Propeller Winder.

842487 Lab w/ Rubber Band Propeller Winder\$195
842488 Class Pack - Lab x 3 PLUS Add. Prop Winder..\$525



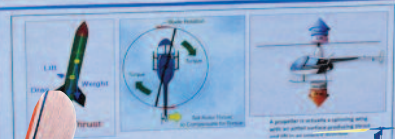
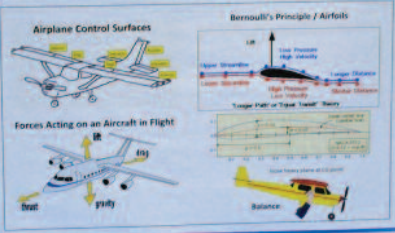
**KELVIN® New Standards® S.T.E.M.
Lab: Aerospace Gr. 7-12**

**Aeronautics
and Flight**



Aeronautics is the study of the science of flight. Aeronautics is the process of designing airplanes and other flying machine. There are four basic areas that aeronautical engineers must understand in order to be able to design flying machines. These areas include aerodynamics, propulsion systems, control systems and structural systems.

Aeronautical engineers are problem solvers. They must have a good grasp of science, technology, engineering and mathematical concepts and be able to apply these concepts to problems their designs may encounter.



Rockets and Helicopters



Rocket and helicopter flight, what seems to be magic in the eyes of most people, can be explained through scientific and technological observation and experimentation. KELVIN® kits offer these opportunities through hands-on STEM based activities. From designing and launching paper rockets to building and testing props to changes in fin design.



Extend flight studies to include aerospace technology and flight control. Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board.

Lab includes: [12] Alpha III™ rockets, rocket engines, launcher, launch pad, altitude finder, [12] Delta Dart plane kits, [12] Flip Glider kits and [5] Double Propeller Helicopters, and reusable corrugated plastic display board.

842491 Lab\$495



Find More KELVIN® Kre8® Kits & Parts in the Architecture & Design chapter on pgs. AD 2-9.

Engineering, Modeling and Creating with Kre8 Systems

The Engineering Design Process

- The word "process" refers to a step by step procedure used to accomplish a desired goal.
- For example, brushing your teeth is a process.
 1. First you get the brush and toothpaste.
 2. Then you wet the brush.
 3. You apply a specific amount of toothpaste to the brush.
 4. Then you brush the front of your teeth and the back in some order.
 5. The last steps would be rinse your mouth and the tooth brush.

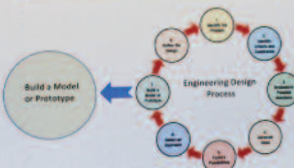
The word "design" means to decide upon the look and functioning of a building or product for a specific purpose. To draw, sketch, create, invent, map out and plan the making of this item.

Engineering is the use of science and math to design or make things. People who do engineering are called engineers. Engineers also use their skills to solve technical problems.

The Engineering Design Process (NASA)



Modeling a Design Idea



Modeling an idea can be done in many ways. A model is a representation of something using words, numbers or building a physical item to describe how the product works. Computer modeling, mathematical modeling, scientific and physical model are all modeling techniques.

A prototype is a 3D physical model that represents a manufactured product so designers and engineers can visualize and test the design.

Kre8 rods and connectors are a perfect system for modeling and testing design your ideas.

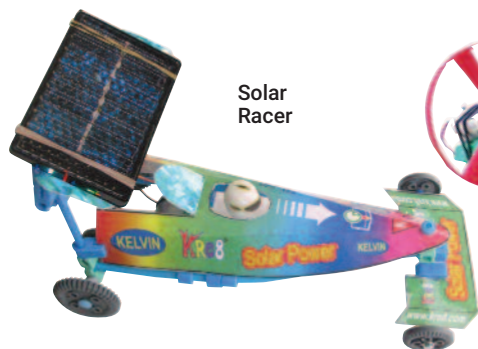
Kre8 Modeling System Kits



Mars Rover



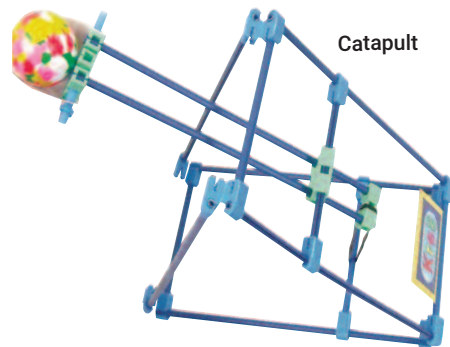
Solar Racer



Jet Car



Catapult



KELVIN® New Standards® S.T.E.M. Lab: Kre8® Gr. 4-7

The ideal lab for young engineers in teams of two. KELVIN® Kre8® products are built from a unique building system consisting of tubes and connectors. The system can be used to model structures, vehicles and mechanisms. The tubes are cut to size using the included snips and snapped into position using different connectors. Parts are included to mount motors, gears and wheels.

Students can design their own display board (like sample above) for the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included. Requires Kre8® Tube Cutter or snips (see pg. AD2).

Lab includes: [4] ready to build kits (Jet Car, Solar Car, Mars Rover, Catapult), as well as the open-ended S.T.E.M. Maker kit to model student-designed objects. Also comes with a reusable corrugated plastic display board, [2] snips and instructions.

842476 Lab - [5] Kits & Manual\$120 Retail - SPECIAL \$95

Class Pack

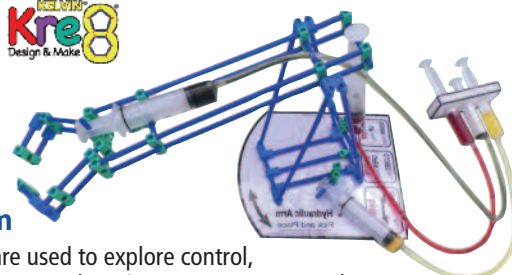
Includes: Lab (842489) plus [1] Reusable Corrugated Plastic Display Board and ★ BONUS Kre8® Robotic Arm (see right).

842480 Pack - [3] 842476 & BONUS Robotic Arm.....\$360 Retail - SPECIAL \$285

BONUS PRODUCT included with 842480



KELVIN® Kre8® Hydraulic Robotic Arm



Three syringes are used to explore control, hydraulics, leverage, and motion. To operate, open the gripper, move the arm above the load, swing the arm around, lower the load and release it. Requires Kre8® Tube Cutter or snips (see pg. AD 2).

283767 Kit.....\$39.95 or \$32.95 ea./3+

Kre8® kits can be assembled in regular classrooms. Optional Kre8® cutter (283653, pg. AD2) can be used to score and snap tubes to length. Use snips (480009, pg. AD2) to cut sheet materials and light blue tubes. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a registered trademark of KELVIN L.P.

**KELVIN® New Standards® S.T.E.M. Lab:
Beams & Triangles™ Gr. 4-7**

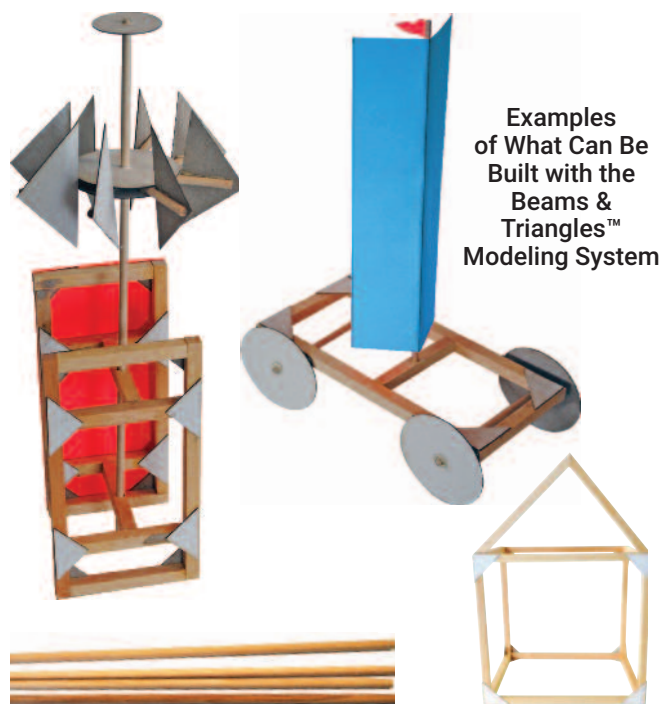
Students can design and build structures, bridges, vehicles and mechanisms with this unique assembly system. Extra parts and an instruction manual complete the lab. Cut, join and assemble wood beams using specially designed tools, holding jigs and materials. This lab is perfect for the young engineer and builder. Each lab provides enough materials to construct many items depending on size. Assign teams of two students each to investigate the kits. Students design their own display board or project portfolio for use in the classroom or S.T.E.M. fair. Requires assembly with hand tools and teacher assistance.

Includes: [2] cutting jigs, [2] mini saws, [10] joining jigs, [5] gear making jigs, [50] wood beams (3/8 x 3/8 x 24 in. and 3/8 x 3/16 x 24 in.), glue, cardstock wheels, dowel rods, cardstock triangles, axle mounts and clamps. Detailed instructions also included.

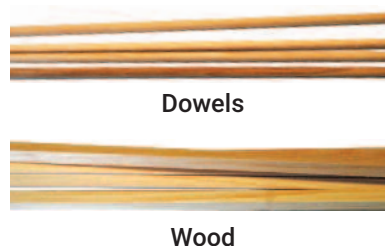
842475 Lab w/ Tools & Parts\$195

Class Pack Lab x 2 - plus ★ BONUS Hand Drill, Drill Press and Clamp-On Vise.

842479 Class Pack - Lab x 2 PLUS Additional Hand Tools.....\$395



**Examples
of What Can Be
Built with the
Beams &
Triangles™
Modeling System**



Dowels

Wood

**Find More Beams
& Triangles™ in the
Architecture &
Design chapter
on pgs. AD 10-11.**

**BONUS PRODUCTS
included with 842479**

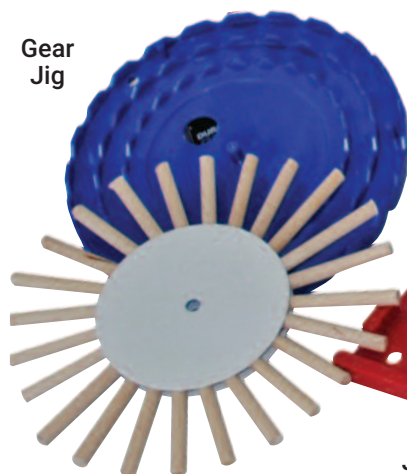
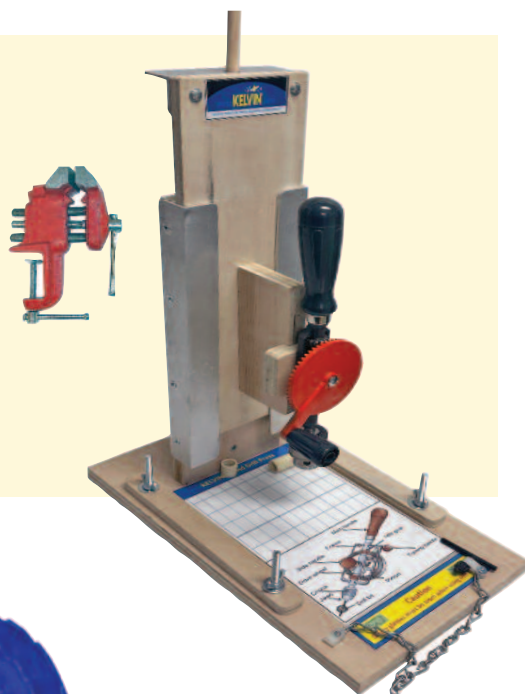
KELVIN® Drill Press
950301, \$295 or \$285 ea./3+

Hand Drill
w/ [3] Drill Bits.

950311, \$49.95

Clamp-On Work Vise
w/ 3 in. jaw opening

540033, \$29.95
or \$27.95 ea./5+



**Gear
Jig**

Joint Jig

KELVIN® Gear Jig (990197)

Build different gear combinations. On one side build: 4-, 8- or 16-teeth gears and on the other build 6-, 12- or 24-teeth gears.

Joint Jig (390444)

Holds beams or dowels rods (up to 3/8 x 3/8 in.) in place at 45° or 90° angles as they are glued and drying.



Cardstock Triangles



**Cardstock
Axle Mounts**



**Cardstock
Wheels**



**Cutting Jig &
Jr. Hacksaw**

Cutting Jig (390447)

Cuts 30°, 45° or 90° angles in wood up 3/8 x 3/8 in. thick.

Jr. Hacksaw (980042)

Use for cutting of beams and rods.



Activity Guide

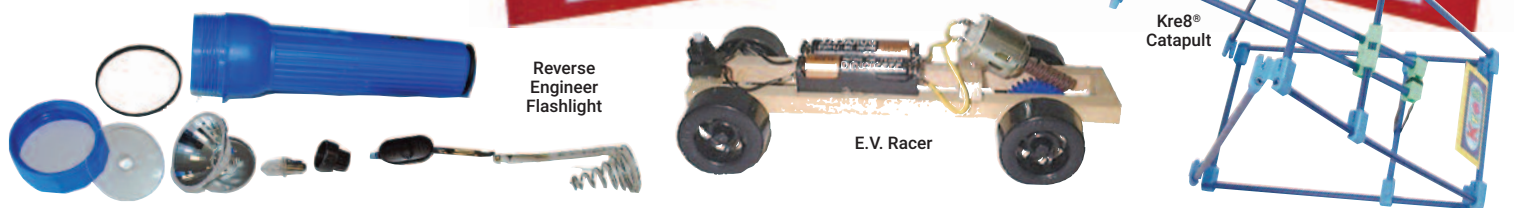
KELVIN® New Standards® S.T.E.M. Lab: Basic Mechanical Engineering Gr. 4-7

Have students explore Mechanical Engineering through hands-on design and build activities. Topics include simple machines, friction, mechanical advantage, the Design Engineering Process, measuring and ratio calculations.

Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Lab includes: Reusable Corrugated Plastic Display Board, [8] Kre8® Catapult Kits, [5] E.V. Racer Kits, [3] Simple Machine Labs and [10] Reverse Engineering Flashlight Kits.

842492 [23] Kits.....\$245



KELVIN® New Standards® S.T.E.M. Lab: Mechanical Engineering Gr. 6-12

Students, in teams of two, select three challenges from a list provided. Enough materials are provided for five teams to build 15 models total. Students can design their own display board for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Lab includes: pulleys, cams, gears, wheels, cardstock wheels, kre8® parts, dowel rods, cardstock, printed grid paper, design problem cards, spray glue, fasteners, string, reusable corrugated plastic display board, and instructions. Requires assembly with hand tools. Teachers will need to supply glue and hand tools (such as a ruler, scissors, awl, hole punch, utility knife, etc.

842489 Lab\$95

Class Pack

Includes: Lab (842489) plus [1] Reusable Corrugated Plastic Display Board and ★ BONUS S.T.E.M. Mechanical Tool Pack 7.

842478 Pack - [3] 842489 Labs w/ Tool Pack 7\$295



★ BONUS w/ Class Pack 842478

KELVIN® S.T.E.M. Mechanical Tool Pack

Includes: Awl, Hole Punch, Plastic Ruler, Utility Knife, Scissor, Mini Cool Glue Gun with Slugs, and Safety Edge Cutting Guide.

842312\$29.95

KELVIN® Hands-On Science® Lab: Simple Machines Gr. 4-7



Students can experiment with Hands-On Science® activities to learn about simple machines like gears, pulleys, wheels levers, and inclined planes. Covers subjects like mechanical advantage, rotational direction, angle, force, wedges, lifting loads, and friction belts.

Lab w/ Plastic Work Board

Includes: enough materials for one student to complete experiments including: your choice of laser cut plastic work board or cardstock template only (design your own version - work board is not included with this version), gears, pulleys, string, rubber bands, spring scale, protractor, screws and instruction book.

841743 Lab w/ Plastic Work Board\$65

841752 Lab w/ Cardstock Template\$22.95 or \$19.95 ea./10+

Class Pack w/ Cardstock Template

282198 Pack - [3] 841752 Labs.....\$185



KELVIN® New Standards® S.T.E.M. Lab: Work, Machines & Gears

Discover how the application of gears help machines perform work with speed and power. Students, in teams of two, will assemble gear trains, calculate gear ratios and predict gear directions. They will also experiment with gear train designs to help solve speed and torque problems.

Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Lab includes: [5] EV Racers Kits, [2] Gear Box Car Kits, [3] Advanced Gear Sets, [3] Spring Scales, [3] Pulley Ratio Training Boards, [3] Gear Ratio Training Board, and Reusable Corrugated Plastic Display Boards.Gr. 7-12.

842474 Lab\$95

Class Pack

Includes: Lab (842474) plus a Reusable Corrugated Plastic Display Board and ★ BONUS [3] E.V. Racer Kits (841016, see below).

842481 Pack - [3] 842475 Labs PLUS ★ Bonus\$295

KELVIN® Air Motor Car

Kit includes: wheels, axles, motor, motor holder, straw, battery holder, propeller, switch, wood for base.

841208 Kit...\$5.95 or \$5.45 ea./10+ or \$5.25 ea./25+
841419 Bulk Pack of 30\$4.95 Per Kit \$148.50

Bulk Pack Per Kit Price As Low As **\$4.95**

KELVIN® E.V. Racer

Kit includes: motor, wheels, axles, gear set (4 gears per set), AA battery holder, switch and wood base.

Kit for AA Alkaline Batteries Requires [2] AA batteries.
841016 Kit\$7.95 or \$6.95 ea./10+ or \$6.35 ea./25+
841416 Bulk Pack of 25\$5.95 Per Kit \$148.75

Kit w/ [2] AA NiCad Batteries
840851 Kit\$6.95 or \$6.75 ea./10+ or \$6.45 ea./25+

Bulk Pack Per Kit Price As Low As **\$5.95**

★ BONUS PRODUCT 841016 is included w/ Above Class Pack 842481

KELVIN® E.V. Racer

Kit includes: motor, wheels, axles, gear set (4 gears per set), AA battery holder, switch and wood base.

Kit for AA Alkaline Batteries Requires [2] AA batteries.

841016 Kit\$7.95 or \$6.95 ea./10+ or \$6.35 ea./25+

841416 Bulk Pack of 25\$5.95 Per Kit \$148.75

Kit w/ [2] AA NiCad Batteries

840851 Kit\$6.95 or \$6.75 ea./10+ or \$6.45 ea./25+

KELVIN® Universal Car Platform

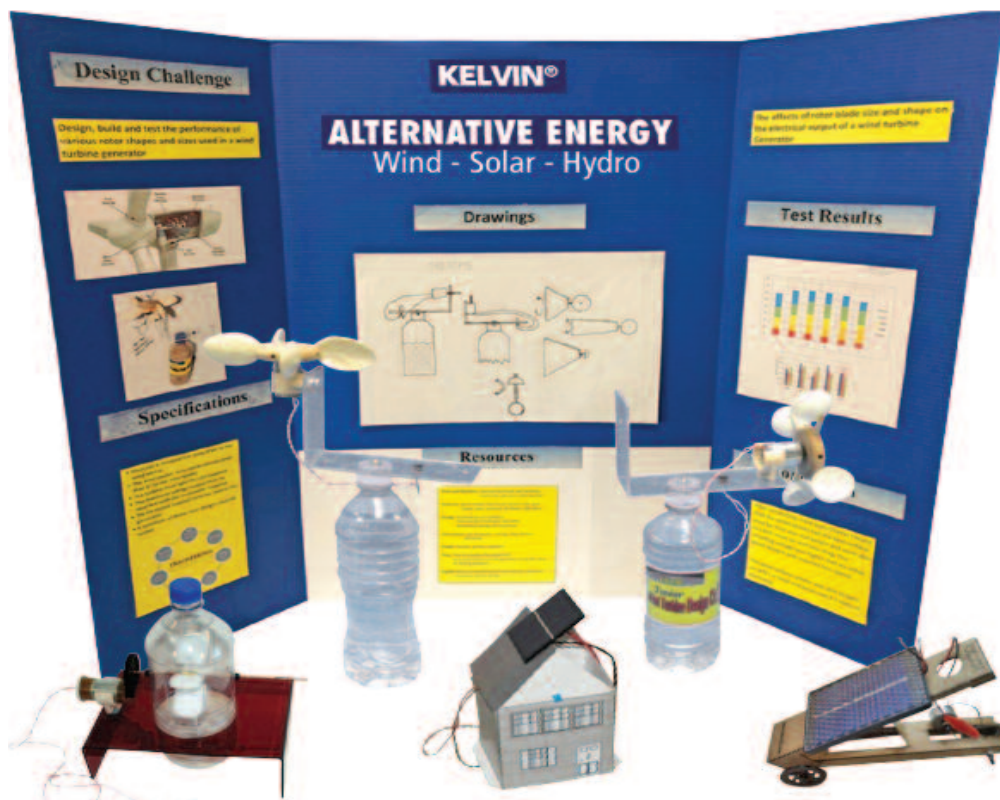
Design and add a car body from foam, cardboard, etc.

Each kit includes: wood (1-1/2 x 6 in.), wheels, axles and straws. Shaping, hot gun gluing and assembly required.

842439 Kit\$4.95 or \$4.45 ea./10+

841417 Bulk Pack of 100\$2.95 Per Kit \$295





KELVIN® New Standards® S.T.E.M. Lab: Alternative Energy Gr. 6-12

Explore different aspects of alternative energy - **wind**, **hydroelectric** and **solar** in teams of two students. Additional parts are included, so they can apply their knowledge with their own designs. Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Lab includes: Reusable Corrugated Plastic Display Board, [2] Wind Turbine Kits, Hydroelectric Kit, Solar House Fan Kit, Solar Car Kit, Extra Parts and Instructions. Requires assembly with hand tools, a blower fan and running water access.

842472 Lab w/ [5] Kits, Extra Parts & Manual\$95

Class Pack

Includes: Lab (842472) plus [1] Reusable Corrugated Plastic Display Board and ★ BONUS [2] 50LE Multimeters.

842473 Pack -[3] 842472 Labs PLUS ★ BONUS\$295



KELVIN® 50LE Multimeter w/ Buzzer

Features: buzzer, square wave output, low battery indicator, overload protection. **Measures:** AC/DC Volts, AC/DC Amps, Ohms, and Resistance. **Tests:** Diode, Transistor, and Continuity. Includes: 9V battery, holster, test lead, and manual. Measures 124 x 70 x 26 mm with 49 x 16 mm LCD display.

990177\$6.95 or \$6.45 ea./25+ or \$5.95 ea./50+

★ BONUS PRODUCT w/ Alternative Energy Class Pack 842473

KELVIN® New Standards® S.T.E.M. Lab: Pneumatics Gr. 7-12



Pneumatics and hydraulics is the use of compressed fluids to increase mechanical advantage and make work easier. This lab uses hands on activities to introduce the science and technology of pneumatic and hydraulics design and control. Students model existing systems, experiment with compressed fluids and design their own devices.

Students can design their own display board (like sample right) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Lab includes: Reusable Corrugated Plastic Display Board, [4] Balloon Hovercraft Kits, [4] Balloon Racer Kits, [4] Basic Submarine Design Kits, [3] Dump Truck Kits, [3] Economy Robotic Arm Kits, Syringes, Tubing and Instruction Manual.

842495 [18] Kits, Extra Parts & Manual\$155

Advanced Lab

Includes: Reusable Corrugated Plastic Display Board, [4] Kre8® Robotic Arm Kits (pg. AD 9), [4] Grabber Arm Kits, [3] Dump Truck Kits, [3] Submarine Design Challenge Kits, [3] Economy Robotic Arm Kits, Syringes, Tubing and Manual.

842496 [17] Kits, Extra Parts & Manual\$295

KELVIN® New Standards® S.T.E.M. Lab : Web Servers



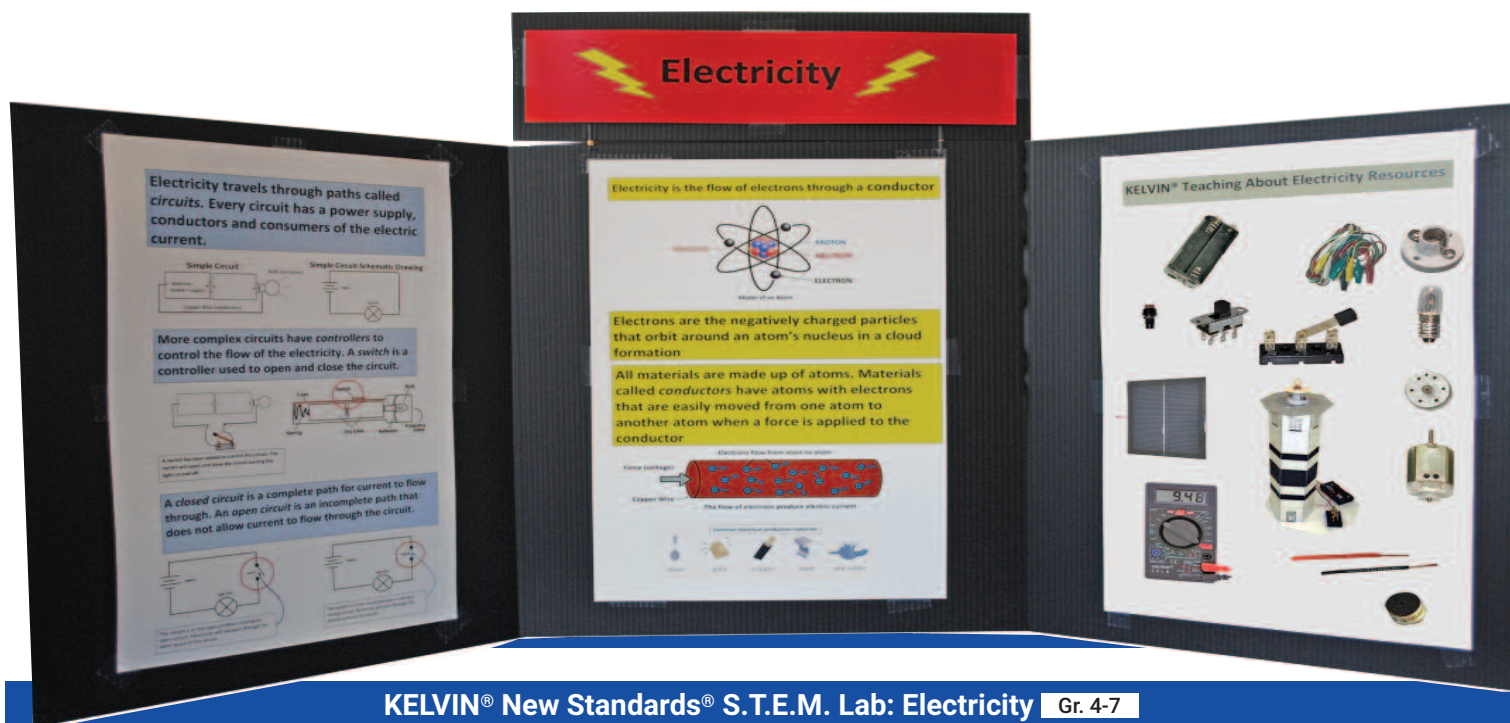
NETWORKING



Activities provide a step-by-step guide for installing and configuring a HTTP, FTP and PHP enabled server. The Internet Information Services (IIS) included with Windows is a reliable, powerful and a scalable web server. When configured, it provides concurrent connections for up to 10 users. When a FTP server is installed, the system becomes remotely accessible for uploading and downloading files. With PHP extensions, students will be able to utilize this scripting language option.

Lab includes: Laptop, Internet Information Services (IIS) Software, FTP Server Application Software, PHP Scripting Language Extension, and Installation Instructions, Windows.

841707\$2,995



KELVIN® New Standards® S.T.E.M. Lab: Electricity Gr. 4-7

Learn through hands on activities the basics of electricity and electrical circuits. Students will combine electrical components to create simple circuits and solve simple electricity design problems. Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

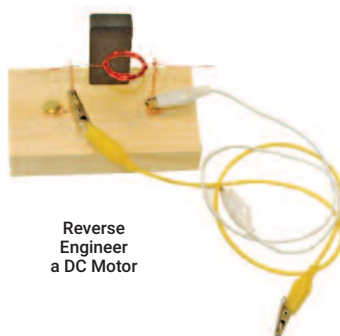
Lab includes: Reusable Corrugated Plastic Display Board, [20] Light House Kits, [10] Switches, Wires, [10] Bulbs, [10] Sockets, [10] Buzzers, Jumper Cables, [10] Battery Holders and Motors. Requires assembly with hand tools and batteries.
842494 Lab w/ [20] Kits & Extra Parts\$245



Build a Monopole Motor



Build a Two Magnet Motor



Reverse Engineer a DC Motor



Design & Build Motor Driven Air Vehicle



50 LE Multimeter

KELVIN® New Standards® S.T.E.M. Lab: Motors Gr. 7-12

Hands-on activities (for teams of two students) includes: single magnet motors, electromagnets, reverse engineering DC motors, motor driven air powered carts and more. Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Lab includes: Reusable Corrugated Plastic Display Board, [5] Monopole Magnet Motor Kits, [5] Two-Magnet Motor Kits, [5] Air Car Kits, [8] DC Motors, Battery Holders, Magnets, Cardstock Wheels, Wood, Axles, Pliers, Cardstock (Pre-Cut & Scored), Motor Mounts, 50LE Multimeter, Alligator Jumper Cables, Propellers, Copper Wire, Magnet Wire, Solid Wire, [2] Compasses, Abrasive Paper, Nails, Rubber Bands, Wood Blocks and Instructions. Requires assembly with hand tools and batteries (AA & D).

842486 Lab w/ [15] Kits, 50LE Multimeter & Extra Parts.....\$135

Class Pack

Includes: Lab (842486) PLUS [1] Reusable Corrugated Plastic Display Board, [10] Kre8® Motor Kits and ★ BONUS [3] Kre8® Motor Kits (see top left).

842368 842486 Lab + [10] Kits & ★ BONUS [3] Kre8® Motor Kits.....\$295

★ BONUS PRODUCT included w/ Adv. Motors Lab (842368)

KELVIN® Kre8® DC Motor

Kit includes: tubes, slit rods, collars, clip connectors, [2] magnets, steel rods, copper wire, metal bearing, fuse, reed switch, base, bag and sand paper. Requires battery.

842081 Kit\$15.95 or \$14.95 ea./5+ or \$13.95 ea./10+
283736 Bulk Pack for 20\$12.50 Per Kit \$250



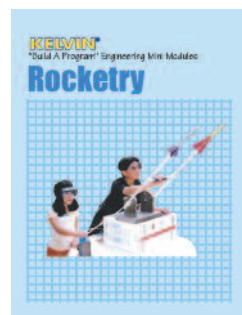
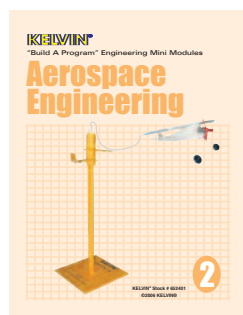
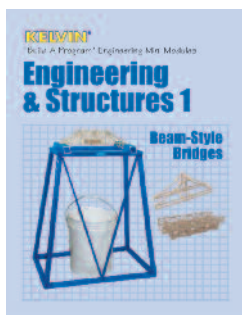
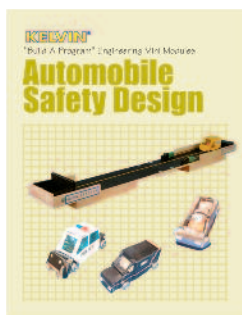
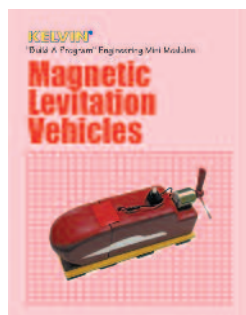
KELVIN® New Standards® S.T.E.M. Lab: Advanced Motors

Explore additional motor types like generators and sturg motors. Students can design their own display board for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board (included).

Lab includes: Corrugated Plastic Display Board, [30] Motor Generator Kits, [15] Sturg Motor Kits and [5] KELVIN® 50LE multimeters.

842376 Lab w/ [45] Kits & [5] 50LE Multimeters\$295 Class

KELVIN® “Build A Program” Engineering Mini Modules



Magnetic Levitation Mini Module 1

Design, model and test a maglev. Module includes: Maglev See-Thru Track (8 ft. L), foam cutter, economy 1-lane timer, maglev magnets, foam and grid paper.

841644\$995

Magnetic Levitation Mini Module 2

Design, model, and test a self-propelled maglev. Module includes: [2] Maglev Tracks, aluminum railings (8 ft. long), Kel-Timer™, foam cutter, power supply, project motors, propellers (3 in. dia.), balloons, nose hook propellers, polystyrene, maglev magnets and grid paper.

841645\$1,395

Package Design Mini Module1

Design, model and evaluate a package design. Module includes: design portfolio, package fabricating material, tools, card stock and [25] package design kits

841646\$495

Auto Safety Design Mini Module 1

Design and test safety systems that protect egg passengers during crash simulations. Includes: KELVIN® Krasher™, car bases, grid paper, balloons, bubble wrap, syringes and plastic tubing

841680\$995

Beam Style Bridges Mini Module1

Design, fabricate, evaluate a model beam bridge. Module includes: L.I. Structure Tester, triple beam balance, cardstock, grid paper, wood glue, tape, balsa, pins, wax paper, and craft knives.

841679\$1,195

Aerospace Engineering Mini Module 2

Understand how forces can be used to control flight. Activities include Flying with the PowerPole Flight Trainer. Includes: Wright Bros. Trainer, PowerPole™, variable power supply, paper-backed glider kits (1 per student) and guide.

841643\$695

Rocketry Design 1

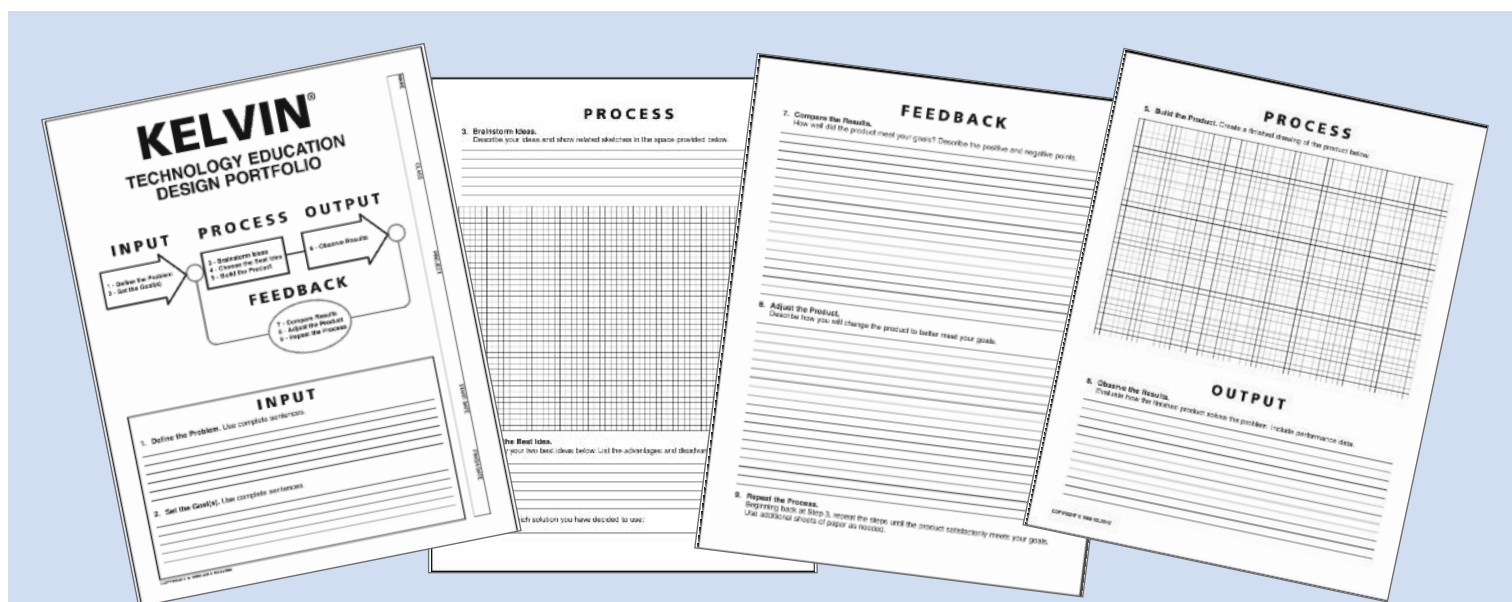
Includes: dual paper launcher, portable air compressor, pre-printed body tube, foam, grid paper.

841648\$995

Rocketry Design 2: Solid Fuel Rockets

Includes: launch pad, launch controller, body tubes, engine tubes, engine hooks, fins, balsa, parachute materials and launch lugs.

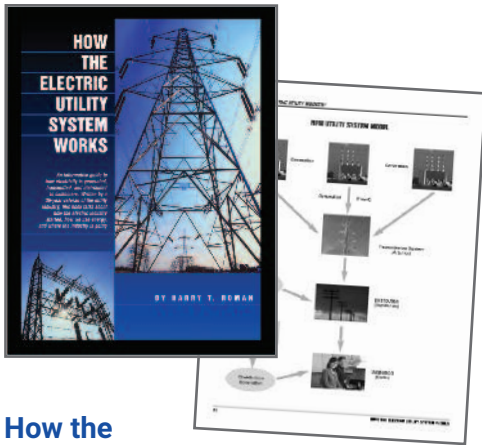
841649\$795



KELVIN® Design Portfolios

Design portfolios encourage students to use the problem-solving method (input, process, output & feedback) when planning and designing projects. Each portfolio consists of 4 pages for students to fill out.

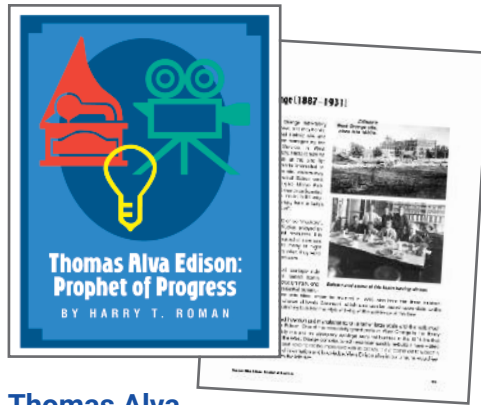
651030 100/pkg.\$25



How the Electric Utility System Works

An informative guide to how electricity is generated, transmitted, and distributed. Covers how the electric industry started, how we use energy, and where the industry is going.

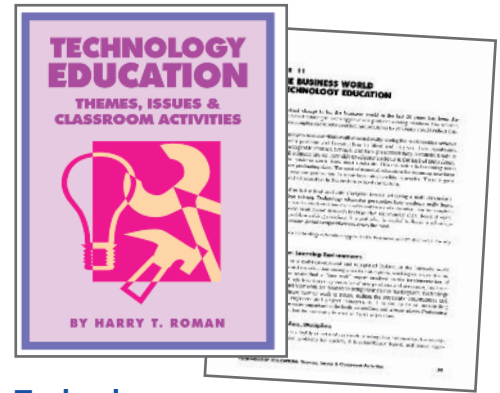
652497 Booklet\$14.95 or \$13.95 ea./6+



Thomas Alva Edison: Prophet of Progress

Re-live the excitement of the world's greatest inventor as he completely changed our world. Much of what we take for granted today was the brainchild of the great Mr. Edison. Learn how his inventive world was so similar to technology education, and what it teaches us today for the classroom.

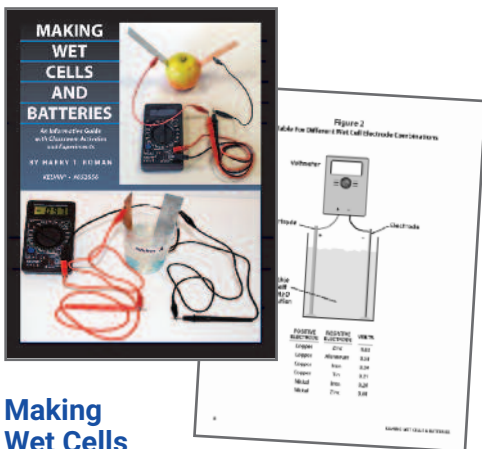
652338 Booklet\$14.95 or \$13.95 ea./10+



Technology Education: Themes, Issues and Classroom Activities

Take a tour of the many issues and themes of technology education today. This book surfaces a variety of valuable tech ed topics for you and your students to discuss; and presents a wealth of practical activities for your classroom.

652337 Booklet\$14.95 or \$13.95 ea./10+

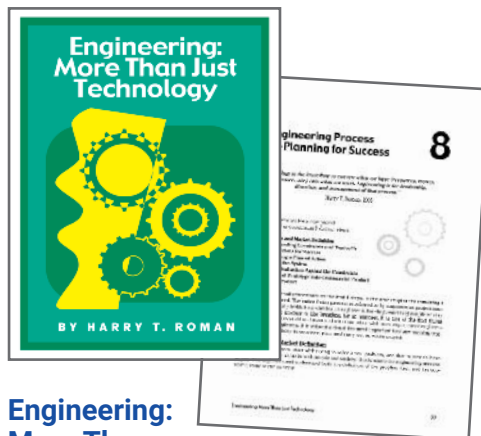


Making Wet Cells and Batteries

The chemistry and materials in wet cells and batteries are all around us. Understanding how wet cells work, helps us understand rust and corrosion; and why batteries behave the way they do and eventually need replacement.

Includes: fun information and simple experiments. Watch how you see what you can use to make wet cells and batteries!

652656 Booklet\$14.95 or \$13.95 ea./10+

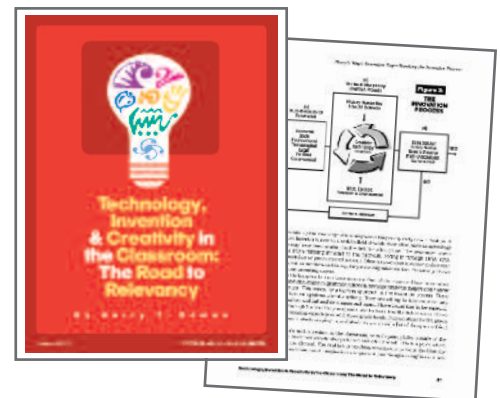


Engineering: More Than Just Technology

Learn how engineering and technology education are intimately related, both historically and in the practical world. Understand the engineering process as discussed through actual examples given by the author in his own career.

Explore values of an engineering education, the fields of engineering available today, and how to prepare for a challenging and well-paying job in it.

652336 Booklet\$14.95 or \$13.95 ea./10+



Technology, Invention & Creativity in the Classroom: The Road to Relevancy

Designed to stimulate creative thinking and integrated problem solving, this book provides the basics for unleashing creative potential in students. Loaded with real-world information and techniques for integrating the curricula; and a superb way to bring heads and hands together in the classroom. Learn how inventor's invent and move their products.

652295 Booklet\$14.95 or \$13.95 ea./10+

652335 Workbook\$14.95 or \$13.95 ea./10+

Experience the world of creativity, invention, technology education and engineering through the eyes of a nationally recognized engineer, inventor, and technology educator.

Meet The Author

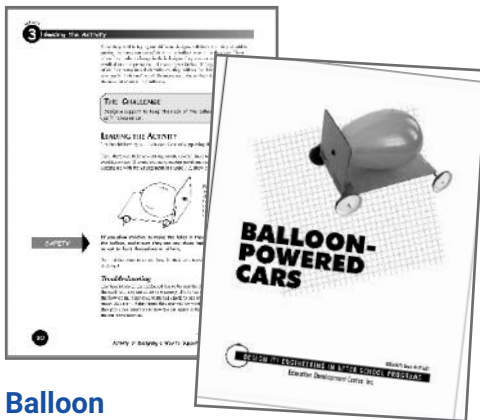
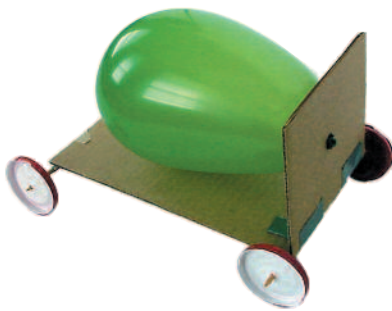
Harry T. Roman's books will help you bring the excitement of these topics to your classroom. His easy-to-read books are loaded with real-world experiences, classroom exercises, and design challenges; and have been time-tested through many in-service seminars he has given to teachers in grades 6-12. Harry helped implement the technology education movement in New Jersey. His work is read by thousands of technology educators across the nation.





DESIGN IT! LESSON GUIDES

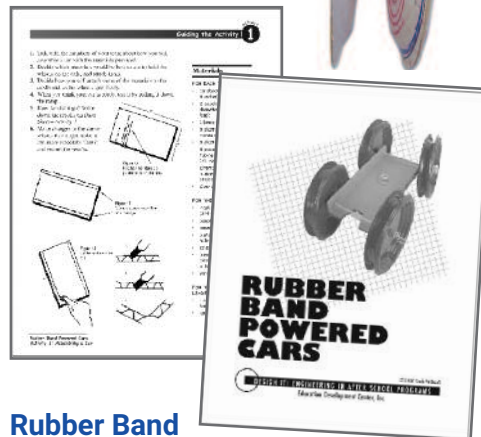
A series of introductory engineering experiences with instructions for each project as well as implementation suggestions for extended projects. Suitable for after-school programs and elementary school students (ages 8–12). Funded by the National Science Foundation and developed by the Education Development Center, Inc.



Balloon Powered Cars

There is more to this project than just making an inflated balloon move a car. Engineering involves designing a way to support the balloon and get it to work consistently. Match the power requirements of the car with the right balloon. Nozzles can be designed and tested.

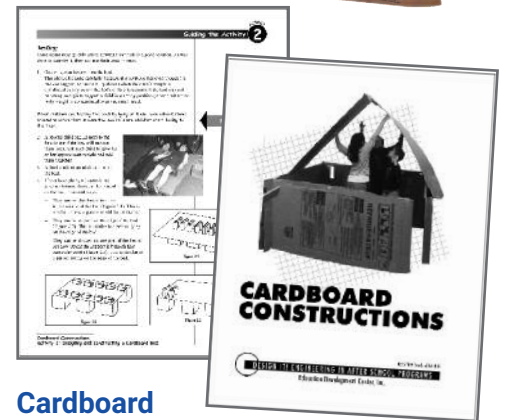
651659 Guide\$9.95 or \$8.95 ea./10+



Rubber Band Powered Cars

Using cardboard, dowels, plastic plates, and rubber bands, students can build their own cars, and learn in a direct way the engineering concept of optimization by testing different sized rubber bands and different diameter plates as wheels. 55 pg. Guide.

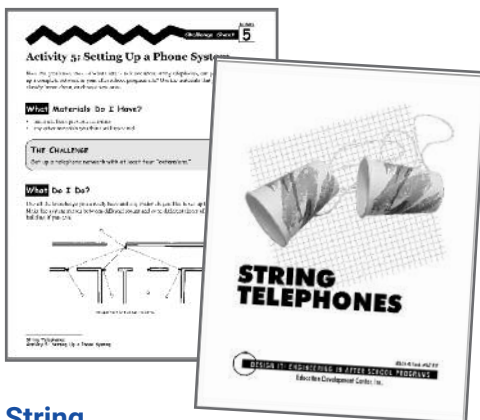
651663 Guide\$9.95 or \$8.95 ea./10+



Cardboard Constructions

How strong a stool can students construct from a small cardboard box? Will it support an adult? Building on this experience, students build a bed using a large piece of cardboard supported by small boxes. In the final activities, large modular houses are constructed from refrigerator boxes.

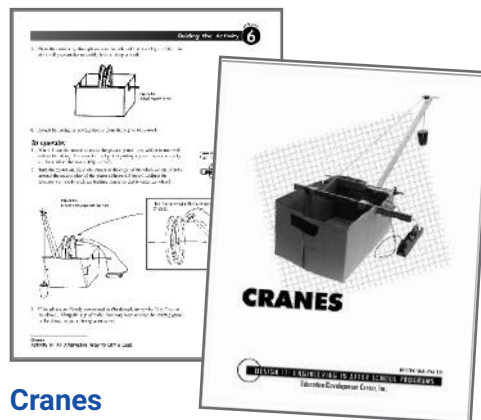
651814 Guide\$9.95 or \$8.95 ea./10+



String Telephones

Using paper cups & string, discover principles that govern the simplest form of a string telephone. Refine this model with other materials and get messages to go around corners.

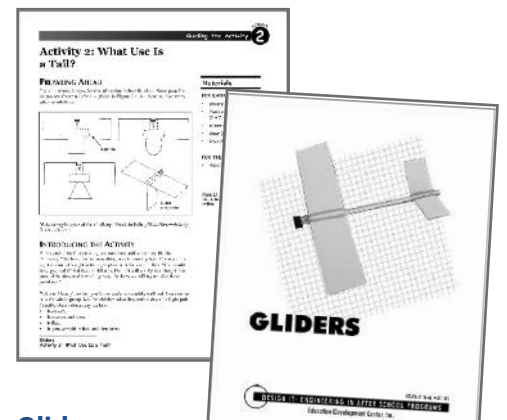
651817 Guide\$9.95 or \$8.95 ea./10+



Cranes

Using a cardboard box as the body, yardstick as a boom, and small electric motor as the power source, students make a working model of a crane. Use different ways of attaching string to the shaft of the motor so that it can lift varying amounts of nails in a cup.

651813 Guide\$9.95 or \$8.95 ea./10+



Gliders

Construct simple planes from paper. After testing designs for tails, bodies and wings, construct a rubber band launcher. This allows for a more consistent way of evaluating all of the variables. 64 pg. Guide.

651661 Guide\$9.95 or \$8.95 ea./10+

Design It! Implementation Guide

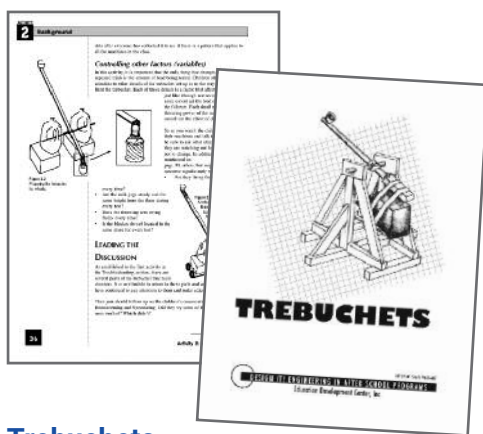
An introduction to the *Design It!* series and a resource for teachers using the program for the first time. The guide covers managing and structuring an effective classroom environment and gives a sense of context and procedures needed to effectively engage students.

651665 32 pages\$6.95

Complete Design It! Series Set

Implementation Guide PLUS ALL 14 projects (Balls and Tracks, Pinball, Trebuchets, Gliders, Paper Bridges, Rubber Band-Powered Cars, Balloon Powered-Cars, Cardboard Constructions, Cranes, Blinking Lights, String Telephones, Straw Rockets, Sand and Water Clocks and Spinning Toys).

651916\$139.95



Trebuchets

Start with a working design of an ancient throwing machine similar to catapults and slingshots. The challenge is to improve on the design by testing and adjusting the different parts of this device.

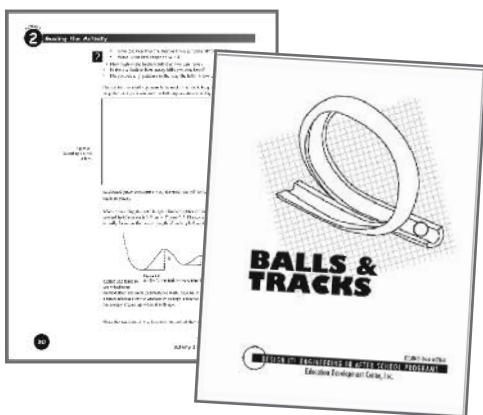
651667 Guide\$9.95 or \$8.95 ea./10+



Sand & Water Clocks

Students use flowing sand and water in connected soda bottles to try to make accurate and consistent sand and water clocks that measure out 30-second, 60-second, or even longer time intervals.

651669 Guide\$9.95 or \$8.95 ea./10+



Balls and Tracks

Using flexible pipe insulation, marbles, and a few other simple materials, students recreate small-scale models of amusement park rides and sporting events, such as the ski jump.

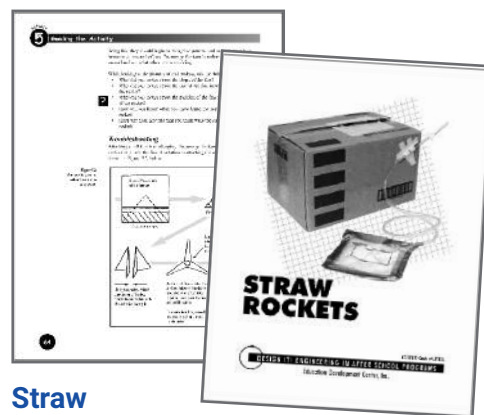
651666 Guide\$9.95 or \$8.95 ea./10+



Spinning Toys

Plates, dowels, rubber washers, and tuna fish cans become homemade tops and yo-yos. Uncover the principles of balance and spin to make long spinning tops and regular or "sleeper" yo-yos.

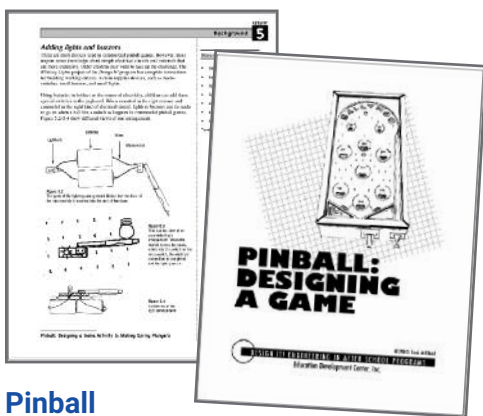
651815 Guide\$9.95 or \$8.95 ea./10+



Straw Rockets

Launch the outer straw like a toy rocket by blowing. By using a sandwich bag propulsion system, students test different kinds of fins while trying to refine their toy rockets so that they will hit targets consistently.

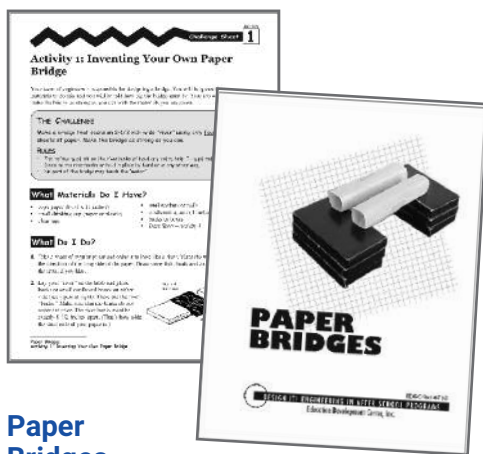
651816 Guide\$9.95 or \$8.95 ea./10+



Pinball

Build pinball games complete with bumpers, traps, flippers and plungers. Students assign their own numbers to their traps and decide where they should be, and test different methods of launching the ball.

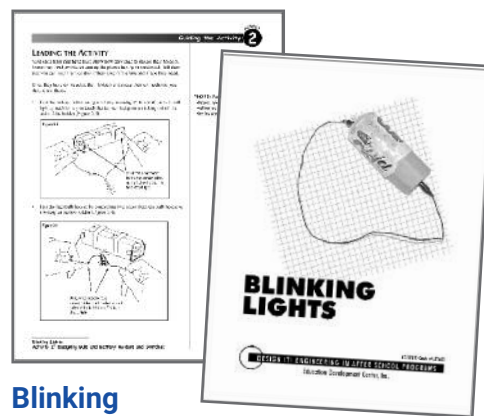
651660 Guide\$9.95 or \$8.95 ea./10+



Paper Bridges

Make strong structures with limited materials. Students perform more and more difficult challenges to uncover many simple principles of bridge building.

651668 Guide\$9.95 or \$8.95 ea./10+



Blinking Lights

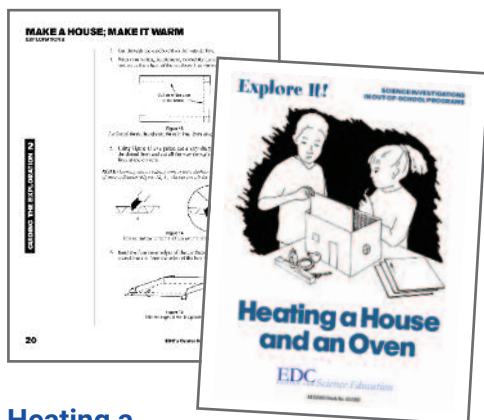
Your students are challenged to design a flashlight from a soda can, cardboard, battery and wires. A rotary switch can also be designed, which is used to control a model traffic light system.

651658 Guide\$9.95 or \$8.95 ea./10+



EXPLORE IT! LESSON GUIDES

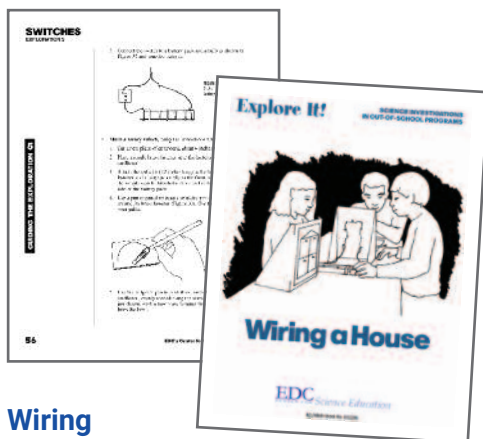
A series of introductory science experiences with instructions for each project as well as implementation suggestions for extended projects. Suitable for after-school programs and elementary school students (ages 8–12). Funded by the National Science Foundation and developed by the Education Development Center, Inc.



Heating a House & an Oven

By finding different ways to insulate a cardboard "house" warmed by a 40W light bulb, children explore the difference between the heat and temperature. Using a 100W bulb, they turn the house into an "oven" that can bake cookies.

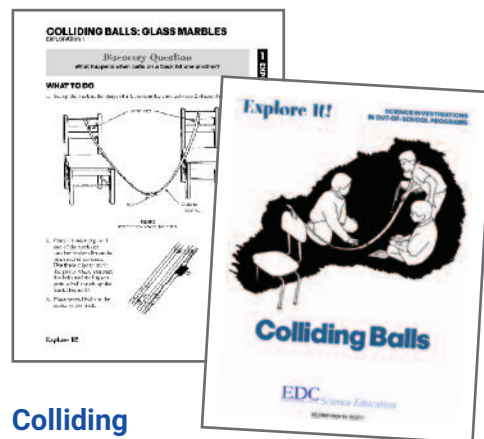
652282 Guide\$9.95 or \$8.95 ea./20+



Wiring a House

Children discover some of the principles of practical wiring and electrical circuitry by installing lights and switches in the rooms of a cardboard house. They follow electrical "pathways" to explain why some light bulbs shine differently.

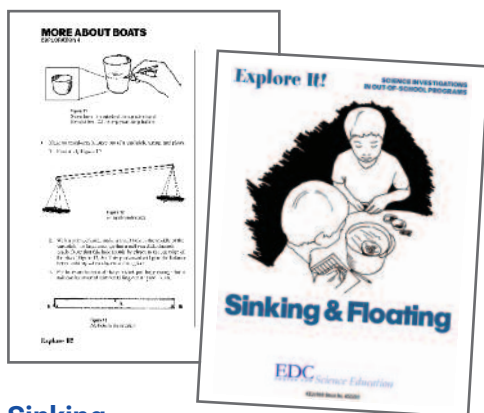
652286 Guide\$9.95 or \$8.95 ea./20+



Colliding Balls

Using a piece of molding as a track and a set of different kinds of balls, children experiment to see what happens when the balls collide with each other, through which children gain some sense of how objects exchange energy.

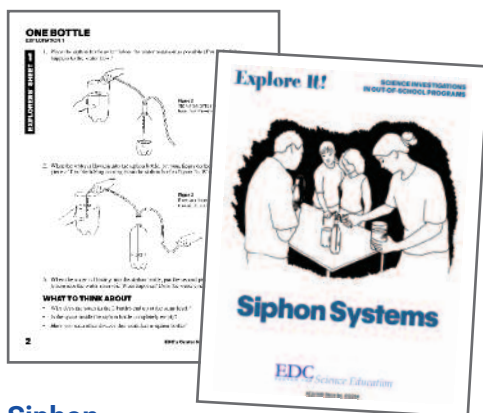
652277 Guide\$9.95 or \$8.95 ea./20+



Sinking & Floating

Children explore the buoyancy of common objects and make boats from a variety of materials, gaining a sense of the contribution of the material and shape will sink or float. They repeat their experiments with other solutions to see how the type of liquid makes a difference in how things float.

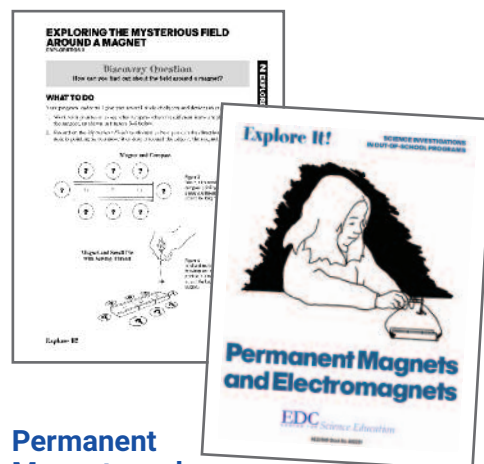
652283 Guide\$9.95 or \$8.95 ea./20+



Siphon Systems

Using an arrangement of plastic tubing and a special connector, children transform a soda bottle into an interesting device for exploring how water flows through a closed or open system. Connecting multiples of bottles allows analyzing what happens to the air and water pressure.

652284 Guide\$9.95 or \$8.95 ea./20+



Permanent Magnets and Electromagnets

Children explore the properties of permanent magnets, such as how to make their magnetic fields visible. Making fun gadgets help determine the properties of electromagnets.

652281 Guide\$9.95 or \$8.95 ea./20+

Explore It! Series Implementation Guide

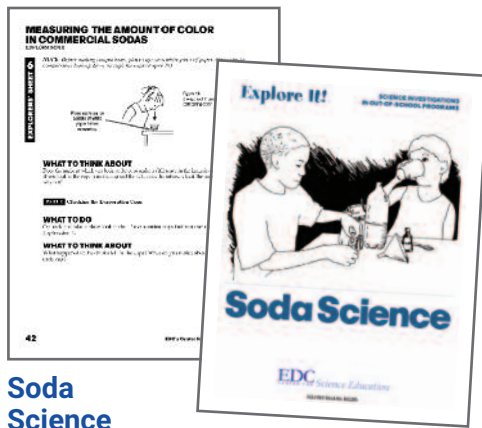
Designed to serve as an introduction to the Explore It! series, this guide covers aspects of managing and structuring each exploration by providing suggestions for effective practices that engage the children in a productive and satisfying experience.

652345 Guide\$9.95 or \$8.95 ea./20+

Complete Explore It! Series Set

All 13 projects (Soda Science, Heating a House, Wiring a House, Exploring Food, Cake Chemistry, Bubbles, Colliding Balls, Magnets, Sinking & Floating, Measuring Ourselves, Siphon Systems, Balancing Toys, Balloons) plus a FREE Implementation Guide.

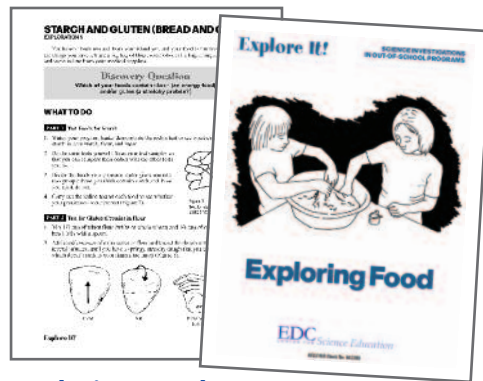
652562 Guide\$139.95



Soda Science

Children can make up their own soda recipes while practicing the mathematical operations of ratio and proportion. Then, they analyze a real soda to compare how the ingredients in the commercial version compare with theirs.

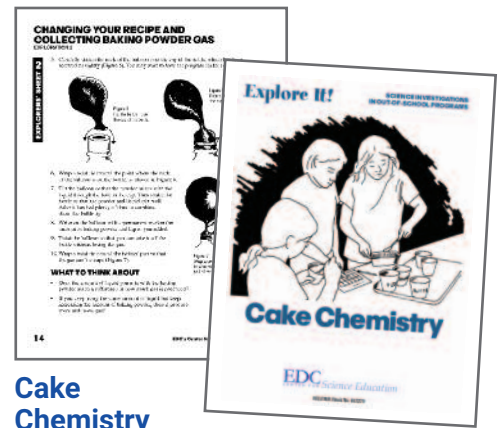
652285 Guide\$9.95 or \$8.95 ea./20+



Exploring Food

Marooned on a desert island with a limited food supply, children investigate the properties and make-up of common foods. Investigations of water, fat and the roles of starch and gluten in flour all contribute to the overall question of what is a "balanced" diet.

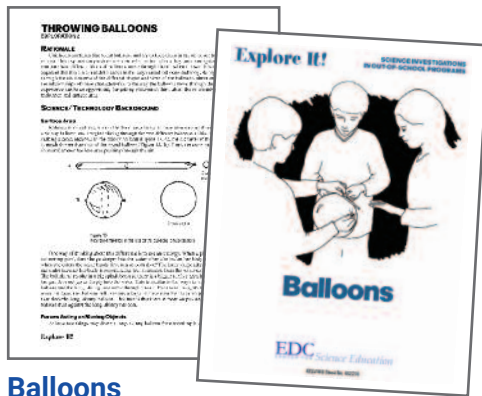
652280 Guide\$9.95 or \$8.95 ea./20+



Cake Chemistry

What are the ingredients in a recipe that cause a cake to rise? Is the same gas produced when using baking powder, baking soda, or yeast? These are some questions pursued in this exploration while, at the same time, getting to eat experiments!

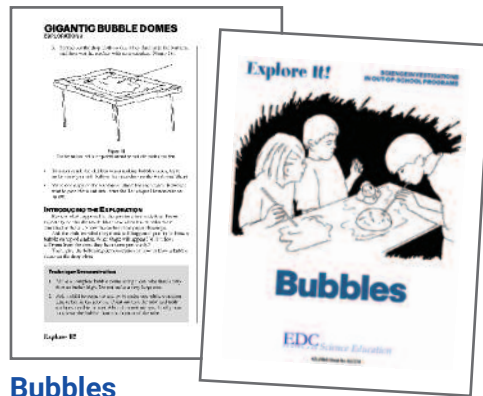
652279 Guide\$9.95 or \$8.95 ea./20+



Balloons

Different sizes and shapes of inflated balloons can be launched in a variety of ways with the result being different trajectories and different distances traveled. Children learn about the phenomena of action-reaction and the properties of air pressure.

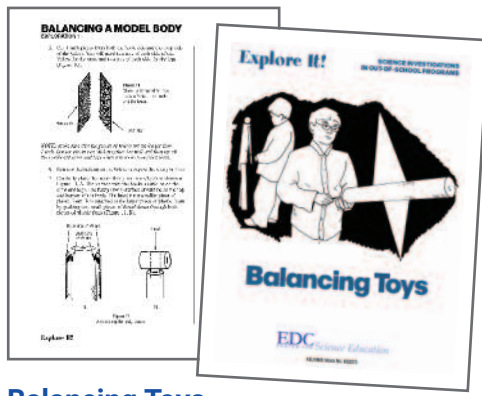
652276 Guide\$9.95 or \$8.95 ea./20+



Bubbles

Floating giant bubbles (3 feet in diameter), small bubble domes on a table top, and soap film in frames are ways to observe some of the more obvious properties of bubbles (such as their round shapes) as well as subtle properties (such as surface tension).

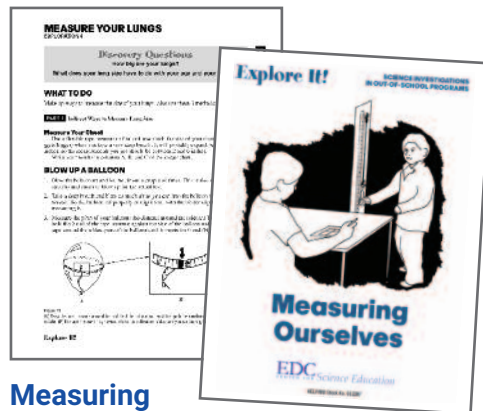
652278 Guide\$9.95 or \$8.95 ea./20+



Balancing Toys

Children transform a pool noodle into a model of a person, a plane, and a boat, and then manipulate them to see how they balance. They also build simple mobiles to explore other kinds of balancing arrangements to understand about equilibrium.

652275 Guide\$9.95 or \$8.95 ea./20+



Measuring Ourselves

Children measure their own bodies in a variety of ways to learn more about their basic physical make-up and to observe both the consistency and variation of body shape, size, and strength among their peers.

652287 Guide\$9.95 or \$8.95 ea./20+



KELVIN® Competition Certificates

High quality, cardstock certificates are generic; teachers can customize name, competition and placement.

840704 30/pkg.\$4.95



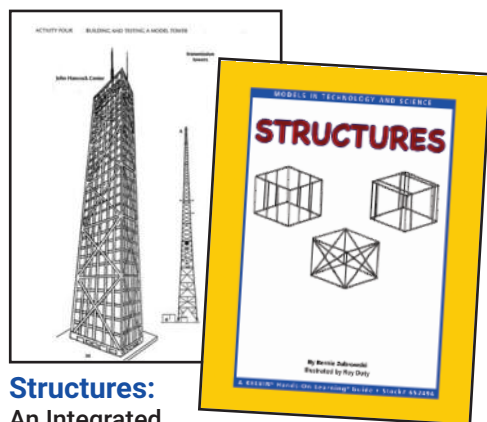
Competition Medals

Each set Includes: three 2 in. diameter medals: one each of gold, silver and brass colors. Each medal has a decorative ribbon.

840706\$24



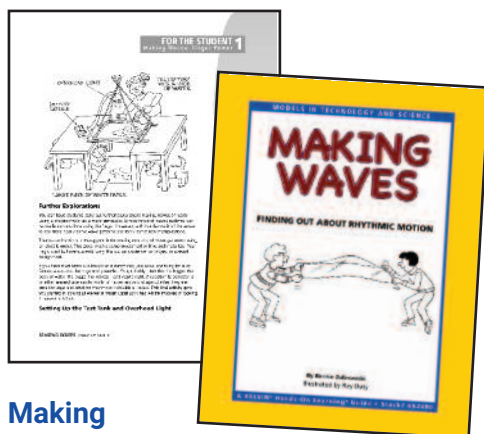
MODELS IN TECHNOLOGY & SCIENCE



Structures: An Integrated Engineering Investigation of Houses, Bridges & Towers

Working with drinking straws and paper clips student meet the challenge of building a model house with drinking straws and paper clips. They test their houses to determine how much weight it can hold before it collapses. The findings from this first challenge are applied to building bridges and towers with same kind of materials. An inquiry is carried out on different truss designs. These projects provide a context for introducing the concepts of force, tension, compression and static equilibrium.

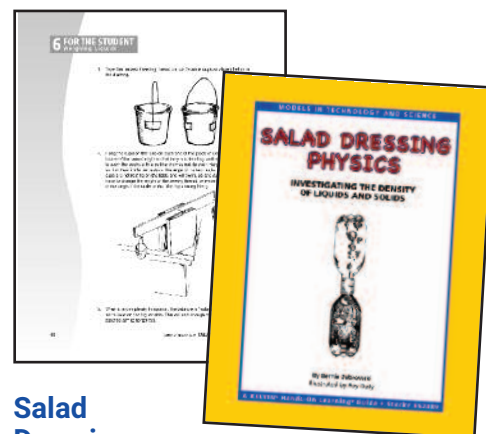
652494 Booklet\$9.95 or \$8.95 ea./10+



Making Waves: An In-Depth Investigation of Rhythmic Motion

The focus of this investigation is on mechanical waves. Students explore how waves can be made in tanks of water, with frames of soap film, with Slinkies, and a vibrating doorbell. A model for studying wave motion is made from dowels and tape to investigate wave movement in a more systematic manner. Plus, various characteristics and properties of waves are introduced as student move through these explorations.

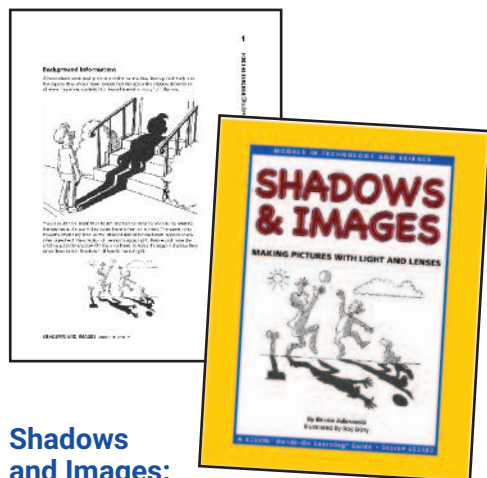
652490 Booklet\$9.95 or \$8.95 ea./10+



Salad Dressing Physics: Investigating The Density of Liquids and Solids

The movement of different liquids is observed in a set of mystery bottles. Students carry out solubility tests and weigh equal volumes of the liquids to identify what the liquids are. These experiences are used to introduce the concept of density. A second set of bottles each having a liquid and several balls of different densities is also investigated. A homemade Lava Lamp is made from mineral oil and two kinds of rubbing alcohol.

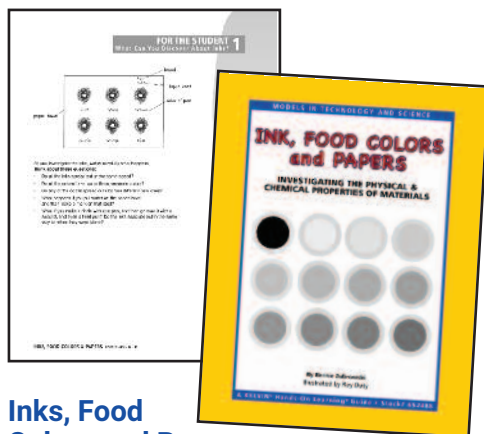
652489 Booklet\$9.95 or \$8.95 ea./10+



Shadows and Images: An In-Depth Investigation of How Images Are Formed

Students first explore ways that different objects cast shadows with different kinds of light sources. Then they explore in a systematic manner the relationship of the shape of the object and the shadow it creates. Glass jars and then lenses are used to observe how light it bent to form images. These explorations can be used to introduce the concept of refraction and the properties of lenses.

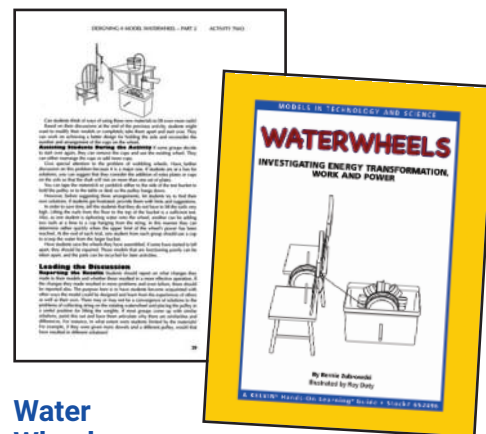
652493 Booklet\$9.95 or \$8.95 ea./10+



Inks, Food Colors and Papers: Investigating The Physical & Chemical Properties Of Materials

Water based pens are tested with water and other kinds of liquids by placing these liquids on marks made on paper. Chromatography is used to refine these observations. A similar process is carried out with permanent pens. These experiences are used to introduce the concept of solubility and physical change. Bleaching of the inks and the changing of the inks of special pens is used as a context for introducing chemical change.

652488 Booklet\$9.95 or \$8.95 ea./10+

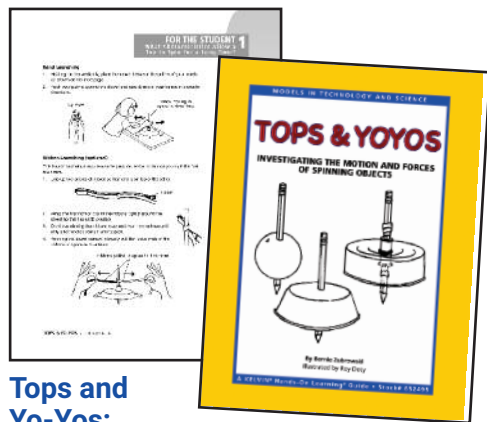


Water Wheels: An Integrated Engineering Project Investigating How Work and Power are Generated

Given plastic plates and cups, buckets, and a few other materials students construct model water wheels to see how much weight their model can lift when water is poured on the cups attached to the wheel. Students will carry out a systematic inquiry of how different variables associated with the model determines its lifting capacity. This experience is used to introduce the concepts of work, power, momentum, torque, potential & kinetic energy.

652496 Booklet\$9.95 or \$8.95 ea./10+

MODELS IN TECHNOLOGY & SCIENCE



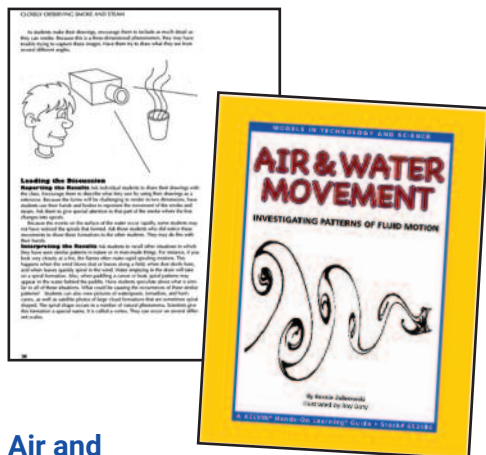
Tops and Yo-Yos:

An In-Depth Investigation of the Forces and Motion of Rotating Objects

A set of tops is made from plastic plates and dowels are first launched with a special rubber band device as well as a mixer. A systematic inquiry is then carried out to determine what characteristics of the tops affect how long they spin. A similar process is carried out with yo-yos made from the same materials.

These explorations provide experiential context for introducing the concepts of rotational motion, torque, rotational inertia, potential and kinetic energy.

652495 Booklet\$9.95 or \$8.95 ea./10+



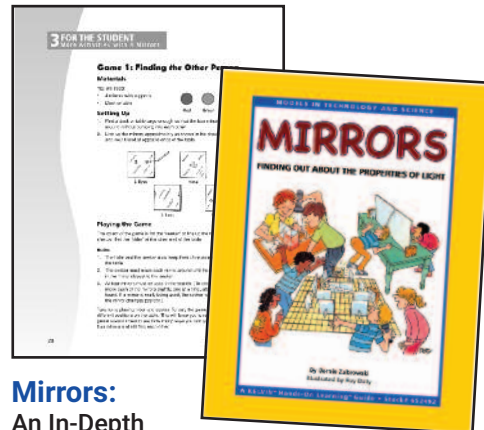
Air and Water Movement:

An In-Depth Investigation of Patterns of Fluid Motion

Students map air currents outdoors and indoors. Then they explore the patterns made when different shaped objects are moved through water having a special liquid that makes these patterns visible.

These explorations provide the experiential context for helping students understand phenomena such as cloud movement, currents in rivers and oceans as well as the design of planes and cars.

652486 Booklet\$9.95 or \$8.95 ea./10+



Mirrors:

An In-Depth Investigation of the Reflection of Light

Regular mirrors are investigated through several challenges and games. The tracing of reflected light rays is carried out to help students understand how images are formed. Pieces of plexiglass are used to investigate the transmission and reflection of light. Flexible Mylar is used to investigate how curved surface reflect light. These experiences provide context for introducing properties of light such as reflection, transmission as well as a way of modeling what happens to light in these situations.

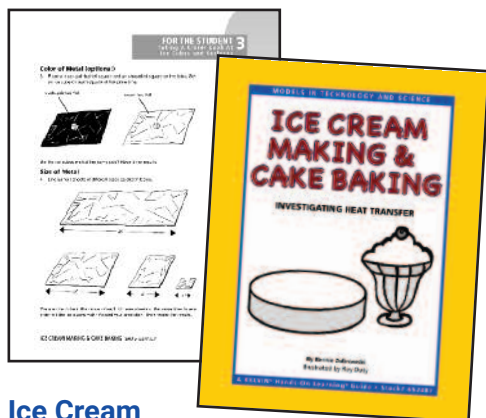
652492 Booklet\$9.95 or \$8.95 ea./10+

Meet The Author

Bernie Zubrowski has spent much of his professional life devising ways to educate young people about science, both while they're at school and when they are out in the world, away from the classroom. He has contributed to many of EDC's landmark science curricula, including Elementary Science Study and the African Primary Science Program. He has directed several projects, including Explore It! Science Investigations in Out-of-School Programs.



In his years with Boston's Children's Museum, Bernie designed exhibits that traveled to science centers across the United States. His 16 books—with titles like Siphons and Water Pumps and Blinkers and Buzzers—and 12 curriculum guides have influenced museum designers, educators, and parents throughout the world.

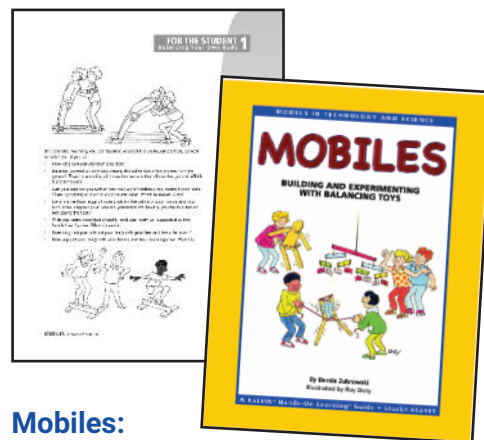


Ice Cream Making & Cake Baking:

An In-Depth Investigation of Heat Transfer

Students carry out simple tests of different kinds of containers to determine what is the best kind for making ice cream. They then gather data on cooling rates of hot water in a selected container surrounded by three different cooling solutions. A cardboard box oven is constructed to study convection and radiation. Collected results are used to make ice cream in a container and bake a cake in the cardboard oven. These experiences provide the context for introducing conduction, convection, radiation, and phase change.

652487 Booklet\$9.95 or \$8.95 ea./10+



Mobiles:

An In-Depth Investigation Of Balancing Toys And Static Equilibrium

Students first balance their body and models of a human body. They experiment with balancing pieces of different shaped cardboard in a vertical and horizontal orientations. They end up constructing mobiles that provide a context for introducing and discussing static equilibrium and torque.

652491 Booklet\$9.95 or \$8.95 ea./10+

Find EDC Design It! & Explore It Lesson Guides on pgs. 14-17.



KELVIN® Storage Units for New Standards® S.T.E.M. Labs and Bin Fillers

Mix and match to create S.T.E.M. areas within your classroom, organize inventory and store student projects. Each cabinet includes heavy duty plastic storage bins (with or without lids) that slide in on wood runners. Bin color may vary. Constructed from 3/4 in. cabinet grade Maple plywood. Sides are shipped flat and must be assembled after delivery.

★ **FREE SHIPPING ON STORAGE UNITS (SHIPPED FLAT)**

Balsa & Wood Storage Unit (Multi-Compartment)

430461 **A** 18 x 18 in. ★\$295

Parts Storage Unit w/ 3 Bins & Lids

430459 **B** 16-3/4 L x 26-1/4 W x 34-3/4 in. H ★\$345

Parts Storage Unit w/ 6 Bins & Lids (Countertop Height)

430460 **C** 17-3/4 L x 31-3/4 W x 35-3/4 in. H ★\$645

Tall Storage Unit w/ 16 Bins (Anchors to the wall)

430458 **D** 12-1/2 L x 18-1/2 W x 68-1/2 in. H ★\$645

Storage Unit w/ 16 Bins (Countertop Height)

430456 **E** 16-3/4 L x 26-1/4 W x 34-3/4 in. H ★\$645

Tool Panel w/ Hooks & Changeable Sign

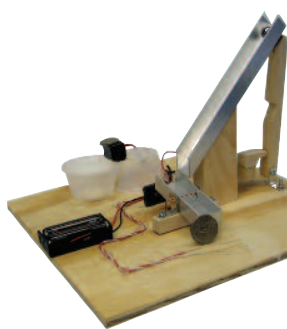
430457 **F** Panel is 26 x 26 in. & Sign is 24 x 8-1/2 in. ★\$175

ARCHITECTURE & DESIGN

KELVIN® ENGINEERING IN SCHOOL



Find Tiny House Design on pg. 12.



Find Chain Reaction Contraption on pg. 21.



Find Kre8® Modeling System on pgs. 2-9.



Find Shipping Container House on pg. 14.



Find Dream House Design Challenge on pgs. 12-13.



Find Cranes on pgs. 24-25.



Find Drafting Cubes on pg. 30.



Find Catapults on pg. 26-27.



Find Game Design on pg. 29.



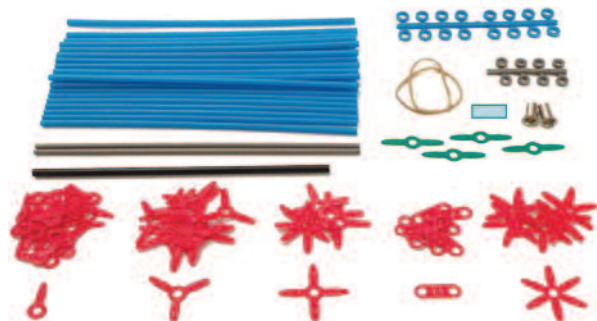
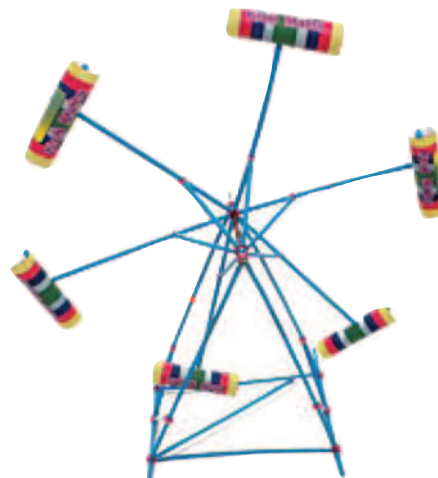
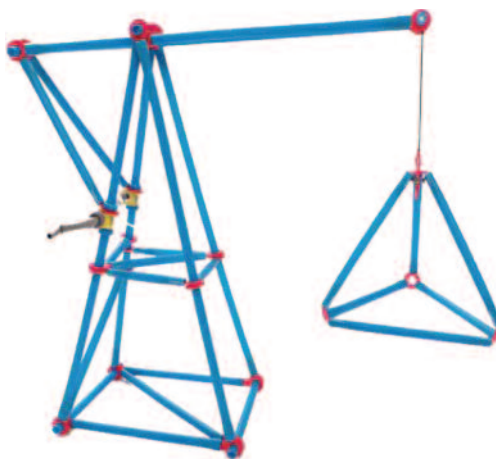
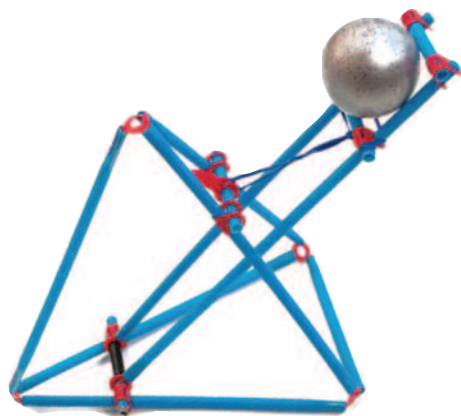
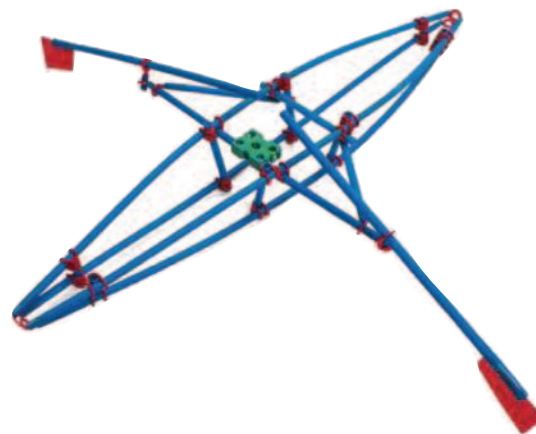
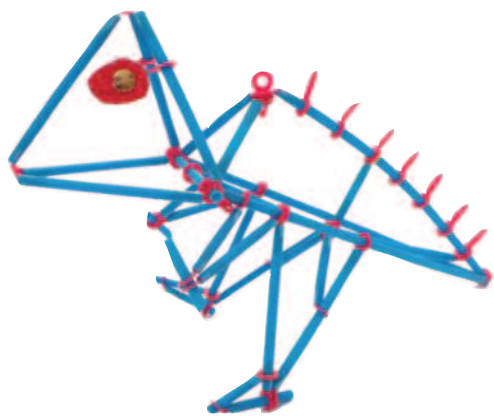
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Kre8® is ideal for
Science, Technology,
Engineering & Math



KELVIN® Kre8® S.T.E.M. Maker Kit

Build structural, mechanical and mathematical models. Enough parts are supplied to make models shown. Requires Kre8® Tube Cutter (283653) or snips below. Patent pending.

This kit is supplied with 156 parts including:

- [93] Kre8® Maker connectors (red sheet and green sheet)
- [30] Kre8® Blue Tubes (200 mm x 5 mm dia. to cut as needed)
- [8] Kre8® Grey Collars • [16] Kre8® Blue Collars • [2] Kre8® Grey Tubes
- [2] Metal bearings • Spacer Tube • [2] Rubber Bands • Adhesive putty

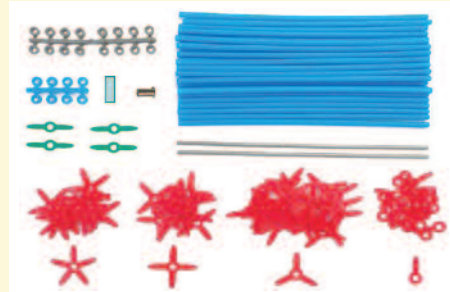
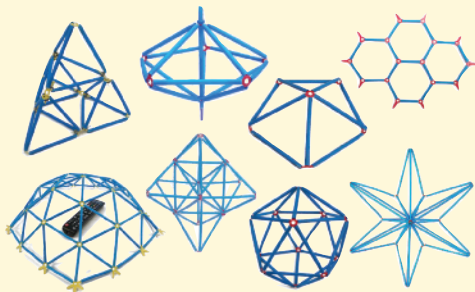
842397 Kit **Educational Pricing \$29.95** or **\$27.95** ea./5+

KELVIN® Kre8® Maker Maths Kit

Make basic geometric forms, including polyhedra, moving linkages etc. Enough reusable parts are supplied to make the complex models shown as well as a number of smaller models.

This kit is supplied with 138 parts including: tubes, connectors, and collars plus a link to videos & help sheets. Requires Kre8® Tube Cutter (283653) or snips below. Patent pending.

842396 Kit .. **Educ. Pricing \$25.95** or **\$23.95** ea./5+



KELVIN® Kre8® Small Tube Cutter

Cuts up to 6mm dia. tubes including rigid pvc tubing.

283653 **\$7.95** or **\$6.95** ea./10+ or **\$6.45** ea./20+

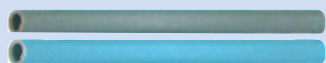
Utility Snips

7-1/2 in. long. Style may vary.

480009 **\$5.95** or **\$5.45** ea./6+



Kre8® kits can be assembled in regular classrooms. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a registered trademark of KELVIN L.P.



Tubes

Gray has 0.16 in. dia. and Blue has 0.20 in. dia. Both are 7.87 in. long. Cut with scissors or Kre8® Cutter.

Color	Stock #	Qty.	\$ ea.
Gray	391365	20	\$4.95
Gray	391376	100	\$19.95
Blue	391373	20	\$6.95
Blue	391324	100	\$29.95



Snap-Off Rods

Snap to length. Measures 0.20 in. dia. and 7.87 in. long. For most construction work. Rigid.

Color	Stock #	Qty.	\$ ea.
Blue	391355	20	\$4.95
Blue	391377	100	\$19.95

Bendy Tubes

Flexible. Tight fit onto 2mm dia. motor shafts. Measures 0.20 in. dia. and 2.36 in. long. Cut with scissors or Kre8® Cutter. Orange.

Color	Stock #	Qty.	\$ ea.
Orange	391357	100	\$12.95

Wheels

Doubles as gear or pulley using two piece. Holes measure 0.16 in. dia.



Dia. in.	Stock #	Quantity	\$ ea.
1.10	391362	20	\$4.95
1.10	391380	100	\$19.95
1.57	391363	20	\$5.95
1.57	391381	100	\$24.95
2.75	391364	20	\$10.95
2.75	391382	100	\$49.95



Safety Propeller

Dual purpose, push-fit.

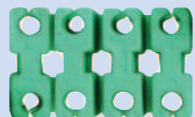
Dia. in.	Stock #	Quantity	\$ ea.
2.95	391369	10	\$14.95
2.95	391384	20	\$28.95



Clip Connectors

Features integral hinge. Four per block; separate as needed.

Color	Stock #	Quantity	\$ ea.
Blue	391372	20	\$6.95
Blue	391321	100	\$29.95



Multi-Blocks

Features integral hinge. Four per block; separate as needed.

Color	Stock #	Quantity	\$ ea.
Green	391374	20	\$6.95
Green	391322	100	\$29.95

Cap Ends

Makes tighter joints. Push into the end of rods for a finished look.

Color	Stock #	Quantity	\$ ea.
Varies	391354	100	\$7.95

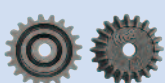
Collars

Slide and fix in position. Gray.

Hole Dia. in.	Stock #	Qty.	\$ ea.
0.16	391326	100	\$7.95

Bevel Gears

0.16 in. dia. holes. 20-Teeth.



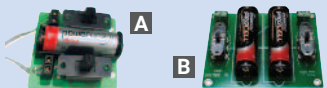
Dia. in.	Stock #	Quantity	\$ ea.
0.79	391361	20	\$12.95
0.79	391383	100	\$49.95

Rubber Bands

Durable and will stretch longer.



Length in.	Stock #	Quantity	\$ ea.
1.77	391358	100	\$7.95
2.36	391359	100	\$7.95



Wired Manual Controllers

Assembled controllers with a meter of ribbon cable.

A 1.5 V (Requires 1 AA Battery)
283654 ..\$13.95 or \$12.95 ea./5+ or \$11.95 ea./10+

B 3 V (Requires 2 AA Batteries)
842124 ..\$16.95 or \$15.95 ea./5+ or \$14.95 ea./10+

Find the New Standards® S.T.E.M. Lab:
Kre8® Modeling in S.T.E.M.
on pgs. S 1-20.



KELVIN®

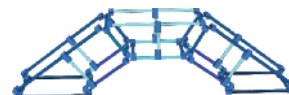
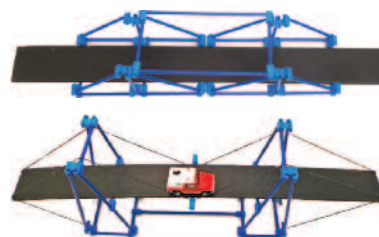
Kre8®

Parts Bin Filler

100	Tube, Blue	30	Bevel Gear
50	Clip Connector	2	Kre8® Cutter
50	Multi-Block	30	Rubber Band, 45 mm
10	Bendy Tube	30	Rubber Band, 60 mm
30	Wheel, 1.10 in.	10	Project Motor, 1.2 - 3 V
20	Wheel, 1.57 in.	10	AA Battery Holder w/ Leads
20	Wheel, 2.75 in.	10	Slide Switch, SPST
30	Grommet	10	Safety Propeller
5	Air-Propelled Racing Car Kit		

430514 Bin Filler\$195 or \$185 ea./3+

Find More Bin Fillers in
Project Resources on pgs. 2-7.



Kre8® 3 Bridge Styles
From Just One Kit

Bulk Pack
Per Kit Price
As Low As

\$14

KELVIN® Kre8® 3-in-1 Bridge

Build and rebuild one of these three bridge types: arch, suspension, or truss. Students will learn about spanning a gap, rigidity, stiffness, enclosing a space, triangulation, mirror image, tension, compression, and redundant parts. Challenges include building bridges that can cover the widest spans and carry the heaviest loads.

Kit includes: Kre8® clip connectors, slit rods, tubes, plastic strip for road bed, string, bag and a sheet of sand paper.

283664 Kit..\$19.95 or \$18.95 ea./5+ or \$17.95 ea./10+ or \$16.95 ea./20+
283677 Bulk Pack of 20\$14 Per Kit \$280

Kre8® kits can be assembled in regular classrooms. Optional Kre8® cutter (283653, pg. 2) can be used to score and snap tubes to length. Use snips (480009, pg. 2) to cut sheet materials and light blue tubes. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a registered trademark of KELVIN L.P.



Kre8
Design & Make



KELVIN® Kre8® Ferris Wheel

Watch the attractive Ferris Wheel gracefully rotate. The People Pods stay upright as the wheel rotates. Decorative parts are laminated and easy to assemble with basic tools and tape.

Comes with all parts needed including a geared down electric motor, battery holder, and switched battery pack so it can be controlled as supplied or with a Genie® PCB418 microcontroller. Requires [2] AA batteries.

283675 Kit\$39.95 or \$37.95 ea./5+
or \$34.95 ea./10+

KELVIN® Kre8® Carousel

A very economical and attractive working model that operates with the simple turn of the handle. Learn how to make a simple cranked mechanism, use friction drive, and how centrifugal force makes things spin outwards. Transparent tape, cutting and assembly are required.

283764 Kit\$11.95 or \$10.95 ea./5+
or \$9.95 ea./10+

KELVIN® Kre8® Fairground Ride

Turn on the switched battery pack and the centrifugal force swings out the passenger modules ; making an impressive working model. Easily customized. Use with the switched battery holder provided or with the Brainy-USB Board.

Comes with all the parts required to make it. Requires [2] AA batteries.

283714 Kit\$29.95 or \$26.95 ea./5+
or \$24.95 ea./10+

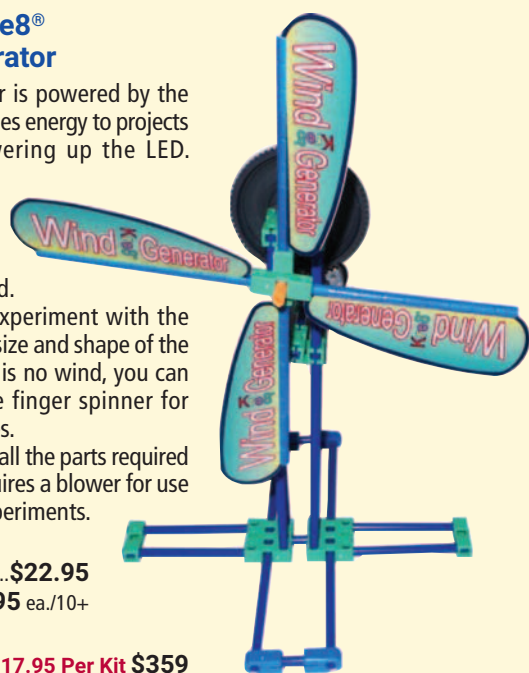
KELVIN® Kre8® Wind Generator

The solar motor is powered by the wind and provides energy to projects including powering up the LED. Adjust the gears and you can increase the motor speed. Students can experiment with the number, angle, size and shape of the blades. If there is no wind, you can use the orange finger spinner for testing purposes.

Comes with all the parts required to make it. Requires a blower for use with indoor experiments.

Kit
283733\$22.95
or \$18.95 ea./10+

Bulk Pack for 20
283740\$17.95 Per Kit \$359



KELVIN® Kre8® DC Motor

The motor consists of an electromagnet (made from a coil of insulated copper wire on a steel rod), two magnets, a reed switch and a battery. Decorate the spinning top as you want.

Kit includes: tubes, slit rods, collars, clip connectors, [2] magnets, steel rods, copper wire, metal bearing, fuse, reed switch, base, bag and sand paper. Requires AA battery.

842081 Kit\$15.95 or \$14.95 ea./5+ or \$13.95 ea./10+
283736 Bulk Pack for 20\$12.50 Per Kit \$250

Kre8® kits can be assembled in regular classrooms. Optional Kre8® cutter (283653, pg. 2) can be used to score and snap tubes to length. Use snips (480009, pg. 2) to cut sheet materials and light blue tubes. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a registered trademark of KELVIN L.P.



KELVIN® Kre8® Basketball Flier

Try to get the propeller into a basketball net or hit a picture of one on a wall. Adjust the angle as desired by sliding the support arm up or down, and then turn on the motor. The safety propeller will begin to spin fast and take off on its own for quite a long distance. Recommended for indoor flying only as wind may blow it off its course.

Comes with all the parts required to make it. Requires [2] AA batteries.

283766 Kit\$12.95 or \$11.45 ea./5+
or \$10.95 ea./10+



KELVIN® Kre8® Power Ping-Pong Ball Launcher

Launch ping-pong balls using two wheels attached to spinning toy motors - change the trajectory angle to see how far they go. Comes with all the parts required to make it. Requires AA batteries.

283659 Kit\$19.95 or \$17.95 ea./5+
or \$14.95 ea./10+



Bulk Pack
Per Kit Price
As Low As

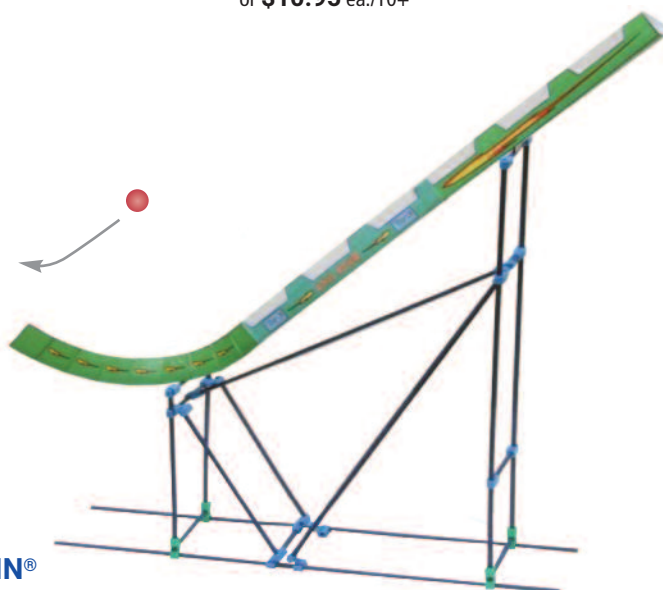
\$7.50

KELVIN® Kre8® Catapult

All aspects of assembly and performance of this catapult are easy and fast to adjust:- the amount of leverage the throwing arm has, the trajectory angle and the power applied by the elastic band making this ideal for class competitions. Pull back the arm and let the ping pong ball fly. Construct the catapult in one class and fold it flat to store or take home.

Kit includes: clip connectors, slit rods, tubes, string, bag, sand paper and instructions.

283660 Kit\$9.95 or \$8.95 ea./5+
283639 Bulk Pack of 20.....\$7.50 Per Kit \$150



KELVIN® Kre8® Marble Jump

Converts a marbles "kinetic energy" into a jump, (such as a ski jump). The slope is made from ready to use print-outs or student-decorated paper and rods (requires laminating and cutting). Students can create a game of distance or accuracy for class competitions. 50mm base, 70mm (28 in.) high.

283663 Kit\$13.95 or \$13.45 ea./5+ or \$12.45 ea./10+



KELVIN® Kre8® Scale

Model a set of mechanical scales to weigh or count parts; up to 50 grams. The load is placed on the large weighing part and the long arm swings up to record its weight. As a challenge, students can calibrate it themselves using the blank sheet available on the Kre8® website.

Kit includes: gear wheel, connectors, slit rods, tubes, bag, sand paper. and instructions.

283668 Kit\$12.95 or \$9.95 ea./5+ or \$8.95 ea./10+

Kre8® kits can be assembled in regular classrooms. Optional Kre8® cutter (283653, pg. 2) can be used to score and snap tubes to length. Use snips (480009, pg. 2) to cut sheet materials and light blue tubes. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a registered trademark of KELVIN L.P.

Kits may require soldering, assembly, shaping & sanding of wood, balsa or foam. **Warning:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.
www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices shown are for educational institutions.



KELVIN® Kre8® Air-Propelled Racer

Build and race this exciting air car - moves well on flat surfaces! Students decorate the body of the racer. Learn about potential energy, stored energy and kinetic energy along with gravity, friction and rotary motion.

Kit includes: motor, switched battery holder, 3-blade propeller, Kre8® parts (connectors, rods, tubes, collars, gears, wheels), hardware, rubber bands, sand paper, and plastic strip. Requires AA batteries.

283657 Kit\$16.95 or \$14.95 ea./5+
283803 Bulk Pack for 10\$13.50 Per Kit \$135

Bulk Pack
Per Kit Price
As Low As **\$13.50**



8.66 in. Long

KELVIN® Kre8® Monster Truck

Steer this 8.66 in. long customizable monster truck model over objects on the table. Connect up to the included hand controller (3 V DC) to make it move forward, backward, and turn.

Students will learn how to connect and control two electric motors as well as how to assemble a steering mechanism. As an additional challenge, convert the monster truck into a robot and then have a competition with it.

Kit includes: multiblocks, connectors, slit rods, snap-off rods, tubes, wheels, gears, pulleys, motors, washers, collars, end caps, wired manual controller, rubber bands, cardstock, bag, and sand paper. Requires a AA battery.

283710 Kit w/ Controller\$29.95 or \$26.95 ea./5+ or \$24.95 ea./10+



KELVIN® Kre8® Solar Racer

Quickly assemble a solar car without glue or nails. Connect an electric motor to convert the sun's energy into electricity. The solar panel and front wheels are adjustable.

Design your own top or use the design provided and then clip in place. Requires assembly, measuring and cutting.

283691 Kit\$19.95 or \$17.95 ea./5+ or \$15.95 ea./10+
283734 Bulk Pack for 20 Students\$12.95 Per Kit \$259

Bulk Pack
Per Kit Price
As Low As **\$12.95**



Bulk Pack
Per Kit Price
As Low As **\$9.95**

KELVIN® Kre8® Electric Racer

This low cost fun to make electric motor powered car can be made as provided or modified as the user wants. Quick and easy to make. See how fast you can make it go.

Students learn how to connect up and use a basic electric circuit and use a mechanical drive to reduce the speed of the electric motor which turns fast.

Comes with all the parts required to make it including a switched battery holder and motor. Requires AA battery.

283662 Kit\$12.95 or \$11.95 ea./5+ or \$10.95 ea./10+
283641 Bulk Pack for 20\$9.95 Per Kit \$199

Kre8® kits can be assembled in regular classrooms. Optional Kre8® cutter (283653, pg. 2) can be used to score and snap tubes to length. Use snips (480009, pg. 2) to cut sheet materials and light blue tubes. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a registered trademark of KELVIN L.P.

KELVIN® Kre8® Forklift

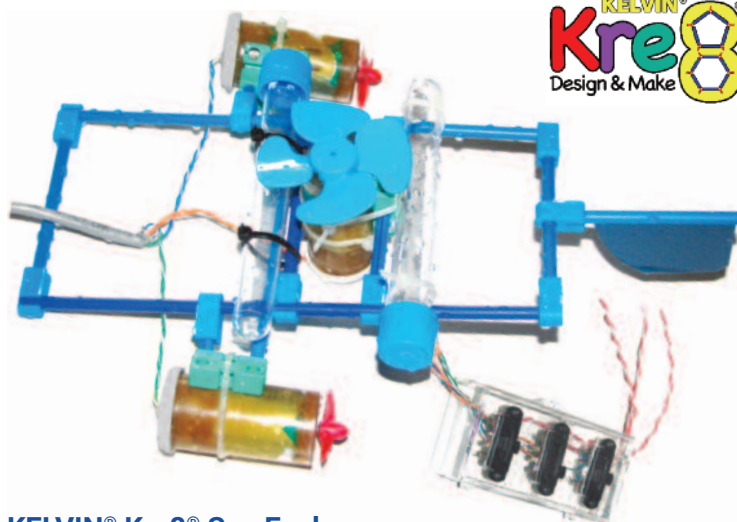
A working simplified fork lift truck that is fun on its own but is also good for competitions. Control its motion using the wired manual controller included. Move forward to collect and lift your load and then return and drop your load as fast as possible.

Students can learn about energy (potential, stored, kinetic) linear to rotary motion, center of gravity, balance, friction, measuring, obtaining grip, mass and speed.

Kit includes: [3] motors (for vertical and horizontal control), multiblocks, connectors, slit rods, snap-off rods, tubes, wheels, pulleys, motors, washers, collars, end caps, wired manual controller, rubber bands, cardstock, bag, and a piece of sand paper. Requires AA battery.

Kit w/ Controller

283665 ..\$29.95 or \$27.95 ea./5+
or \$26.95 ea./10+



KELVIN® Kre8® Sea Explorer

The sight of a submarine disappearing into the vast ocean captures the imagination of both the young and old. How does the sub descend and then climb back to the water's surface? What propels the submarine deep underwater? Students, in teams, design, build and test their own submersible vessel.

Kit includes [3] motors (for vertical and horizontal control), plastic ballast tubes, control switches, frame parts, propellers, instructions and resource material. Requires a 6V lantern as well as soldering, and melting low temperature wax.

842107 Kit\$69.95 or \$59.95 ea./3+ or \$49.95 ea./10+



Bulk Pack
Per Kit Price
As Low As

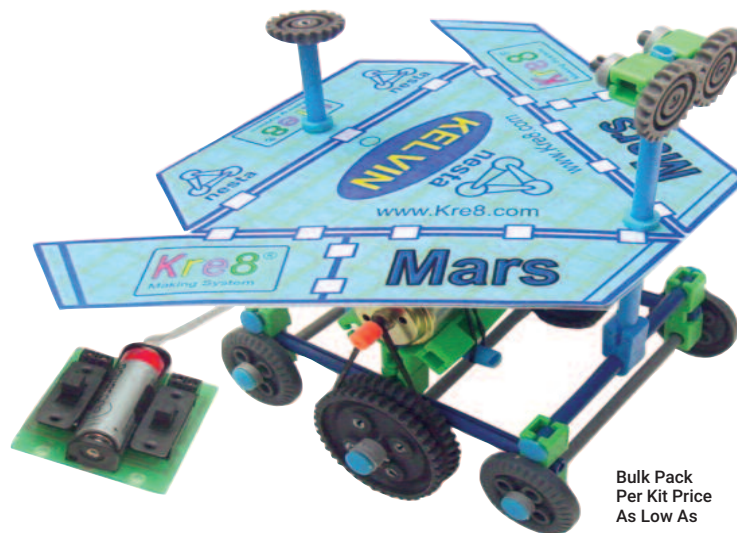
\$22⁹⁵

KELVIN® Kre8® Curiosity Rover

Make the Curiosity Rover and steer it right, left, forwards and backwards. Like the real vehicle on Mars the front excavator and vision arms can be moved.

Kit includes: motors, multiblocks, connectors, slit rods, snap-off rods, tubes, bendy tubes, wheels gears, pulleys, washers, collars, end caps, wired manual controller, rubber bands, cardstock, bag, and sand paper. Requires AA battery.

283771 Kit w/ Assembled Manual Controller\$29.95 or \$27.95 ea./5+
283772 Bulk Pack of 10 Kits\$22.95 Per Kit \$229.50



Bulk Pack
Per Kit Price
As Low As

\$21⁵⁰

KELVIN® Kre8® Mars Rover

This version of the NASA Mars Rover is steerable! Steers with remote controller right, left, forward, and backward. This project gets students thinking about exploring distant planets without being there. How could we communicate with a robot so far away and have it complete important tasks to determine if life could be sustained there? In addition, students will learn about electronics, robotic control, problem-solving and teamwork.

Kit includes: motors, multiblocks, connectors, slit rods, snap-off rods, tubes, bendy tubes, wheels, gears, pulleys, washers, collars, end caps, wired manual controller, rubber bands, cardstock, bag, and sand paper. Requires AA battery.

283658 Kit w/ Assembled Manual Controller\$29.95 or \$27.95 ea./5+
283642 Bulk Pack of 10 Kits\$21.50 Per Kit \$215

Kre8® kits can be assembled in regular classrooms. Optional Kre8® cutter (283653, pg. 2) can be used to score and snap tubes to length. Use snips (480009, pg. 2) to cut sheet materials and light blue tubes. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a registered trademark of KELVIN L.P.

Kits may require soldering, assembly, shaping & sanding of wood, balsa or foam. **Warning:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.
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Demonstrate the Principles of Autonomous Vehicles in the Classroom



AUTONOMOUS



Shown with Genie® Motor Control Board

KELVIN® Kre8® Autonomous Vehicle

Enhance robotics program, technology classes, or science explorations by introducing students to the revolutionary future of self-driving transportation — Autonomous Robotic Cars! Students build the basic robotic car and expand it with autonomous control by adding a motor control board to control [2] DC motors moving forwards and backwards.

Planning the car's route on the computer is easily done without having to learn program coding. Add conditions like what to do if an obstacle is sensed (left sensor?, right sensor? or both sensors?, go back?, how far?) or the destination is reached (make a left turn? Continue?).

When finished, download the program to the car using the included USB download cable. Disconnect the download cable and turn the power switch on. The car will then move as programmed on the class floor or teacher-designed mat with additional obstacles. The assembled car measures 17 x 18 cm. Once built, the car can be taken apart and rebuilt by the next group.

Two versions of the kit are available, featuring a GENIE® or Arduino® control board (FREE control software is available online). Both versions also include an Autonomous Vehicle Kit with: touch sensor package, wheels and body frame parts, [2] DC motors, AA battery holder and USB download cable. Requires AA batteries, Kre8® Tube Cutter (283653, below) or snips. Grades 6-9 with teacher support.



GENIE® Control Board (Assembled) with Autonomous Vehicle Kit

Requires [4] AA batteries.

842537\$99.95 or \$94.95 ea./5+ or \$89.95 ea./10+

Arduino® Control Board with Autonomous Vehicle Kit

Requires [6] AA batteries.

842538\$99.95 or \$94.95 ea./5+ or \$89.95 ea./10+



KELVIN® Kre8® Small Tube Cutter

Cuts up to 6mm dia. tubes including rigid pvc tubing.

283653\$7.95 or \$6.95 ea./10+ or \$6.45 ea./20+

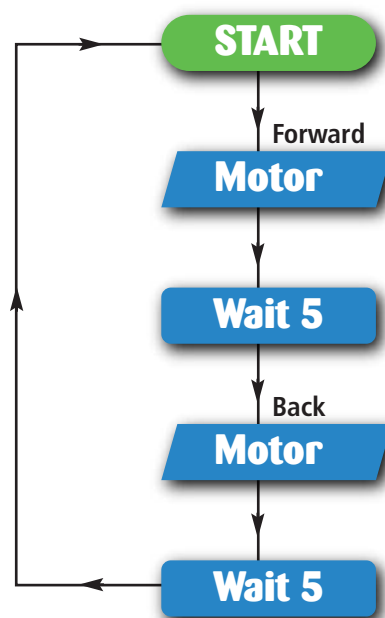
Utility Snips

7-1/2 in. long. Style may vary.

480009\$5.95 or \$5.45 ea./6+



The GENIE® motor control board is easy to program using logic flow charts. This flow chart shows the program for a DC motor to move forward and then backwards.



Have students use the internet to find articles and videos of real self-driving cars. Use that as a starting point to discuss the pros and cons of autonomous vehicles.

Google's Autonomous Cars Will Now Be Considered 'Real' Drivers



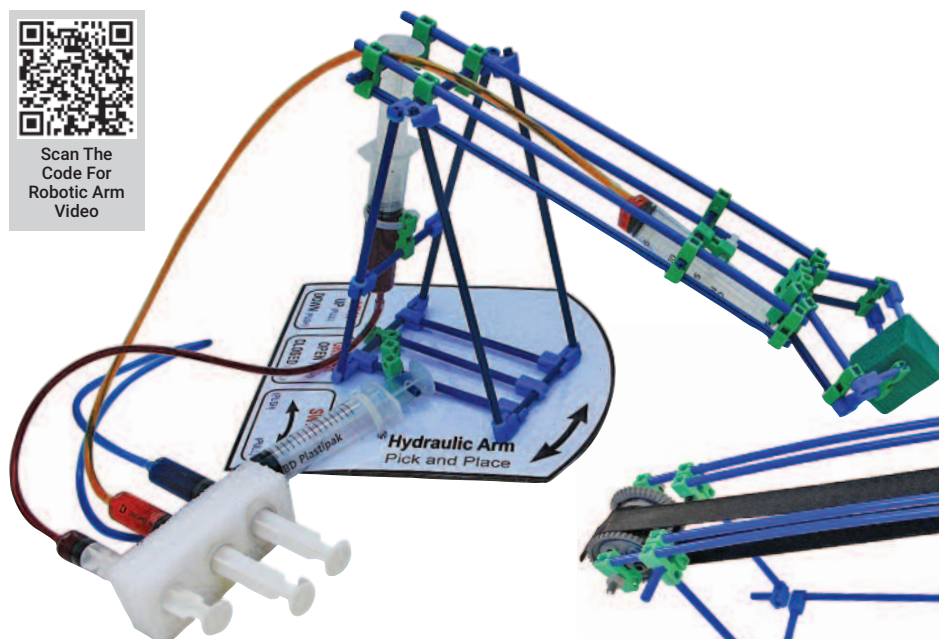
Read more at:

<http://time.com/4215387/google-self-driving-cars-real-drivers/>

Kre8® kits can be assembled in regular classrooms. Optional Kre8® cutter (283653, pg. 2) can be used to score and snap tubes to length. Use snips (480009, pg. 2) to cut sheet materials and light blue tubes. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a registered trademark of KELVIN L.P.



Scan The
Code For
Robotic Arm
Video



KELVIN® Kre8® Hydraulic Robotic Arm

This PICK and PLACE Hydraulic Robotic Arm has several fun features. Three syringes are used to explore control, hydraulics, leverage, and motion. To operate, open the gripper, move the arm above the load, swing the arm around, lower the load and release it.

Kit includes: syringes, multiblocks, connectors, slit rods, snap-off rods, tubes, bendy tubes, washers, collars, end caps, foam, cardstock, bag, and sand paper.

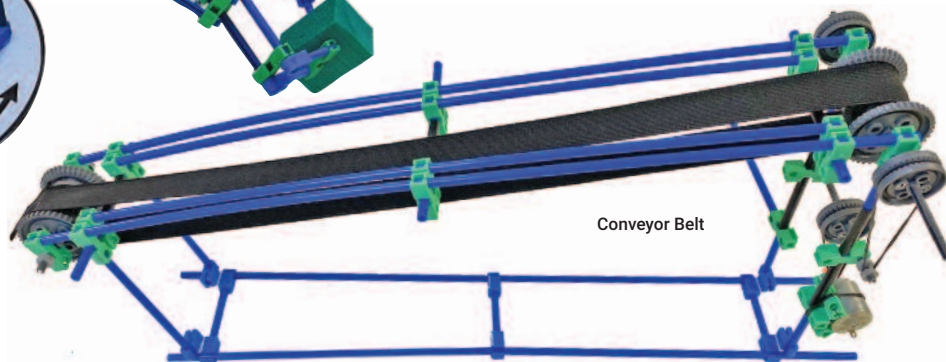
283767 Kit\$39.95 or \$32.95 ea./3+



Kre8® A Robotics Manufacturing Unit



Scan The
Code For
Conveyor
Belt Video

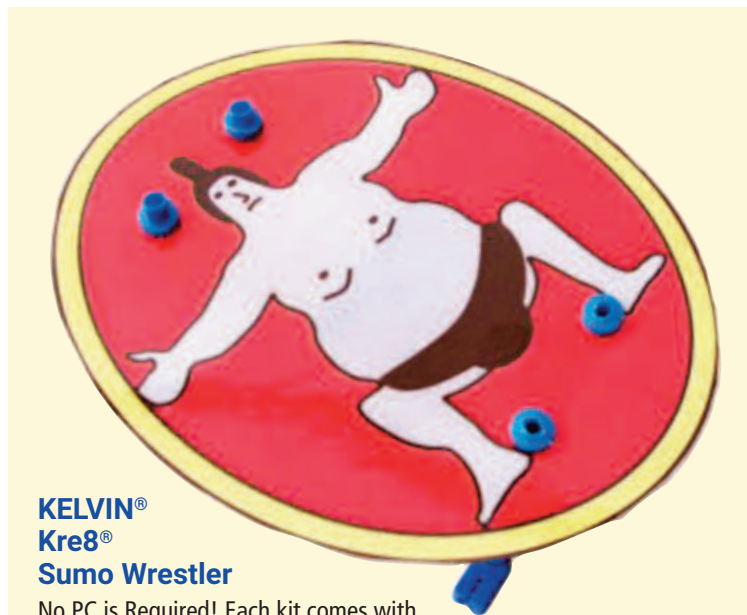


KELVIN® Kre8® Conveyor Belt

Construct a conveyor belt to demonstrate motion, speed ratios, gravity and compound gears. Platform changes angles.

Kit includes: motor, multiblocks, connectors, slit rods, snap-off rods, tubes, wheels, gears, pulleys, washers, collars, end caps, switched battery holder, rubber bands, cardstock, bag, and sand paper. Requires [2] AA batteries.

283650 Kit - Grades 6+\$37.95 or \$34.95 ea./3+ or \$32.95 ea./10+

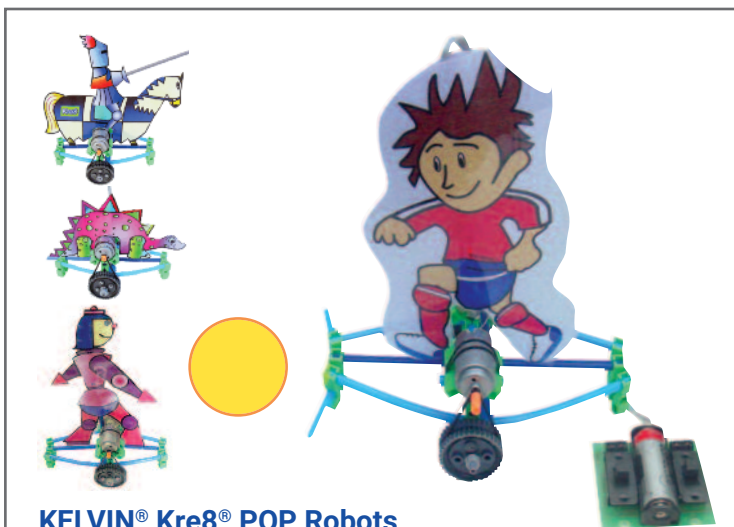


KELVIN® Kre8® Sumo Wrestler

No PC is Required! Each kit comes with two different tops so you can arrange a match with a friend.

Kit includes: multiblocks, connectors, slit rods, snap-off rods, tubes, wheels, gears, pulleys, washers, collars, end caps, switched battery holder, cardstock, bag, and sand paper. Requires [2] AA batteries.

283712 Kit\$10.95 or \$9.95 ea./5+ or \$8.95 ea./10+



KELVIN® Kre8® POP Robots

Begin by making the basic frame common to all the POP robots. Then decide which top you want or design your own. Choose from a soccer player, dancer, joust, dinosaur, alien or more. POP robots can move forwards, backwards, left and right with wired manual controller or a computer.

Kit includes: motors, multiblocks, connectors, slit rods, tubes, wheels, pulleys, washers, collars, end caps, wired manual controller, rubber bands, printout pages for 5 types of robots, bag, and sand paper. Require AA battery.

283672\$25.95 or \$22.95 ea./5+ or \$18.95 ea./10+

Kre8® kits can be assembled in regular classrooms. Optional Kre8® cutter (283653, pg. 2) can be used to score and snap tubes to length. Use snips (480009, pg. 2) to cut sheet materials and light blue tubes. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a registered trademark of KELVIN L.P.



Bulk Pack
Per Kit Price
As Low As
\$9.95

KELVIN® Beams & Triangles™ Open-Ended Design Kit

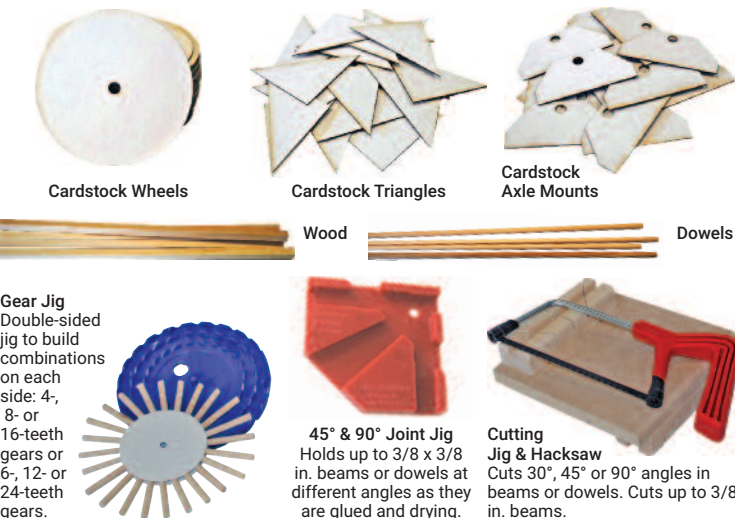
Design and create structures, vehicles and machines using student made frames, gears, levers, pulleys, wheels and axles.

Kit includes pine wood (3/8 in. sq. and 3/16 x 1/2 in.), dowel rods (3/16 in. dia.), twine, chipboard wheels (1-1/2 in. dia.), tubing, printed cardboard axle mounts and triangles. Requires drilling, cutting and gluing as well as Gear Jig, Joint Jig and Cutting Jig (see pg. 11) and other hand tools.

842307 Kit	\$11.95 or \$10.95 ea./5+
842308 Bulk Pack of 10	\$9.95 Per Kit \$99.50
650511 Lesson Guide.....	\$9.95

Build Working Models like: Vehicles, Bridges, Houses, Towers, Windmills, Cranes, and More

KELVIN® S.T.E.M. Lab: Beams & Triangles™ Gr. 4-7



Cardstock Wheels Cardstock Triangles Cardstock Axle Mounts

Wood Dowels

Gear Jig
Double-sided jig to build combinations on each side: 4-, 8- or 16-teeth gears or 6-, 12- or 24-teeth gears.

45° & 90° Joint Jig
Holds up to 3/8 x 3/8 in. beams or dowels at different angles as they are glued and drying.

Cutting Jig & Hacksaw
Cuts 30°, 45° or 90° angles in beams or dowels. Cuts up to 3/8 in. beams.

★ **BONUS PRODUCT**
KELVIN® Drill Press (950301, \$295 or \$285 ea./3+) included w/ Class Pack (842479)

★ **BONUS PRODUCT**
Hand Drill w/ [3] Drill Bits (950311, \$49.95) included w/ Class Pack (842479)

★ **BONUS PRODUCT**
Clamp-On Work Vise w/ 3 in. jaw opening (540033, \$29.95 or \$27.95 ea./5+) included w/ Class Pack (842479)

Activity Guide

KELVIN® Beams & Triangles™ S.T.E.M. Bin Fillers



Beams & Triangles™ Basic Bin Filler

Includes: axle mount cardstock, triangle cardstock, beams, dowels, wood sticks, tubing, cardboard wheels, spoke wheels, pulleys w/ tire, DesignGrid™ paper, sandpaper, glue and tech excellence medals.

840681 Basic Bin Filler (\$225 Retail) **\$195**

Beams & Triangles™ Advanced Bin Filler

Includes: axle mount cardstock, triangle cardstock, beams, dowels, wood sticks, solar cells, solar motors, motor mounts, tubing, cardboard wheels, spoke wheels, gear sets, pulleys, pulleys w/ tire, propellers, balloons, DesignGrid™ paper, sandpaper, glue, tech excellence medals, rubber bands, AA battery holders and storage box.

840972 Advanced Bin Filler (\$462 Retail) **\$345**

Students can design and build structures, bridges, vehicles and mechanisms with this unique assembly system. Extra parts and an instruction manual complete the lab. Cut, join and assemble wood beams using specially designed tools, holding jigs and materials. This lab is perfect for the young engineer and builder. Each lab provides enough materials to construct many items depending on size. Assign teams of two students each to investigate the kits. Students design their own display board or project portfolio for use in the classroom or S.T.E.M. fair. Requires assembly with hand tools and teacher assistance.



Team Pack

Includes: [2] cutting jigs, [2] mini saws, [10] joining jigs, [5] gear making jigs, [50] wood beams (3/8 x 3/8 x 24 in. and 3/8 x 3/16 x 24 in.), glue, cardstock wheels, dowel rods, cardstock triangles, axle mounts and clamps. Detailed instructions also included.

842475 Team Pack - Tools & Parts..... **\$195**

Class Pack

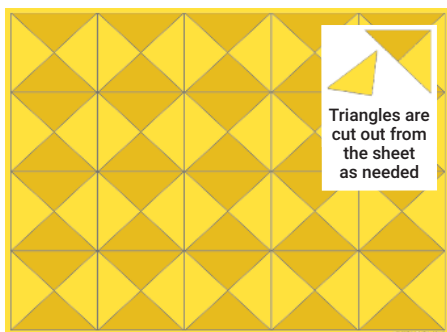
Team Pack x 2 - plus ★ BONUS Hand Drill, Drill Press and Clamp-On Vise.

842479 Class Pack (see above description)..... **\$395**

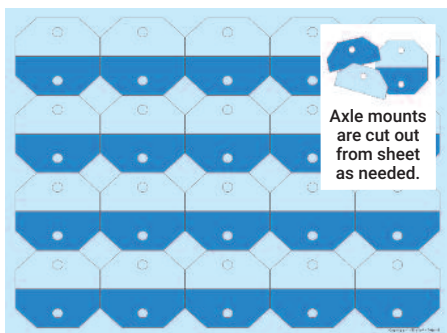
Beams & Triangles™ Bin Filler & Tools Pack

Includes: Advanced Bin Filler (840972), Tools & Jigs Set (840680), Technology Certificates, Guide and a Workstation Sign.

840926 **\$695**



Triangles are cut out from the sheet as needed



Axle mounts are cut out from sheet as needed.

KELVIN® Beams & Triangles™ Cardstock Sheets

Enough pre-printed, 8-1/2 x 11 in. cardstock sheets to cut out 2,100 triangles or 900 axle mounts. Color varies.

420334 Triangles, 30 Sheets\$7.95

390449 Axle Mounts, 30 Sheets\$7.95

Cardboard Wheels

Fits 3/16 in. axle. Ideal for use with the KELVIN® Beams & Triangles™ Activity.



420336 1-1/2 in. dia., 100/pkg.....\$11.95

420335 2-1/2 in. dia., 100/pkg\$15.95



Safety Point Scissors

480038 5-1/4 in. L\$7.95 or \$7.65 ea./10+



Power Utility Snips

480009 7-1/2 in. L\$5.95 or \$5.45 ea./10+

Find More Scissors in Project Resources on pg. PR 30.

Find Hand Tools in Project Resources on pgs. PR 28-32.

Find Bin Fillers in Project Resources on pgs. PR 2-7.



KELVIN® Tools & Jigs Set

Includes Drill Press, Hand Drill, [6] Drill Bits (1/8 & 3/16 in.), [4] Jr. Hacksaws, [10] Hacksaw Blades, [5] Joint Jigs, [4] Cutting Jigs, [2] Gear Jigs, [4] Mini Vises (1-1/2 & 3 in.), [2] Phillips Screwdrivers, [2] Slotted Screwdrivers, Hammer, Mallet, [6] Scissors, [4] Safety Goggles [4] Steel Rulers (12 in.), and a Storage Box.

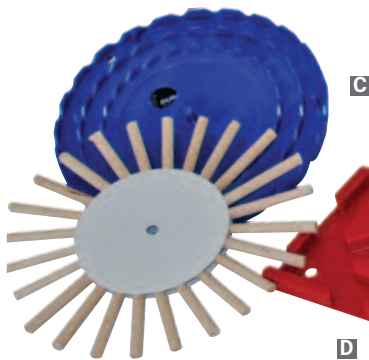
840680 A B Set\$445

KELVIN® Drill Press w/ Hand Drill

Comes with: drill press, hand drill and [3] drill bits (1/16, 3/16 and 1/8 in.).

950301 B\$295 or \$285 ea./3+

950311 Hand Drill Only w/ [3] Drill Bits\$49.95



KELVIN® Gear Jig

Build different gear combinations. On one side build: 4-, 8- or 16-teeth gears and on the other side build 6-, 12- or 24-teeth gears.

990197 C 5/pkg.....\$9.95

Joint Jig

Holds beams or dowels rods (up to 3/8 x 3/8 in.) in place at 45° or 90° angles while they are glued and drying in place.

390444 D 5/pkg.....\$24.95



Cutting Jig

Cuts 30°, 45° or 90° angles in beams or dowels. Works with 3/8 x 3/8 in. beams.

390447 E\$14.95 or \$13.95 ea./3+

Jr. Hacksaw (style may vary)

Use for cutting of beams and rods.

980042 F\$7.95 or \$6.95 ea./5+

980044 Blades, 10/pkg.....\$2.95

Construct a Dream House Model From Scratch!



KELVIN® Ranch Dream House Design Challenge™

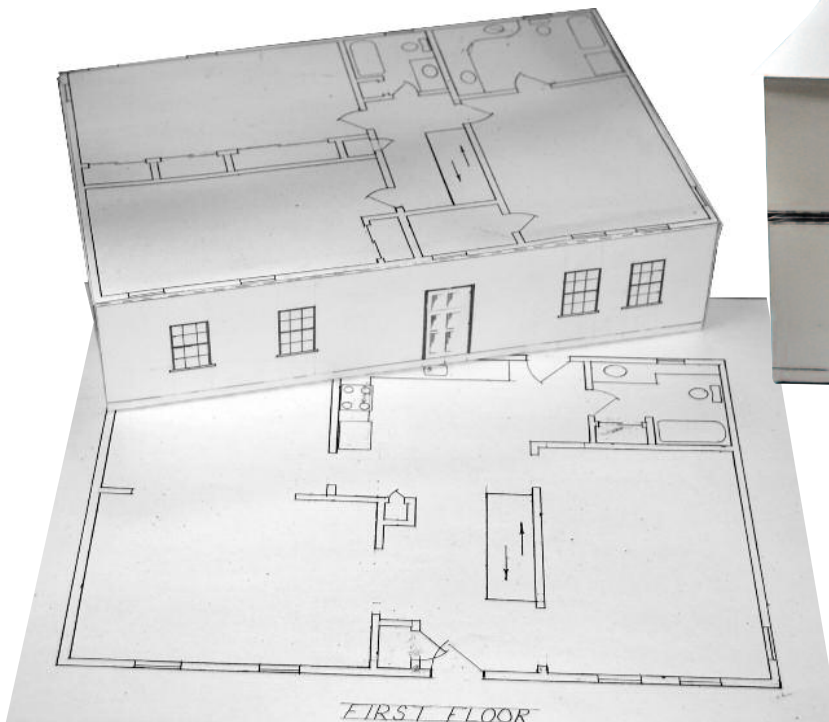
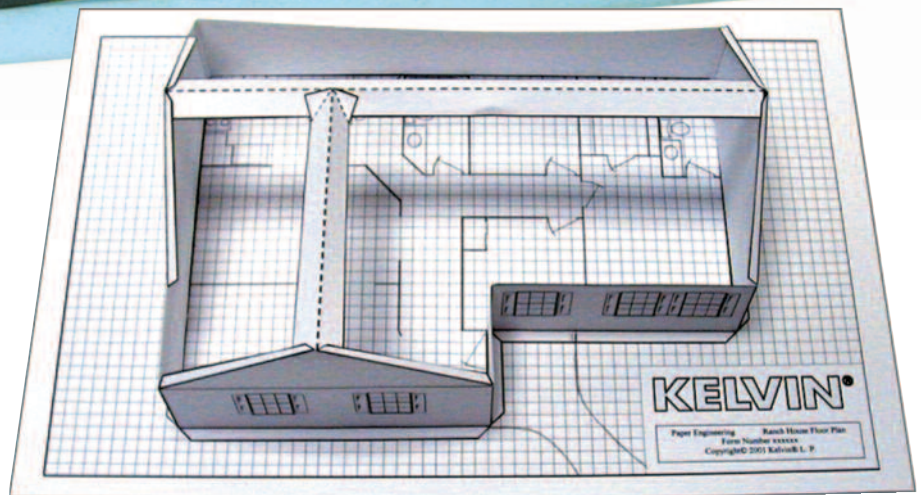
Students design the interior room layout for a house in 1/4 in. scale. They are given a footprint and exterior wall structure to work from. Elements of the interior layout include the location of windows, skylights, doors, partitions and adding other desired features.

Kit includes [10] sheets of printed cardstock and [3] sheets of grid paper (11 x 17 in.). The house can be finished by painting it, adding roofing and other accessories.

841325 Kit\$6.95 or \$6.45 ea./10+ or \$5.95 ea./25+

Ranch Dream House Cardstock Only

841424 25 Sheets of Printed Cardstock\$125



KELVIN® Two-Story Dream House Design Challenge™

Students design a floor plan for a two story house using a standard footprint and criteria required by the teacher. In doing so, they practice design, problem solving, communication skills, mathematics, modeling, and crafting techniques.

Kit includes: printed cardstock, plans, instructions, and sheets of window styles to cut and paste.

842310 Kit\$9.95

Two-Story Dream House Cardstock Only

842220 10 Sheets of Printed Cardstock.....\$75



**KELVIN®
Modern Dream
House Design Challenge™**

Kit includes: [10] sheets of single-wall cardboard, [4] balsa wood sticks (1/8 x 1/2 x 36 in.), [4] sheets of sandpaper, [2] sheets of grid paper, window pattern sheet, craft knife, straight edge, and instructions.

841762 Kit\$24.95 ea. or \$23.95 ea./10+

Modern Dream House Consumables

Consumables include: [100] sheets of single-wall cardboard, [50] balsa wood sticks (1/8 x 1/2 x 36 in.), [4] rolls of masking tape, [25] sheets of sandpaper, and [25] sheets of grid paper.

841761\$195

S.T.E.M. BASED ACTIVITY

KELVIN® Bedroom Design Kit

Students design and model a dream bedroom while building to scale, calculating area and cost, calculating percentage of window area and staying within a budget.

Each kit includes: chipboard base, grid paper, foam core board, pattern sheets for windows, furniture silhouette, furniture flat developments, cost sheets and design brief, dowel rod, felt, glue stick and detailed Instructions. PLEASE NOTE: Teacher must supply glue gun and glue slugs.

842371 Kit\$9.95 or \$8.95 ea./10+

842373 Bulk Pack for 10\$7.50 Per Kit \$75.00

Lighting Consumables Pack

Includes: bulb socket, bulb, slide switch, [2] AA battery holders, and wire.

842374 10/pkg.\$29.95 or \$24.50 ea./10+

Foam Board/Cardstock Holding Jig

Secures foam board and cardstock material safely so students can cut it using a utility or X-Acto™ style knife. Adjustable to widths up to 4-1/4 in. with a metal guard that also serves as a 90° guide.

842372\$55.00

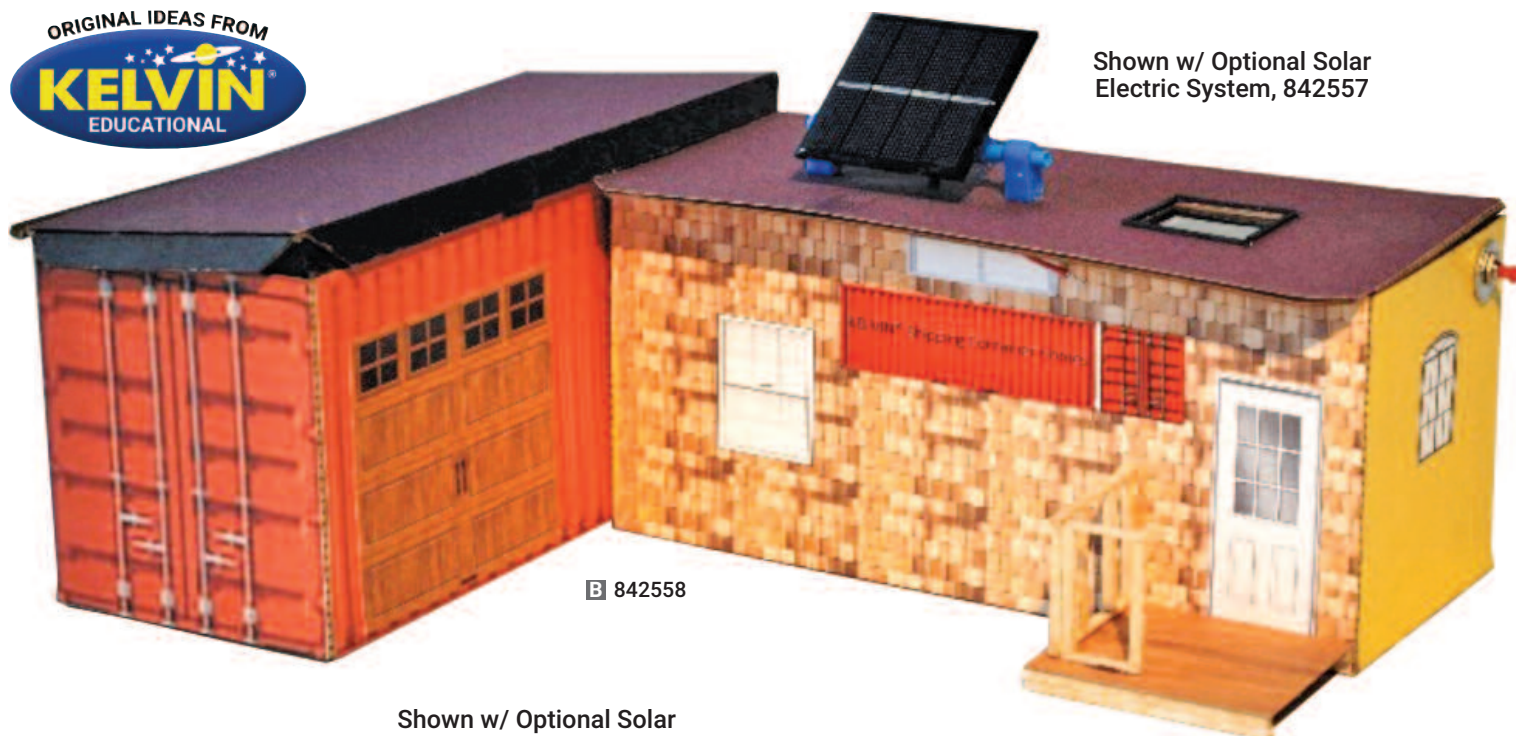


Cut foam safely!



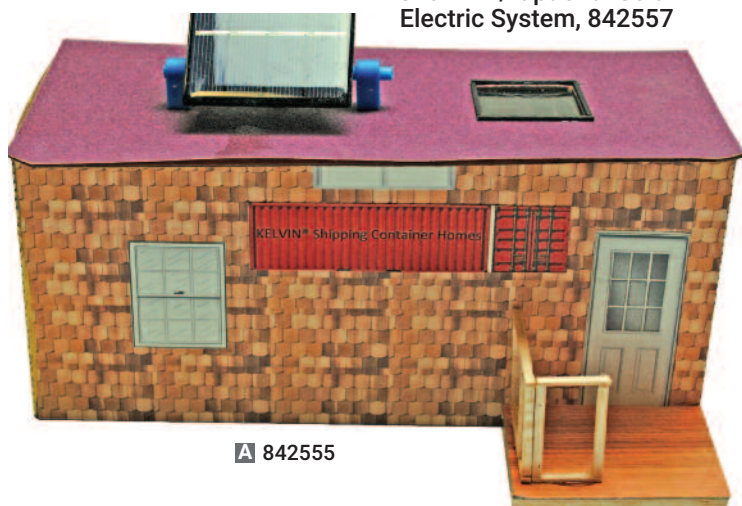
Bulk Pack
Per Kit Price
As Low As

\$7.50



Shown w/ Optional Solar Electric System, 842557

B 842558



Shown w/ Optional Solar Electric System, 842557

A 842555



Sample Floor Plan

KELVIN® Shipping Container Houses w/ Pre-Cut & Scored Chipboard

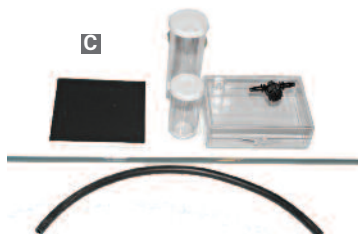
This unique KELVIN® kit helps students explore the alternative housing movement while focusing on the architectural and construction concepts involved in converting shipping containers into small energy efficient homes.

Using a 1/2 in. = 1 ft. scale, students will design the floor plan and exterior for a 160 square foot shipping container home. The model is made from precut and scored chipboard. Window, door and siding images are provided along with furniture 3D templates and interior wall materials.

842555 A 10 in. L x 4-1/2 in. W x 4-1/8 in. H\$14.95 or \$12.95 ea./10+
842558 B 20 in. L x 4-1/2 in. W x 4-1/8 in. H\$26.95 or \$24.95 ea./10+



Optional Water Heater System installed on house.



Optional Water Heater System

Includes containers and tubing.

842556 C Kit\$15.95

Optional Solar Electric System

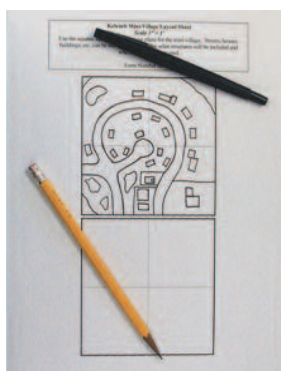
Includes solar cell with leads, battery holder, mounting parts, bulb and bulb holder.

842557 D Kit\$12.95





Have students begin work as town planners by designing their own mini-community.



KELVIN® Build-Your-Own® Community Design Challenge

This activity offers an excellent opportunity for students to learn about the concepts of community planning while working in cooperative groups. Many subject areas are integrated including: tech ed, math, science, social studies and art. Set up problem-solving scenarios such as lakes, streams or hills which students must work with in their designs. Stores, schools, houses and roads are worked into the layout of the community. Students can design their own or use pre-designed buildings. The finished project makes an excellent display for Parents' Night or to promote your technology program.

Kit includes: foam boards (for project platform), pre-printed building patterns with windows and doors, extra windows and doors, pre-printed patterns for stores and school, accessory starter set (trees, cars and people), Design Portfolio and grid cardstock.

841395 Kit with Starter Set\$159.95 or \$151.95 ea./4+
841442 Kit without Starter Set\$69.95 or \$66.95 ea./4+



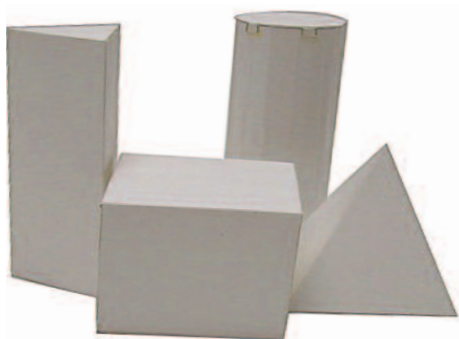
Community Starter Set

Includes cars, people, trees and bushes as well as paint and brushes. Close to N-Scale.

841403\$115 or \$99 ea./4+

KELVIN®

ENGINEERING PRINCIPLES KITS



KELVIN® E.P. Shapes in Paper

Students build a pyramid, a cylinder, a cube and a prism. They learn how these 3-D shapes can be constructed from flat materials, similar to what an engineer might do in industry. The finished products can be used as samples for practicing shading and 3-D renderings.

841318 Kit.....\$4.95 or \$4.75 ea./10+
or \$4.45 ea./25+

Find More Engineering Principles Kits
in Transportation on pg. T 8.



KELVIN® E.P. Packaging Challenge

Students build four different types of boxes. For a design challenge, have students design the product information, promotional words, packaging for a: Soap Box, Jewelry Box, Perfume Box and Game Box. After assembling their box, they can design decorations, logo, UPC code, etc.

This kit includes heavy pre-printed cardstock that students can use to build a box or container and decorate it according to the criteria and constraints from the teacher.

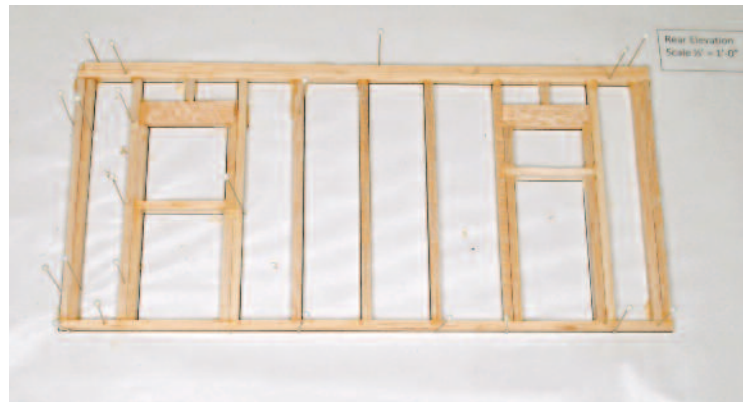
841312 Kit.....\$3.95 or \$3.75 ea./10+
or \$3.45 ea./25+
841821 Bulk Pack of 35\$3.25 Per Kit \$113.75



KELVIN® E.P. Egg Drop Challenge

In this activity, students apply the principles of physics and engineering by designing and testing a container to protect an egg that is dropped from a given height. Mathematical principles will also be used, incorporated in calculating the efficiency of the unit. Kit includes: cardstock, craft sticks, balsa wood strips, high-density foam, bubble wrap, graph paper, isometric paper and instruction guide. Eggs not included.

841339 Kit.....\$7.95 or \$7.45 ea./10+
or \$7.25 ea./25+



KELVIN® Tiny House

Students will design and model the structural frame for a tiny house taking into account space limitations. The activity starts with development of a floor plan using a 1/2 in. = 1 ft. scale. Using the provided templates, students will model the structure from balsa wood sticks. Detailed instructions include construction and architecture vocabulary as well as explanation for framing techniques. Studs are precut to size. Sill plates and beams must be measured and cut by the students. Measures 9 in. L x 4 in. W x 6-1/8 in. H.

842551 Kit **\$23.95** or **\$20.95** ea./10+ or **\$18.95** ea./20+





KELVIN® A-Frame Model House Framing

Construct a model A-Frame house built to 1/2 in. = 2 ft. scale which, when assembled, measures 9-1/2 x 12 x 10 in. and represents a 19 x 24 ft. dwelling. Students can add a loft, window and door locations in their design.

Kit includes detailed instructions, balsa wood, glue, pins and drawings. Also comes with a mounting board for assembly.

841777 Kit\$49.95 or \$44.95 ea./10+ or \$39.95 ea./20+

Updated
with
Drawings!



KELVIN® Bungalow Model House Framing

Using drawings provided, students can build a basic 1-room house. The assembled bungalow measures 7.5 L x 5.25 W x 4.75 H in.

Each kit includes balsa beams, glue, grid paper, and a mounting board for help with assembly. Also comes with detailed instructions and drawings. Requires cutting tools.

842583 Kit\$39.95 or \$37.95 ea./10+ or \$34.95 ea./20+

842516 Bulk Pack of 10\$29.50 Per Kit \$295



KELVIN® Basic Design-A-Deck

Includes instructions and enough materials (wood and brads) to make a student-designed deck and stair system. Size is approximately 12 x 12 in. Other accessories can be purchased separately.

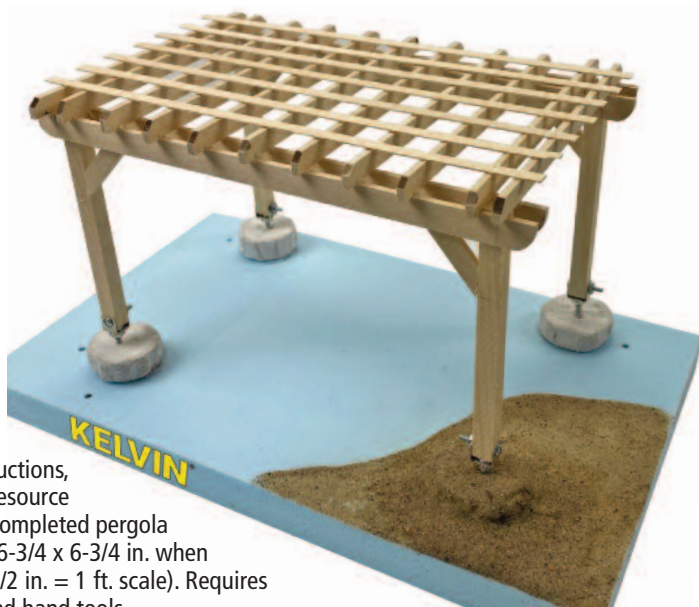
841561 Kit\$29.95 or \$27.95 ea./3+

KELVIN® Pergola

Kit includes: a mix of pine and bass wood that must be cut to size, kid-friendly wood glue and sand "cement"

for footings, hardware, instructions, drawings and resource materials. The completed pergola measures 10 x 6-3/4 x 6-3/4 in. when built to scale (1/2 in. = 1 ft. scale). Requires hot glue gun and hand tools.

842585 Kit\$32.95 or \$29.95 ea./5+ or \$27.95 ea./20+



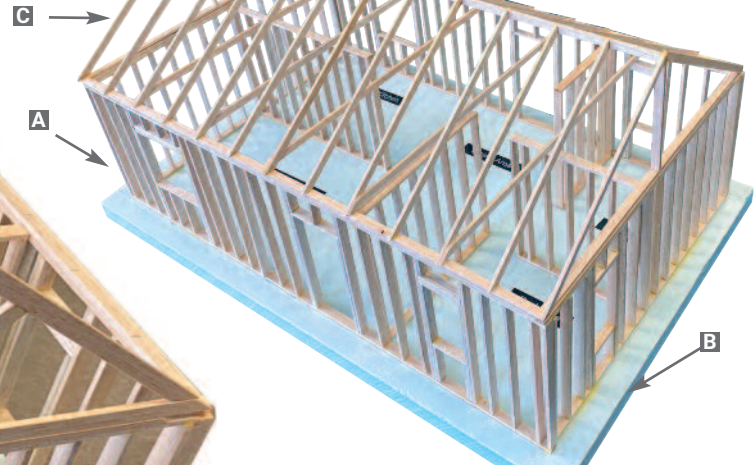
KELVIN® Advanced Design-A-Deck

Includes instructions and enough materials (wood and brads) to make a student-designed, multilevel deck. The deck size is approximately 24 x 12 in.

841562 Kit\$49.95 or \$48.95 ea./3+



Roof Optional,
see 841773 on
Page Bottom.



Roof Framing Kit (841773)
Fits 1-Story House Kit (841771)

KELVIN® 1-Story House Framing Kit

Students can build a 1-story house based on the drawings supplied. The assembled house measures 15 x 25 in. Kit includes balsa wood beams (1/8 x 3/8 in.), grid paper, glue, and pins. Also comes with detailed instructions and drawings. Foam base (420781) and roof (841773) not included.

841771	A Kit	\$79.95 or \$74.95 ea./10+
841886	Bulk Pack of 10 Kits	\$69.50 Per Kit \$695
841770	Kit with Balsa StiKutter™	\$84.95 or \$79.95 ea./10+
420781	B Foam Base, 17 x 26 in., 20/pkg. - includes oversize shipping	\$175



Updated with
Drawings!

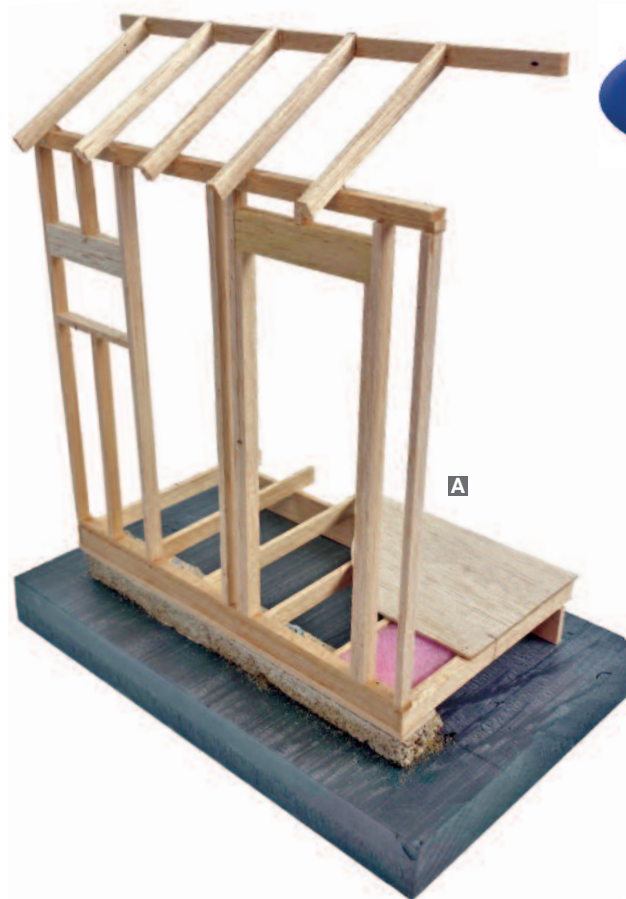


Updated with Drawings!

KELVIN® Roof Framing Kit

Students can design their own roof or build one based on the drawings supplied. Assembled roof measures 15 x 24 in. and fits the 1-Story House (841771). Kit includes 1/8 x 3/8 balsa wood, grid paper, glue, pins and instructions.

841773	C Kit	\$49.95 or \$47.95 ea./10+
841888	Bulk Pack of 10	\$44.50 Per Kit \$445
Roof Framing Kit with Balsa StiKutter™		
841772	.....	\$54.95 or \$52.95 ea./10+



Advanced students, in grades 7-12, can learn more about framing techniques and construction skills!

KELVIN® House Framing Section

This basic introduction to house framing kit comes with detailed drawings and layout templates to simplify the assembly of a partial shed frame. The model is built from easy to cut balsa wood. The frame sits on a foam base and students will pour the foundation using simulated cement material. Framing includes the floor and rim joists as well as the wall studs and headers for door and window. Rafters are also cut and attached.

Kit includes balsa wood, support booklet, glue, pins and sample insulation material. Hobby Knife or KELVIN® Balsa StiKutter™ recommended. The completed frame is 4-3/4 x 8 x 10 in. built to scale.

842589 Kit\$22.95 or \$19.95 ea./5+

KELVIN® Advanced House Framing Kits

These kits allow students to learn more details about construction and framing techniques. Plans, instructions and materials can be used to design and build a single-story cabin, a 2-story house or a structure of the students' own design. Scale is 1/2 in. = 1 ft.

Framing materials are made from easy to cut balsa wood. Drawings serve as templates in which each elevation frame is assembled by pinning the wood to the template. Requires cutting tools (like StiKutter™) for cutting balsa.

Cabin House Framing

Kit includes balsa wood beams, foam base (1 in. T), pink foam to imitate insulation (small sq. piece), pins, wood glue, and instructions. The completed house measures 7-1/2 x 7-1/8 x 8-1/2 in. when built to scale.

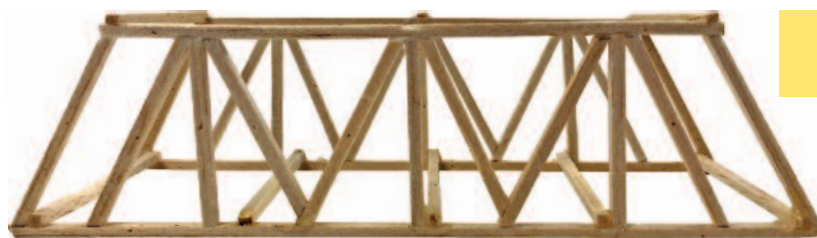
842575 Kit\$34.95 or \$32.95 ea./5+ or \$29.95 ea./10+

2-Story Advanced House Framing

Kit includes balsa sticks (18 in. L), foam base (1 in. T), pink foam to imitate insulation (small sq. piece), pins, wood glue, and instructions. The completed house measures 7-1/2 x 7-1/8 x 13 in. when built to scale.

842576 Kit\$49.95 or \$44.95 ea./5+ or \$39.95 ea./10+





Find Balsa Wood and Bass Wood Beams in Project Resources on pgs. PR 8-11.

KELVIN® Bridge Kits w/ Balsa Wood Beams

Students build a bridge from their design. Kit includes enough balsa wood beams, glue and enough grid paper for one student. Requires cutting tools (like StiKutter™) for cutting balsa.

841348	Kit w/ 1/16 x 1/8 in. & 1/8 x 1/8 in. Beams	\$15.95 or \$14.95 ea./10+
280028	Bulk Pack of 20 Kits w/ 1/16 x 1/8 Beams	\$12 Per Kit \$240
280363	Bulk Pack of 20 Kits w/ 1/8 x 1/8 Beams	\$11.40 Per Kit \$228
841350	Kit w/ 3/32 x 3/32 x 18 in. Beams	\$7.95 or \$6.95 ea./10+

KELVIN® Bridge Kits w/ Balsa Wood Beams PLUS Balsa StiKutter™

Each kit includes: StiKutter™, 1/8 x 1/8 in. balsa wood beams, glue, grid paper and instructions (basic or advanced).

841667	Basic Bridge Kit	\$15.95 or \$14.95 ea./10+
841668	Advanced Bridge Kit	\$17.95 or \$16.95 ea./10+

Find Balsa StiKutters™ in Project Resources on pg. PR 9.



24 in. Long!

KELVIN® Brooklyn Bridge

The Brooklyn Bridge is one of the oldest suspension bridges in the United States, stretching 5,989 feet over the East River of New York state. This scaled-down model measure 24 in. long with an additional 6 in. on each side for anchoring and a total length of 36 in. Requires cutter, pliers, and glue.

842089	Kit	\$29.95 or \$27.95 ea./5+ or \$259.95 ea./10+
842104	Bulk Pack for 10 Students	\$17.50 Per Kit \$175



KELVIN® Bridge Kits w/ Bass Wood Beams

Each kit includes enough beams, glue and grid paper for one student.

1/16 x 1/8 x 13 in. & 1/8 x 1/8 x 13 in. Basswood

841347	Kit	\$6.95 or \$5.95 ea./10+
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3/32 x 3/32 x 18 in. Basswood

841349	Kit	\$7.95 or \$6.95 ea./10+
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3/32 x 3/32 x 24 in. Basswood Class Pack

840690	Pack of 24 Kits & Guide	\$99.95
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Variety of Basswood Sizes Class Pack

841427	Pack of 24 Kits	\$99
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36 in. Long!

KELVIN® Suez Canal Bridge

The Suez Canal spans Bridge spans 2.4 miles long and with 510 ft. towers modeled after obelisks. This scaled-down model measures 24 in. long. Requires cutter, pliers, and glue.

842088	Kit	\$29.95 or \$27.95 ea./5+ or \$259.95 ea./10+
842103	Bulk Pack for 10 Students	\$17.50 Per Kit \$175

ModelSmart

Designed to introduce middle, high school and college students to basic engineering concepts while reinforcing their math and science skills. Written by a professional engineer, ModelSmart allows students to interactively design and test balsa and bass wood structural models of bridges, cranes, towers, and all kinds of structural systems on the computer. Student's explore more structures with less material waste and more fun.

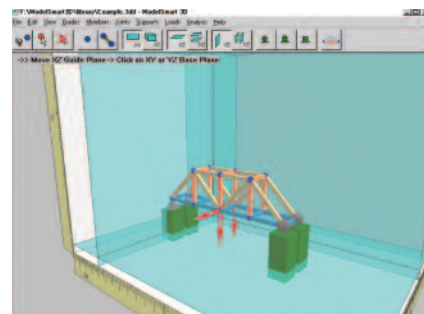
121603	1-User, Windows, CD-ROM	\$49.95
121605	School License, Windows, CD-ROM	\$389.95



ModelSmart 3D

Designed to introduce middle, high school and college students to basic engineering concepts while reinforcing their math and science skills. Written by a professional engineer, ModelSmart allows students to interactively design and test balsa and bass wood structural models of bridges, cranes, towers, and all kinds of structural systems on the computer. Student's explore more structures with less material waste and more fun.

121611	1-User, Windows, CD-ROM	\$79.95
121613	School License, Windows, CD-ROM	\$489.95



KELVIN® Towers & Skyscrapers w/ Balsa Wood

When designing any structure, the architect and engineer must consider size, function, location, building materials and potential forces acting on a structure. Therefore, a residential house is designed and built differently than a skyscraper and a bridge is designed and built differently than an electrical line tower.

Students will explore tower steel framing techniques, sheer walls, curtain walls, and earthquake resistance designs through hands-on design and modeling of a tower frame.

Skyscraper w/ Internal Divider Kit

Each kit includes: balsa and cardstock building materials, ready to use drawing templates as well as detailed instructions and resource materials. The skyscraper, when assembled, measures 3-1/8 in. L x 4 in. W x 9 in. H. Requires cutting tools (like StiKutter™) for cutting balsa and assembly.

842570 **A** **\$13.95** or **\$12.95** ea./10+

Towers & Skyscrapers Kit

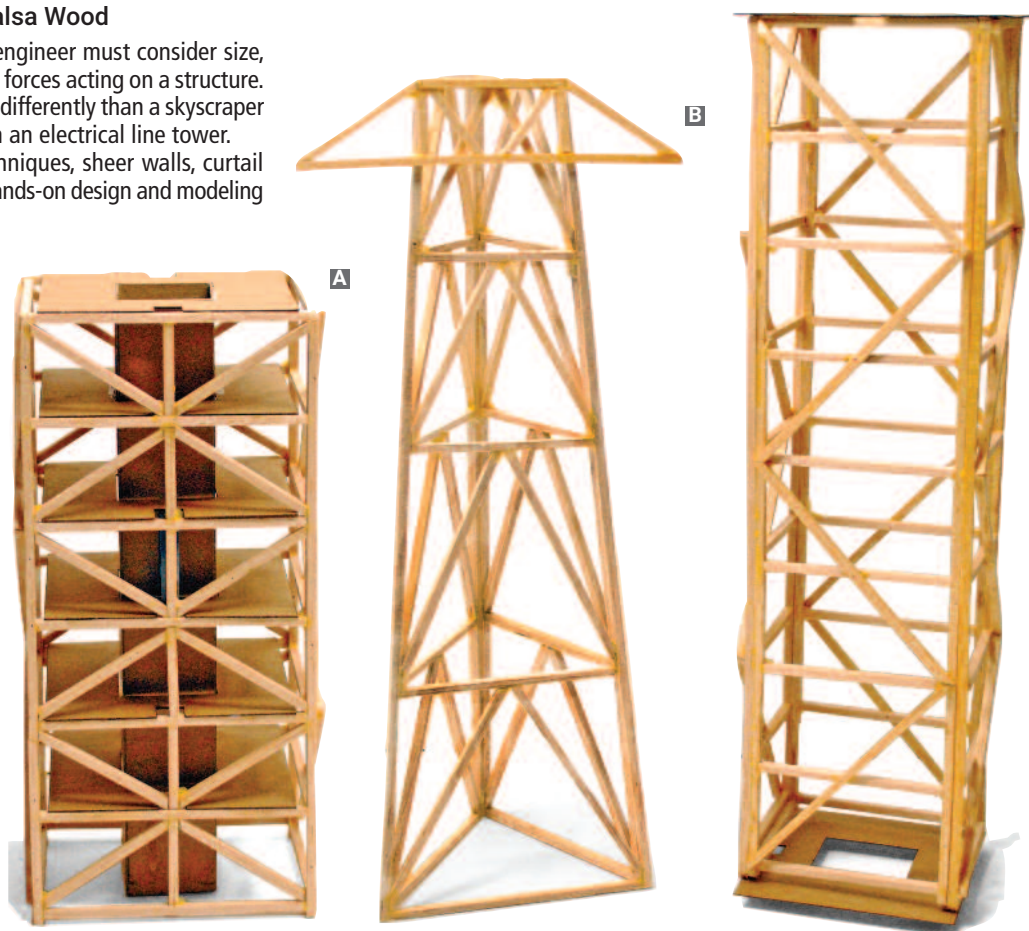
Each kit includes: balsa and cardstock building materials, ready to use drawing templates as well as detailed instructions and resource materials. When assembled, the tower measures 2-7/8 in. L x 3-1/8 in. W x 12-3/8 in. H and the skyscraper measures 3-1/8 in. L x 3-1/4 in. W x 13 in. H. Requires cutting tools (like StiKutter™) for cutting balsa and assembly.

842569 **B** **\$11.95** or **\$10.95** ea./10+

Towers & Skyscrapers
Bulk Pack of 10 Kits

842571 **B** **\$9.99 Per Kit \$99.95**

Find **KELVIN® Bridge & Tower Testers** on pgs. 22-23.


KELVIN® Chain Reaction Contraption Mechanical Parts

The hard-to-find materials students need to supplement a chain reaction contraption whether they are using a national design theme or their own class theme. Ideal for students working in teams.

Includes: ping pong balls, marbles, dowel rods, string, springs, pulleys, gears, plastic spoons, plastic cups, mouse traps, balloons, etc.

1-2 Students

841300 **\$24.95** or **\$18.95** ea./3+

Team of 2-4 Students

841301 **\$48.95** or **\$43.95** ea./3+

Bulk Pack for 6-10 Students

841302 **\$195**

KELVIN® Chain Reaction Contraption Electronic Parts

Includes: switches, wire, sensors, battery holders, buzzer, bulbs, bulb holders, magnetic switches, gear box, etc.

Team of 2-4 Students

841303 **\$44.95** or **\$39.95** ea./3+

Bulk Pack for 8-16 Students

841304 **\$195**

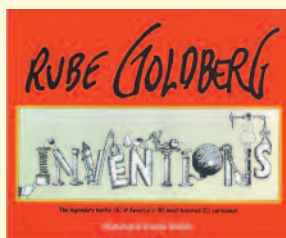
KELVIN® Chain Reaction Contraption

A coin drops into a container in a complex series of chain reaction steps to perform a simple task. The first lever is pulled and activates a second lever, which in turn activates a third lever pulling the magnet away from the steel ball. The steel ball rolls down the ramp tipping the teeter-totter and knocking the coin onto the exposed wires. A buzzer is then activated and, as a result, the vibration knocks the coin into the cup.

Kit includes: Plywood Base, Magnets, Plastic Cups, Required Hardware, Battery Holder, Steel Ball, Wire, Buzzer, Wood and Aluminum Strips and Instructions. Requires assembly, shop tools, [2] AA batteries. Students can work in teams of two. Assembly will require gluing and using school hand tools for construction.

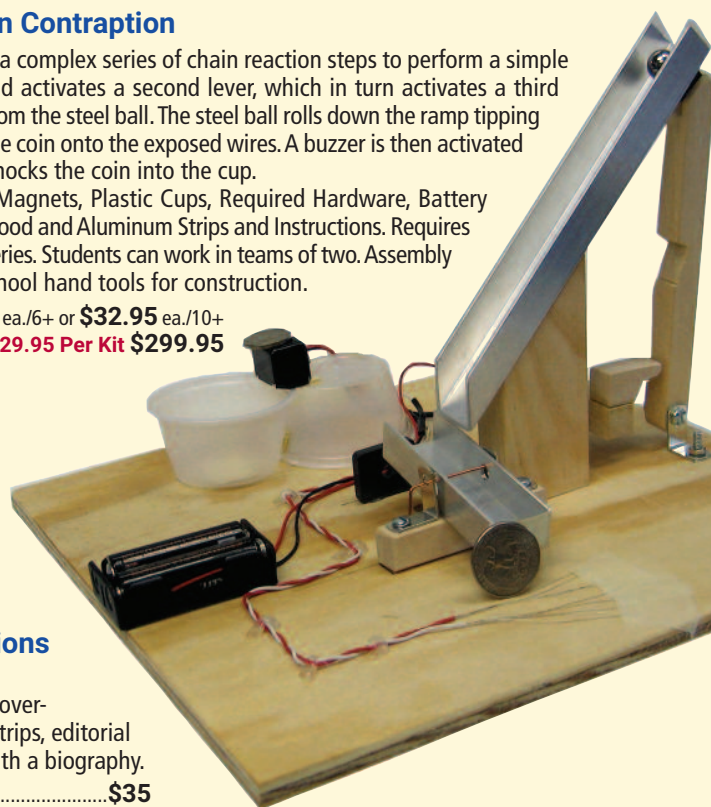
841854 Kit.. **\$39.95** or **\$34.95** ea./6+ or **\$32.95** ea./10+

841856 Bulk Pack of 10 **\$29.95 Per Kit \$299.95**


Rube Goldberg® Inventions
LIMITED AVAILABILITY

A great collection of splendidly over-complicated inventions, comic strips, editorial cartoons, and sketches along with a biography.

651529 Book, 192 pages **\$35**



Test Model Bridges, Towers, Skyscrapers & Houses

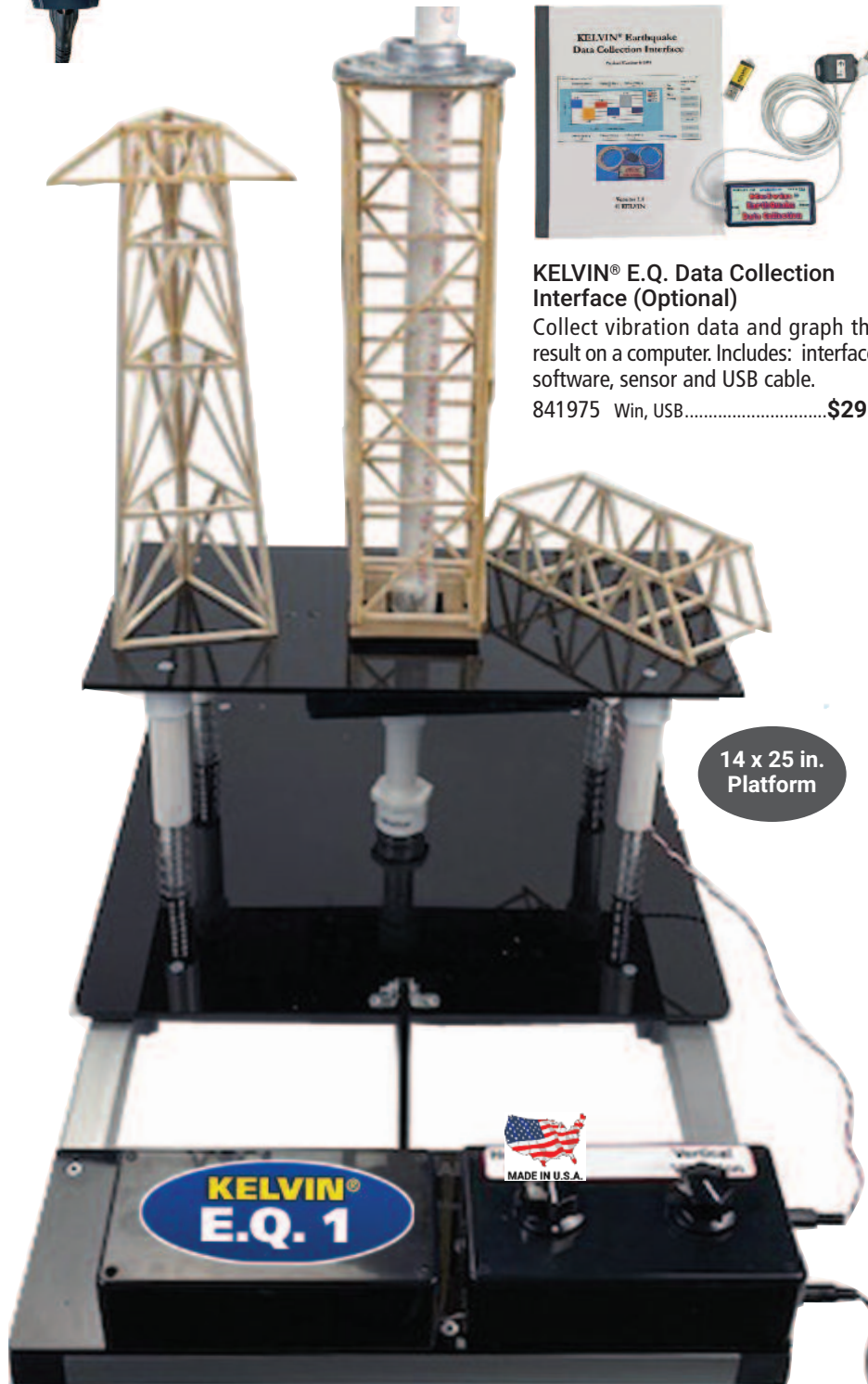
**KELVIN® Advanced Earthquake Simulator w/ Horizontal & Vertical Magnet Motion**

NEW! Now includes Automatic Timer for exact running time. Features built-in power supply and two control knobs. One knob controls side-to-side movement while the other controls up-and-down movement for primary and secondary waves. Grades 7 to College. 110 V AC. USA plug.
851980 Large 14 x 25 in.\$1,350

**KELVIN® E.Q. Data Collection Interface (Optional)**

Collect vibration data and graph the result on a computer. Includes: interface, software, sensor and USB cable.

841975 Win, USB.....\$295



14 x 25 in.
Platform



12 x 18 in.
Testing
Platform

KELVIN® Manual Earthquake Simulator w/ Horizontal Motion ONLY

Simulator has control lever for side-to-side horizontal motion. The testing platform measures 12 x 18 in.

851984\$275



12 x 18 in.
Testing
Platform

KELVIN® Mini Earthquake Simulator w/ Horizontal Motion ONLY

The simulator has a built-in power supply and one control knob that controls the side-to-side horizontal movement. Testing platform measures 12 x 18 in. 110 V AC. USA plug.

851985\$695

Test Model Bridges & Towers

KELVIN® Long Island Structure Tester™

New updated tester design in wood is shipped for easy assembly. The metal tester is solidly welded and is shipped for easy assembly.

Comes with: frame, bridge support, boom testing system, bucket, hook attachments, instructions and a class pack of balsa wood with glue.

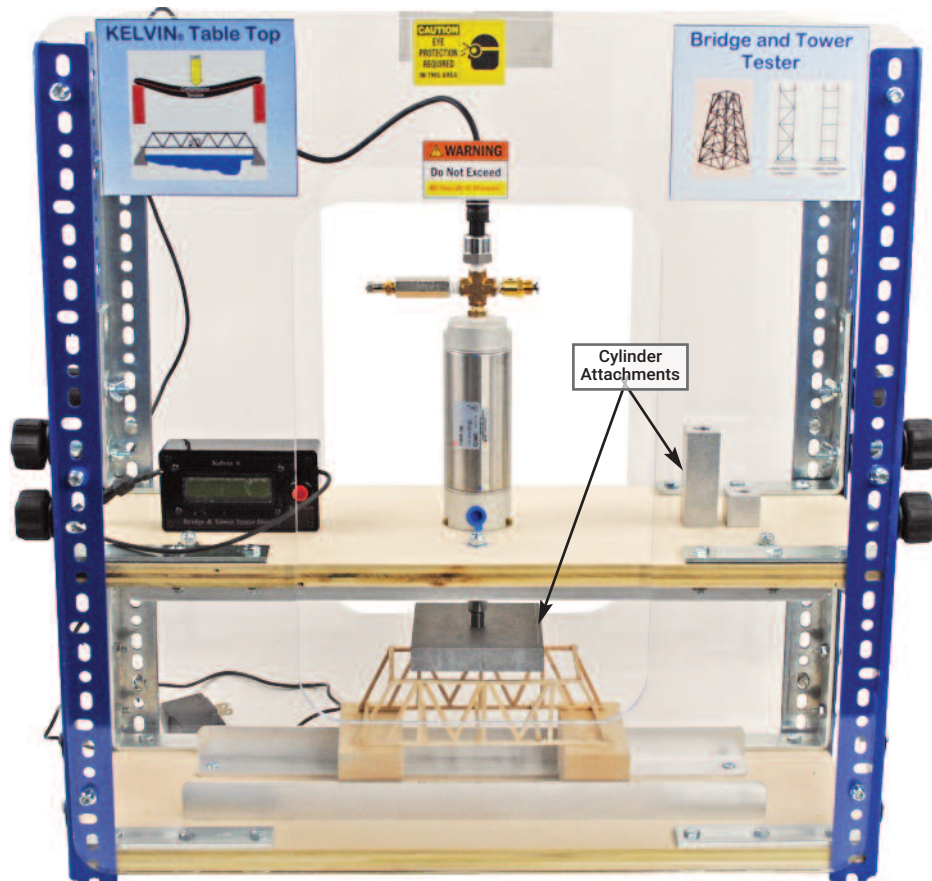
851993\$395



KELVIN® Tabletop Bridge & Tower Tester

The center table can be adjusted up and down to accommodate different height structures. A hand pump slowly provides air to activate the 100 psi pneumatic cylinder. Includes [3] sizes of metal cylinder attachments (1 x 1 x 1 in., 1 x 1 x 3 in. and 3/4 x 4 x 4 in.) and accurate digital display. 110 V AC. USA plug.

851964\$1,295





KELVIN® Creative Crane

Students design and build a lightweight crane that creatively lifts a variable load of U.S. pennies from a structure following the load and lifting specifications provided. Students can also design a container to hold the pennies. There are no restrictions except that the container may not be structural and can not rest on the ground.

The crane must lift the load at least 6 in. to qualify; the one that lifts the greatest load and meets portfolio/interview requirements showing proper application of the concepts introduced will be deemed the best design. Scores are based on Maximum Load, Team Portfolio and Team Interview.

Teacher supplies glue (such as hot glue guns or wood glue), thin sheet metal (for block and tackle), nuts and bolts or pins and nails (for pulley axle). A DC voltage power source is required (see 842639). Assembly is also required, this is NOT a laser cut or pre-designed. Grades 7–College.

Kit w/ Balsa Wood

Kit includes: competition balsa wood, set of 4 pulleys DC motor, motor holder, and a competition guide.

841544\$24.95 or \$22.95 ea./10+

Kit w/ Balsa Wood & StiKutter™

841692\$29.95 or \$27.95 ea./10+

Class Pack of 6 Kits (No Wood)

841285\$9.99 Per Kit \$59.95

Class Pack w/ Balsa Wood (1/8 x 1/8 x 12 in.)

281684\$99

KELVIN® Variable Power Supply w/ Polarity Box

842639 0-30 V / 5 A\$145

KELVIN® Creative Crane Pulley

Fits a 2mm motor shaft or a 1/8 in. dia. axle. Inside width is 3/8 in. and overall width is 0.94 in. Inner dia. is 0.28 in. and outer dia. is 1-1/2 in. Has holes in side wall to thread string through.

990212 10/pkg.\$9.95 or \$8.95 ea./3+



Find More Beams & Triangles™ products on pgs. 10-11.



Build working models like: vehicles, bridges, houses, towers, windmills, cranes, and whatever else your students can imagine!



KELVIN® Beams & Triangles™ Open-Ended Design Kit

Design and create structures, vehicles and machines using student made frames, gears, levers, pulleys, wheels and axles.

Kit includes: pine wood beams (3/8 in. sq. and 3/16 x 1/2 in.), dowel rods (3/16 in. dia.), twine, chipboard wheels (1-1/2 in. dia.), tubing, printed cardboard axle mounts and triangles.

Assembly is required so students will have to drill, cut and glue their projects. Requires KELVIN® Gear Jig, Joint Jig and Cutting Jig (see pg. 11) as well as other hand tools.

842307 Kit\$9.95 or \$8.95 ea./5+

842308 Bulk Pack of 10 Kits\$8 Per Kit \$80

650511 Lesson Guide.....\$9.95

KELVIN® Tower Crane

The Tower Crane is different from the Creative Crane™ as the power unit and motor are positioned on the boom making for easier construction. In this activity, groups of students are asked to use the Engineering Design Process to design, build and test a tower crane that meets certain specifications. Students' research tower cranes for design input, then break into smaller groups. One group designs the tower while the other designs the boom. The two groups must communicate and cooperate to develop a testable, useable model.

Kit includes: creative crane pulley, set of 4 gears, set of 4 pulleys, dc motor, motor holder, balsa, wire, wood base, and instructions.

Requires [2] power supplies (see 842639) or dual power supply to operate crane and swing unit simultaneously.

841823 Kit\$14.95 or \$13.95 ea./10+
841824 Bulk Pack of 10 Kits\$9.90 Per Kit \$125

KELVIN® Variable Power Supply w/ Polarity Box

842639 0-30 V / 5 A\$145

KELVIN® Creative Crane Pulley

Fits a 2mm motor shaft or a 1/8 in. dia. axle. Outer dia. is 1-1/2 in. Has holes in side wall.

990212 10/pkg. . \$9.95 or \$8.95 ea./3+



KELVIN® Swing Unit Kit

Using this kit, students can design a mechanism to allow the boom of their tower crane to swing so that it can lift a load from one spot and place it in another.

Kit includes: 1:100 gear motor, gear set, pulley set, wood (1/8 x 3 x 12 in.), wire, and instructions.

841825 Kit\$19.95 or \$18.95 ea./10+

KELVIN® Gear Box & Pulley Activity

Learning about gears and what they can be used for (gearing for speed or for power) is an important aspect of many crane and vehicle activities.



Kit includes: creative crane pulley, set of 4 gears, set of 4 pulleys, DC motor, motor holder, wood, and instructions.

Please note, this activity must be clamped to a table (clamp is not included). The teacher will need to supply: string, glue, screws and a C-Clamp.

841810 Kit.....\$9.95 or \$8.95 ea./10+

841811 Bulk Pack for 20\$6.25 Per Kit \$125



Bulk Pack
Per Kit Price
As Low As

\$9.90

Variable Power Supply
w/ Polarity Box



Design It! Lesson Guide: Cranes

Using a cardboard box as the body, yardstick as a boom, and small electric motor as the power source, students make a working model of a crane. Use different ways of attaching string to the shaft of the motor so that it can lift varying amounts of nails in a cup.

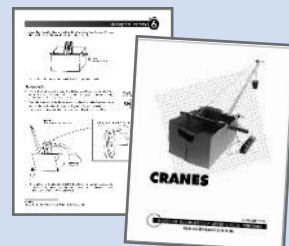
651813 Guide.....\$9.95 or \$8.95 ea./10+



EDC

KELVIN®

Introductory
Engineering
Experiences



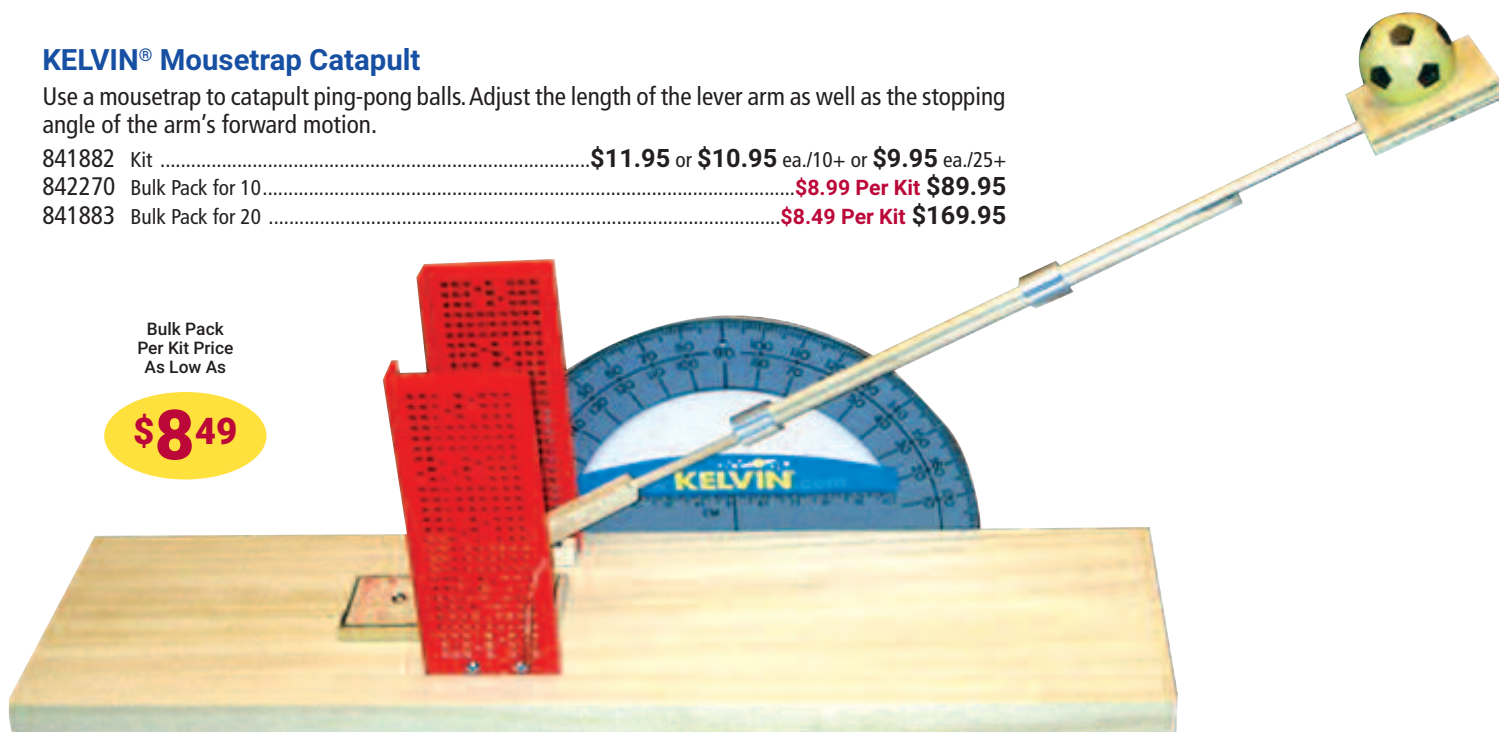
KELVIN® Mousetrap Catapult

Use a mousetrap to catapult ping-pong balls. Adjust the length of the lever arm as well as the stopping angle of the arm's forward motion.

841882	Kit	\$11.95 or \$10.95 ea./10+ or \$9.95 ea./25+
842270	Bulk Pack for 10	\$8.99 Per Kit \$89.95
841883	Bulk Pack for 20	\$8.49 Per Kit \$169.95

Bulk Pack
Per Kit Price
As Low As

\$8.49



Bulk Pack
Per Kit Price
As Low As

\$12.50

Bulk Pack
Per Kit Price
As Low As

\$13.50

KELVIN® Ancient Catapult

Includes wood and instructions. Requires assembly and hand tools for measuring, cutting, hammering, sawing and drilling.

841860	A Kit	\$14.95 or \$13.50 ea./10+
841863	Bulk Pack of 10	\$12.50 Per Kit \$125

KELVIN® Medieval Trebuchet

Includes 24 in. long wood and instructions. Requires assembly and hand tools for measuring, cutting, hammering, sawing and drilling.

841861	B Kit	\$15.95 or \$14.95 ea./10+
841864	Bulk Pack of 10	\$13.50 Per Kit \$135



Bulk Pack
Per Kit Price
As Low As

\$7.50

KELVIN® Kre8® Catapult

All aspects of assembly and performance of this catapult are easy and fast to adjust:- the amount of leverage the throwing arm has, the trajectory angle and the power applied by the elastic band making this ideal for class competitions. Pull back the arm and let the ping pong ball fly. Construct the catapult in one class and fold it flat to store or take home.

Kit includes: clip connectors, slit rods, tubes, string, bag, sand paper and instructions.

283660	Kit	\$9.95 or \$8.95 ea./5+
283639	Bulk Pack of 20	\$7.50 Per Kit \$150

Find More KELVIN® Kre8® products on pgs. 2-9.

Pre-Cut &
Pre-Drilled



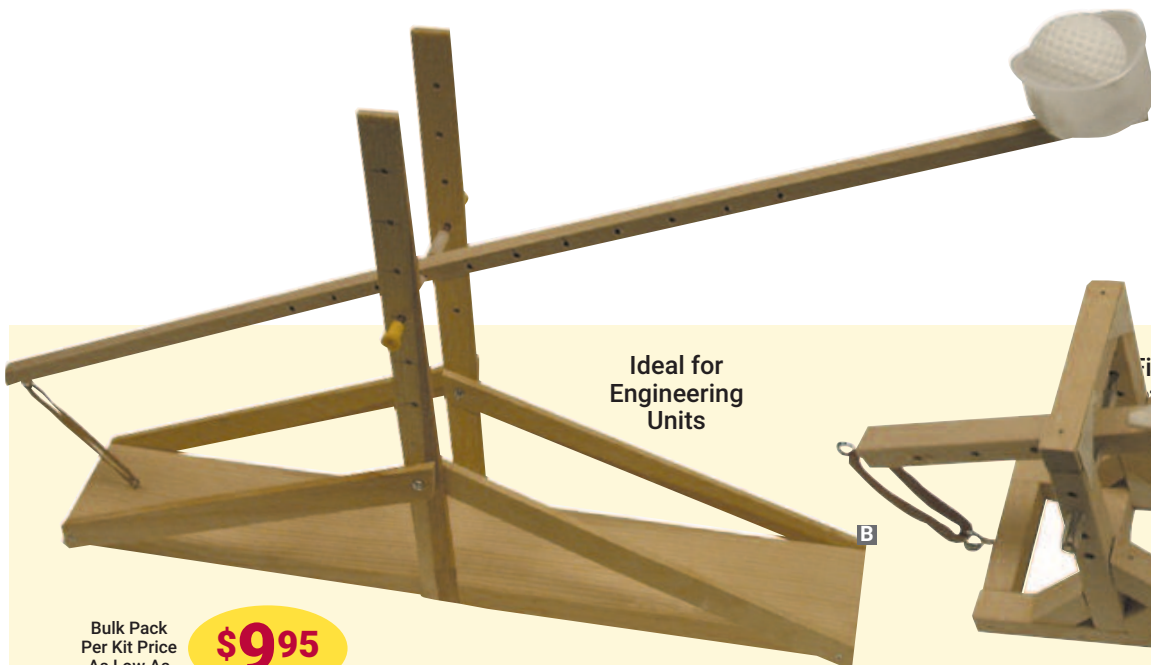
KELVIN® Adjustable Stop Catapult

Learn the fundamentals of force, energy, simple machines, Newton's Laws, trajectory and other science and math concepts.

Simple assembly has this fun activity ready to test in a short time. Works with magnets or rubber band. The moving lever arm is powered by a rubber band and adjustable to twelve different stop positions.

Kit includes: pre-cut and pre-drilled wood parts, magnets or rubber band, and instructions. Requires assembly.

842461 Kit w/ Magnets (shown)\$16.95 or \$15.95 ea./10+
842381 Kit w/ Rubber Band\$14.95 or \$13.95 ea./10+



Ideal for
Engineering
Units

Bulk Pack
Per Kit Price
As Low As

\$9⁹⁵

KELVIN® Large Catapult B

The large catapult has a large base (18 x 2-1/2 in). and features a swing arm that can be up to 24 in. L.

Each kit include:s wood, plastic cup and ping pong ball. Requires assembly and hand tools for measuring, cutting, hammering, sawing and drilling.

841229 Kit..\$11.95 or \$10.95 ea./10+ or \$10.45 ea./25+
841814 Bulk Pack of 24.....\$9.95 Per Kit \$238.80



Find More
Catapults at

KELVIN® Small Catapult A

This catapult features a small 7-1/2 in. long base with a swing arm that can be made up to 12 in. L.

Each kit: includes wood, plastic cup and ping pong ball. Requires assembly and hand tools for measuring, cutting, hammering, sawing and drilling.

841362 Kit\$9.95 or \$9.45 ea./10+ or \$8.95 ea./25+
841815 Bulk Pack of 24\$7.95 Per Kit \$190

Bulk Pack
Per Kit Price
As Low As

\$7⁹⁵

Explore the historical significance, design and function of landmark lighthouses!

Bulk Pack
Per Kit Price
As Low As

\$4.99



KELVIN® Discover It™ Lighthouse

Students can design their own creation, model an existing lighthouse or use the KELVIN® design to produce a working model. Class pack includes [30] pre-printed cardstock, knife switches, lamps, lamp bases, wires, battery holders and instructions. Requires AA batteries. Grades 2 & up.

842044 Bulk Pack of 10 Kits**\$5.99 Per Kit \$59.95**
842045 Bulk Pack of 20 Kits**\$4.99 Per Kit \$99.95**

KELVIN® Design-A-Totem Pole™

6D Design for the
Sides, Top & Bottom!

Every carved part of a totem pole is significant and has it's own story. The Northwest Pacific Coast Natives carved totem poles as records of their past history in a culture that had no written language.

Students design six dimensions (top, bottom and 4 faces) of the totem pole either using grid paper or, for more advanced students, CAD software. After drafting a final design, students transfer it to the wood blank. Using various wood crafting techniques, they carve out their totem pole. The totem pole can be sanded and then considered finished or taken even further by painting it.

Includes DesignGrid™ Paper and Wood Blank. Plans are not included to encourage student problem-solving skills. Grades 3 to 8.

841150**\$6.95 or \$6.45 ea./10+**



KELVIN® Reverse Engineering A Flashlight

Reverse engineer an everyday product and discover its designer's ideas and concepts. The activity includes step by step instructions for the student and teacher along with probing questions that direct student investigation of the product.

Each kit comes with: Flashlights, Student Study Guides and a Teacher Resource Guide. Please note actual project contents are subject to change.

841828 Bulk Pack of 10**\$11.50 Per Kit \$115**



**Construct a lamp out
of almost anything!**

KELVIN® Lamp Kit

A great product for mass production projects. It can also be used for fund raising. Students design and construct the base for this lamp out of almost anything—a stack of books, a mason jar or a creative wood sculpture. The kit includes: 6 ft. long cord with plug, push-thru socket, 12 in. lamp pipe, and [2] hex nuts. Requires harp/final.

840675 Kit**\$6.95 or \$5.95 ea./10+**
842383 Bulk Pack of 15**\$5.66 Per Kit \$84.95**

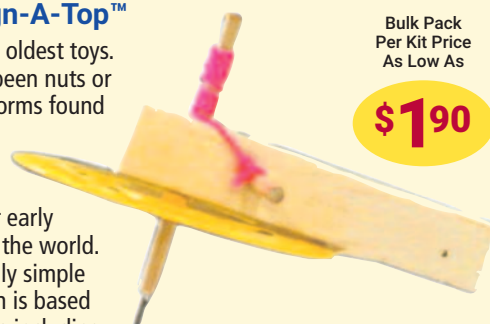
KELVIN® Design-A-Top™

Tops are among the oldest toys. The first may have been nuts or other symmetrical forms found in nature. Tops as toys were used by the early Chinese, Japanese, and other early civilizations around the world.

While a seemingly simple device the operation is based on science principles including: torque, angular momentum, gravity, and center of gravity. Relate concepts such as symmetry in design and planning, to apply math in areas of measurement, and technical skills such as cutting, shaping and fastening.

Kit includes: 3/4 x 1 x 5-1/2 in. soft wood stick, 1/4 x 6 in. wood dowel, #18 x 1/2 in. escutcheon pin, 18 in. long piece of string, 1/4 in. CD axle insert, CD wheel and a KELVIN® TeAct Direction Sheet.

282383 Bulk pack for 50**\$1.90 Per Kit \$95**



Bulk Pack
Per Kit Price
As Low As

\$1.90

KELVIN® Design-A-Game™ Classroom Challenge

Students begin by sketching and describing their game (the rules, how many can play, why it would be fun, etc.). They then continue to design the game mechanically or use desktop publishing software and a computer. Use the products below and other materials to **BUILD** a prototype and **EVALUATE** the game by playing it. With **FEEDBACK** from participants, students should make any adjustments needed to make the game a success. Grades 2-12.

Design-A-Game™ Class Pack

This class pack contains: Assorted Dice, Large Pawns, Novelty Pawns (Rocket, Airplane, Horse with Rider, House and Hotel), Scoring Pencils, Paper Money, Sand Timers (10-second and 30-second), Chipboard (24 x 36 in.) for the game board, DesignGrid™ Paper and cardboard boxes for game storage.

842514 Design-A-Game™ Class Pack\$295

Design-A-Game™ Parts

Use your color printer to design the box cover! Both part sets include playing board, unassembled blank game box, large game pawns (assorted colors), spinner, [2] backgammon dice, sand timer, blank paper and DesignGrid™ Paper.

The Advanced Parts set also includes additional pawns (rocket, horse, hotel, house, airplane), fake money and doubling dice.

841049 Basic Design-A-Game™ Parts.....\$19.95 or \$18.95 ea./10+

841050 Advanced Design-A-Game™ Parts\$49.95 or \$47.95 ea./10+

Game Box Kit

Top and bottom boxes for 8 x 11 in. size box. Ready for design, cutting, assembly and decoration. Printed on cardboard.

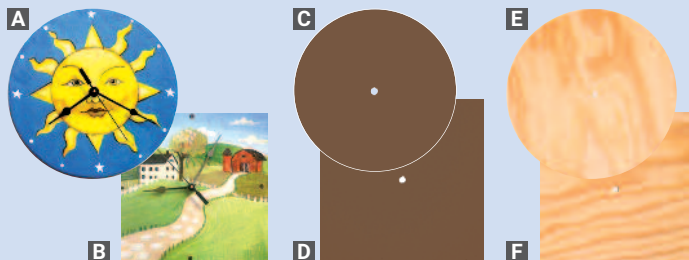
430158 20/pkg.\$49.95



Decorate the game board and box with markers, or use a computer to design and print out designs and paste them onto the Game Box and Board.



Design A Clock & Decorate It How You Want



KELVIN® Design-A-Clock™ Kit

Kit includes a round or square wooden clock face (10 in.) with pre-drilled hole, quartz clock movement (2-1/4 in. sq. x 5/8 in. thick), arabic numbers, seconds, hours and minute hands (6-3/8 in. diameter), washers, nuts, poster paint (set of 6) and a paintbrush. Requires AA battery.

841765 A Round Face Kit\$36.95 or \$34.95 ea./6+ or \$29.95 ea./20+

841764 B Square Face Kit\$36.95 or \$34.95 ea./6+ or \$29.95 ea./20+

Clock Faceplate w/ Pre-Drilled Center Hole (5/16 in. dia.)

420778 C Chipboard, Circle, 8-1/2 in. dia., 0.03 in. T..\$2.95 or \$2.45 ea./10+

420779 D Chipboard, Square, 12 in. sq., 0.03 in. T\$2.95 or \$2.45 ea./10+

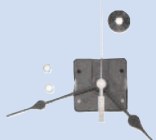
970241 E Wood, Circle, 10 in. dia., 3/8 in. T\$7.95 or \$7.45 ea./10+

970226 F Wood, Square, 10 in. sq., 3/8 in. T\$7.95 or \$7.45 ea./10+

Quartz Clock Movement w/ Hands

Includes: digital quartz clock movement (2-1/4 x 2-1/4 x 5/8 in.), 3/8 in. L x 5/16 in. dia. threaded shaft (includes washers and nuts), and clock hands for hours and minutes (6-3/8 in. dia.). Requires AA battery.

280161 Kit.....\$8.45 or \$7.95 ea./10+



Dice

210002 A 4-Side, Assorted Colors, 20/pkg.\$7.95

210001 B 6-Sided, Assorted Colors, 20/pkg.\$7.95

210003 C 8-Sided, Assorted Colors, 20/pkg.\$7.95

210004 D 10-Sided Dice, Assorted Colors, 20/pkg\$7.95

210005 E 12-Sided Dice, Assorted Colors, 20/pkg.....\$7.95

210006 F 20-Sided Dice, Assorted Colors, 20/pkg.....\$7.95

210008 G Doubling Dice, 6-Sided, 10/pkg.\$5.95

210076 H Backgammon Dice, White, 5/8 in. H, 20/pkg.\$7.95



Pawns

210010 I 1 in. tall, Assorted Colors, 500/pkg.....\$36.95

210026 J Rocket, 1 in. tall, Assorted Colors, 100/pkg.\$14.95

210027 K Airplane, 1 in. tall, Assorted Colors, 100/pkg.\$14.95

210029 L Horse/Rider, 15/16 in. tall, Assorted Colors, 100/pkg.\$27.95



Marbles

Glass marbles in six solid colors (2 each) for a total of 12 marbles. Marbles measure 14.2 mm in dia.

870037 M 12/pkg.....\$1.45 or \$1.25 ea./10+

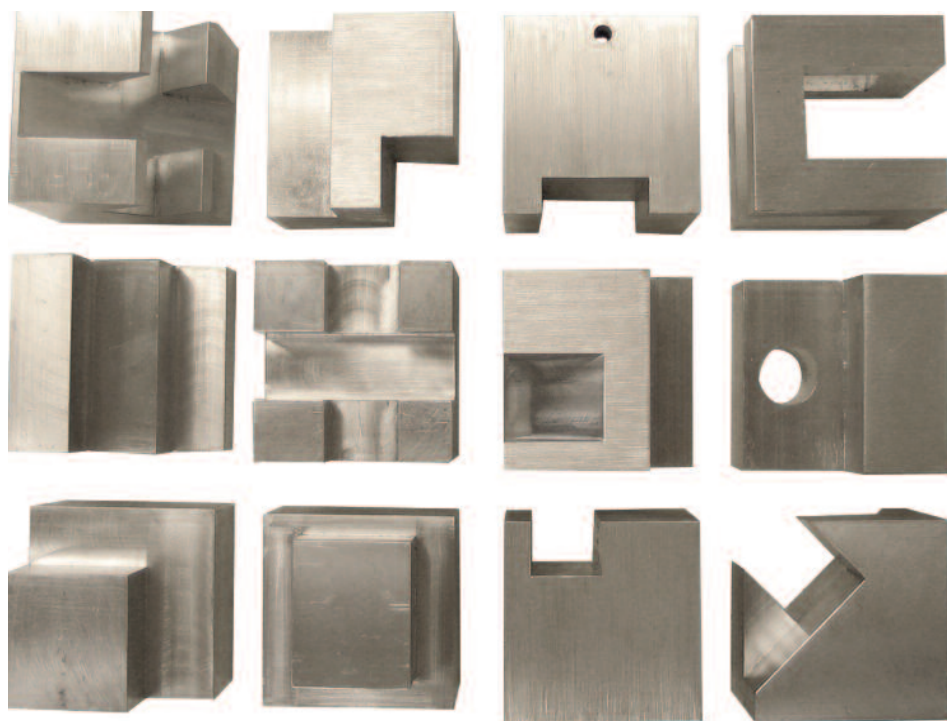


Arrow Spinner

210022 N 3 in. L, 30/pkg.\$14.95

Scoring Pencils

210021 O 3-1/2 in. L, 50/pkg.\$19.95



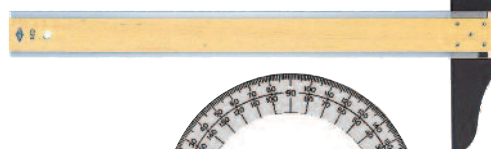
KELVIN® Drafting & Measurement Cubes

Ideal for practicing drafting skills. Each cube measures 2 x 2 x 2 in. PLEASE NOTE, Each cube is individually machine cut and polished from aluminum - this is not a mass production item.

- 420407 Set of [12] Cubes.....\$795
420782 Set of [12] Cubes PLUS [6] Calipers & [50] Sheets of Grid Paper\$995

T-Square Hardwood

- 420086 24 in. L\$24.95



Protractor

- 420226 3-1/2 in. W.....99¢ or 85¢ ea./10+



Triangles

Degrees	Length In.	Fig.	Stock #	\$ ea.
30 / 60	6	A	420099	3.95
	10	A	420044	5.95
45 / 90	6	B	420095	3.95
	8	B	420096	5.95
	10	B	420045	5.95



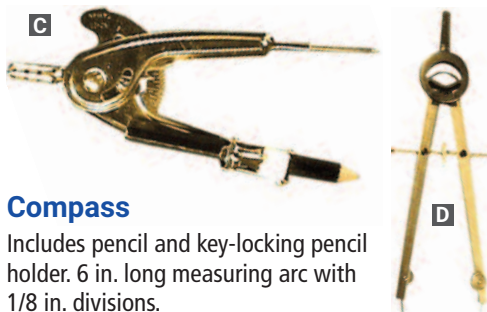
Rulers

- 420225 Plastic, 12 in.\$1.25 or 99¢ ea./20+
910038 Steel, 12 in.\$7.95 or \$7.45 ea./10+



Triangle Scales

- 420078 Architect's, White, 12 in. L\$7.95
420079 Architect's, Yellow, 12 in. L\$7.95
420080 Mechanical, White, 12 in. L\$7.95



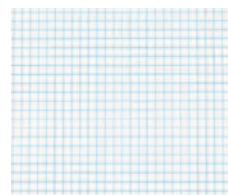
Compass

Includes pencil and key-locking pencil holder. 6 in. long measuring arc with 1/8 in. divisions.

- 420064 C.....\$3.95 or \$3.25 ea./10+

Compass & Divider Bow-Style

- 420066 D 6 in. dia.....\$13.95 or \$12.95 ea./3+



Grid Paper

Printed on both sides.
4 sq./in. 11 x 17 in.
sheets. 50/pkg.
420421\$19.95

Foam Sheets

Attach designs on paper to the foam sheet with pins. Then, lay balsa wood on top of the design and pin it in place as the glue dries. Paper-backed sheets measure 20 x 30 in. and are 3/16 in. thick.

- 420223 3/pkg.\$19.95

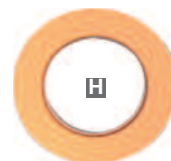


Pins



Useful for attaching paper and balsa wood to foam.

- 390439 E Round Head, 1-1/4 in. L, 500/pkg. ..\$32.95
390480 F Flat Head, 1000/pkg.\$29.95



Drafting Dots

- 420207 G 7/8 in. dia., 500/pkg.....\$14.95

Drafting Tape

- 340068 H 1/2 in. W x 60 yds.\$9.95
340071 3/4 in. W x 10 yds.\$9.95



Inch Dial Calipers

Measure capacity from 0-6 in. Dial is graduated in 0.01 in. and 64ths with inch and mm identified.

- 910042\$39.95 or \$37.95 ea./3+



Digital Calipers Precise

- 910062\$39.95



Micrometer

0.001 in. accuracy.
Zero adjust. Satin finish.

- 910040\$22.95 or \$20.95 ea./3+

TRANSPORTATION

KELVIN® ENGINEERING IN SCHOOL

Find Land Transportation
on pgs. 2-26.



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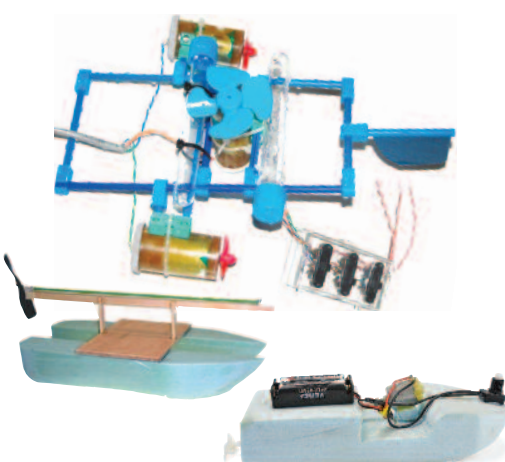
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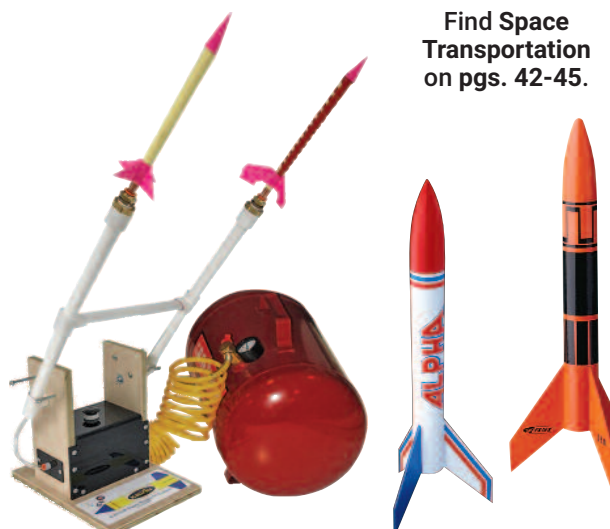
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KELVIN® New Standards® S.T.E.M. Lab: Work, Machines & Gears

Discover how the application of gears help machines perform work with speed and power. Students, in teams of two, will assemble gear trains, calculate gear ratios and predict gear directions. They will also experiment with gear train designs to help solve speed and torque problems.

Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included. Gr. 7-12.

Team Pack

Includes: Reusable Corrugated Plastic Display Board, [5] EV Racers Kits, [2] Gear Box Car Kits, [3] Advanced Gear Sets, [3] Spring Scales, [3] Pulley Ratio Training Boards and [3] Gear Ratio Training Boards.

842474 Team Pack.....\$95

Class Pack

Includes [3] Team Packs (842474) plus a Reusable Corrugated Plastic Display Board and ★ BONUS [3] E.V. Racer Kits (841016).

842481 Class Pack - Team Pack PLUS ★ Bonus\$295

Hands-on New Standards® S.T.E.M. Labs are ideal for schools, home learning, science fairs, and camps, as well as museum and other workshops.

KELVIN® New Standards® S.T.E.M. Lab: Land Transportation

An entry level lab that helps students investigate things that move on the ground. Connect lessons about force, motion, friction and Newton's Laws with hands-on activities.

Students can design their own display board (like sample shown) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included. Gr. 4-7.

Team Pack

The team pack includes:

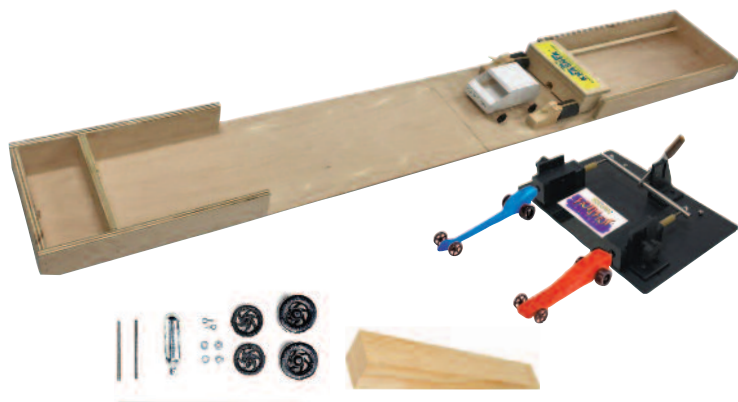
- Corrugated Plastic Display Board
- Penny Racer Track
- [10] Penny Racer Kits
- Economy Foam Cutter (assembled)
- [5] Balloon Racer Kits
- [3] Recycled Bottle Car Kits (bottles not included)
- [5] Balloon Hovercraft Kits
- [5] Solar Racers Kits

Team Pack - Track and [26] Kits

842493\$275



**KELVIN® New Standards® S.T.E.M. Lab:
Land Transportation**



Featuring Vehicle Safety Design and CO2 Dragsters, this start-up package includes all the supplies that students will need to design, build and launch a CO2 dragster. Hands-on activities include adding safety features to the vehicle's design so that students can study the effects of seatbelts, bumpers, and airbags on egg passengers (not included).

Problem-solving is used to evaluate why some designs were better for the egg passengers than others. Students can compete to see which vehicle is the safest or can travel the farthest or fastest. Grades 6-12.

Includes: HotShot CO2 Dragster Raceway™ (2-lane), KELVIN® Krasher, [30] CO2 dragster kits, [30] CO2 dragster blanks, [100] CO2 cartridges, [25] propellers, [36] motors, [60] wheels, [200] gears, pulleys, balsa wood strips, balloons, rubber bands, heavy-duty fish line, scissors, snap blade craft knives, self-healing cutting mats, tape, grid paper, ruler, design portfolio pack, lesson guide, [3] medallions for technology excellence and [60] certificates for technology excellence.

PLEASE NOTE: This lab includes CO2 cartridges which can only be shipped to the Continental U.S. via Ground Service.

840764Shipping is \$50 **\$1,795**

**New Standards® S.T.E.M. Lab:
Kre8® Modeling Gr. 4-7**



The ideal lab for young engineers in teams of two. KELVIN® Kre8® products are built from a unique building system consisting of tubes and connectors. The system can be used to model structures, vehicles and mechanisms. The tubes are cut to size using the included snips and snapped into position using different connectors. Parts are included to mount motors, gears and wheels.

Students can design their own display board (like sample above) for the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included. Requires Kre8® Tube Cutter or snips (see pg. AD 2).

Team Pack

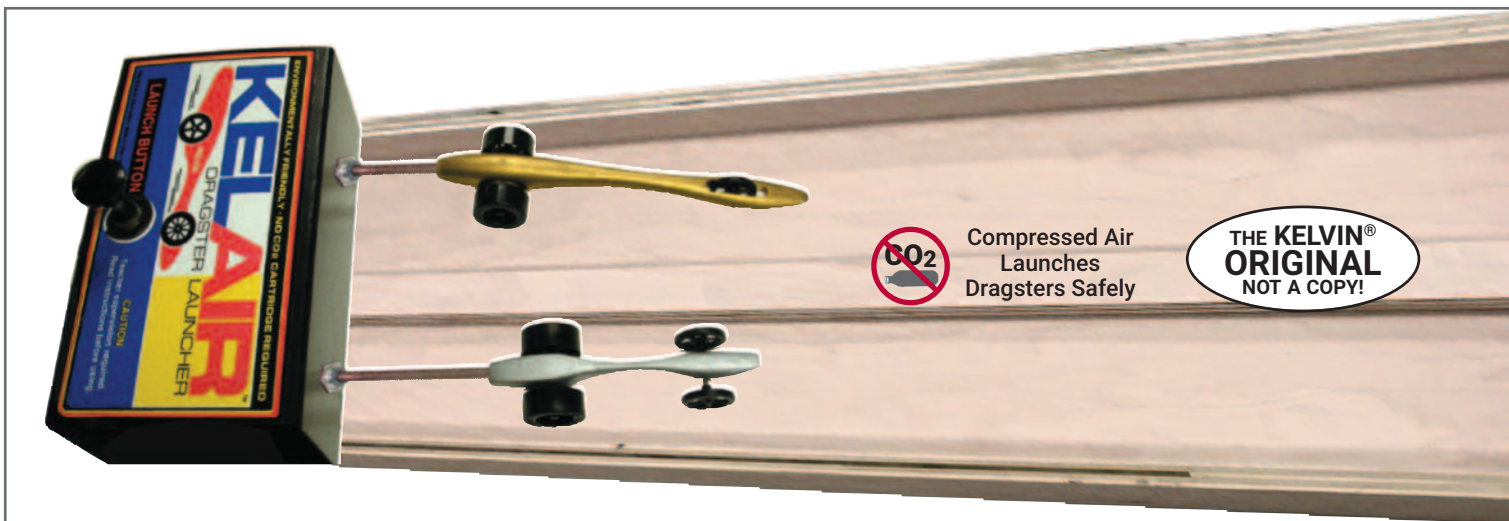
Includes [4] ready to build kits (Jet Car, Solar Car, Mars Rover, Catapult), as well as the open-ended S.T.E.M. Maker kit to model student-designed objects. Also comes with a reusable corrugated plastic display board, [2] snips and instructions.

842476 Lab - [5] Kits & Manual**\$120 Retail - SPECIAL \$95**

Class Pack

Includes Team Pack (842489) plus [1] Reusable Corrugated Plastic Display Board and ★ **BONUS** Kre8® Robotic Arm (pg. AD 9).

842480 Class Pack - Team Pack x 3 **PLUS** & ★ **BONUS****\$240**



KELVIN® New Standards® S.T.E.M. Lab: Air-Powered Dragsters

Lab Includes: Kel-Air™ Original Air-Powered Dragster Launcher (2-Lane), Race Track (24 ft. L, 2-Lane, 3 Sections), [50] 7-1/2 in. L Blank Dragster Kits, [50] 10 in. L Blank Dragster Kits, Pre-Drilled Blanks (7-1/2 in. L & 10 in. L), Drill Set, Portable Air Compressor, Wheels, Axles, Washers, Screweyes, Fish Line, DesignGrid™ Paper, Lesson Guide, Workstation Sign, [3] Competition Medals and [30] Tech Excellence Certificates.

841030U.S. Shipping is \$250 **\$1,295**



KELVIN® Universal Car Platform

Design and add a car body to this basic car platform using cardboard, foam, etc.

Kit includes: wood (1/4 x 1-1/2 x 6 in.), [4] wheels, [2] axles, and a straw. Requires shaping, hot gun gluing and assembly.

842439 Kit\$4.95 or \$4.45 ea./10+

841417 Bulk Pack of 100.....\$2.95 Per Kit \$295

Bulk Pack
Per Kit Price
As Low As

\$2.95

Pine Wood Chassis

970124 1-1/2 x 4 x 6 in.....\$1.35 or 75¢ ea./25+

970065 1/4 x 2.5 x 12 in. ...\$1.50 or \$1.25 ea./25+



KELVIN® Ramp Racer™ Balsa Car

Design and build a cruiser, sedan or mini van and the fastest down a test ramp is the winner. Easy to shape with hand tools (not included). This kit includes: wheels, balsa blank (2 x 3 x 9 in.), axles and DesignGrid™ Paper.

841337 Kit\$5.95 or \$5.45 ea./10+ or \$4.95 ea./25+



KELVIN® Bass Wood Car

Design and shape a piece of basswood into a fast racing car. Each kit includes: [4] wheels, [2] axles, straw, bass wood blank (2 x 3 x 6 in.) and instructions.

841254 Kit\$8.95 or \$8.45 ea./10+ or \$7.95 ea./25+



KELVIN® Balsa Car

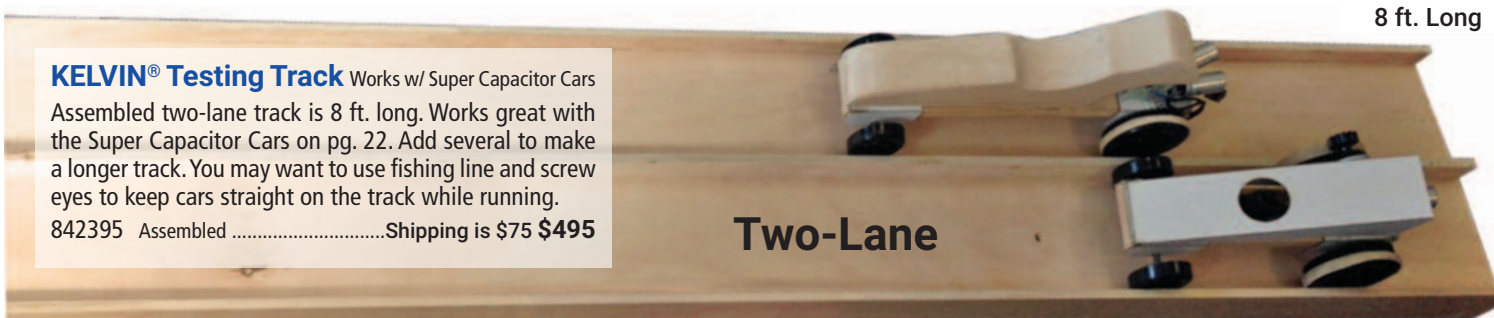
Design and shape balsa into a fast racing competition car. Kit includes: [4] wheels, [2] axles, straw, balsa wood blank (1-1/2 x 3 x 6 in.) and instructions.

841230 Kit\$9.95 or \$9.45 ea./10+ or \$8.95 ea./25+

KELVIN® Testing Track Works w/ Super Capacitor Cars

Assembled two-lane track is 8 ft. long. Works great with the Super Capacitor Cars on pg. 22. Add several to make a longer track. You may want to use fishing line and screw eyes to keep cars straight on the track while running.

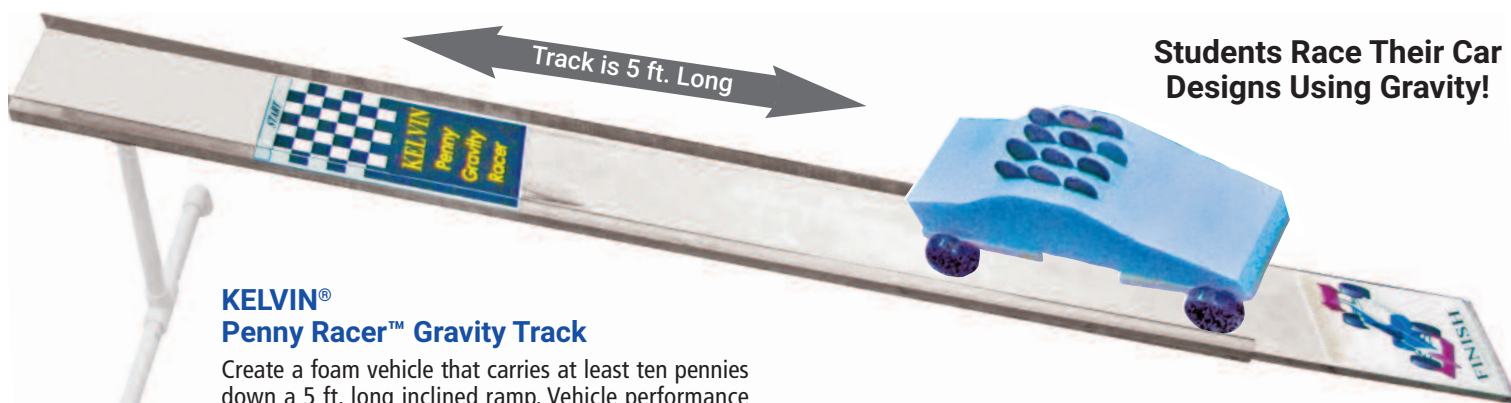
842395 AssembledShipping is \$75 **\$495**



8 ft. Long

Two-Lane

Find More Vehicle Testing Tracks on pgs. 6 & 11.



Students Race Their Car Designs Using Gravity!

KELVIN® Penny Racer™ Gravity Track

Create a foam vehicle that carries at least ten pennies down a 5 ft. long inclined ramp. Vehicle performance data (such as speed and distance traveled) is gathered as pennies are added and removed to change ramp height.

842033\$99.95

KELVIN® Penny Racer™ w/ Two Piece Wood Base & Hi-Speed Wheels

Includes: [4] hi-speed wheels, [2] axles, straw, [2] wood pieces with pre-cut axle grooves, and a foam block (2 x 2-1/2 x 8 in.). Shaping and assembly required.

842034 Kit.....\$9.95 or \$8.95 ea./10+
842597 Bulk Pack of 10 ..\$7.90 Per Kit \$79



KELVIN® Penny Racer™ Lab

Gravity track, [20] car kits, foam cutter, hack saw cutter and cool melt glue gun.

842039\$350

Bulk Pack
Per Kit Price
As Low As

\$5.95



KELVIN® Downhill Racer™

Kit w/ Wood Blank

Each kit includes a wood block (1-1/4 x 1-3/4 x 7 in.) with pre-cut axle grooves, axles and dragster wheels or hi-speed wheels.

841390 Kit w/ Dragster Spoke Wheels.....\$7.95 or \$6.95 ea./10+
841592 Kit w/ Hi-Speed Wheels\$7.95 or \$6.95 ea./10+
841817 Bulk Pack for 30 w/ Hi-Speed Wheels\$5.95 Per Kit \$178.50



Dragster Wheels Hi-Speed Wheels



Kit w/ Foam Blank

Kit includes a foam block, axles straw, dragster wheels, and instructions.

841392 Kit ..\$5.95 or \$4.95 ea./10+



Kit w/ Balsa Blank

Kit includes a foam block, axles straw, dragster wheels, and instructions.

841391 Kit ..\$9.95 or \$8.95 ea./10+

Foam is Easy to Cut, Shape and Decorate

KELVIN® Foam Car w/ Full Wood Base & Dragster Wheels

Each kit includes:

- [4] Dragster Wheels
- [2] Axles
- Straw
- Wood Base
- Foam Block (2 x 2-1/2 x 8 in.).

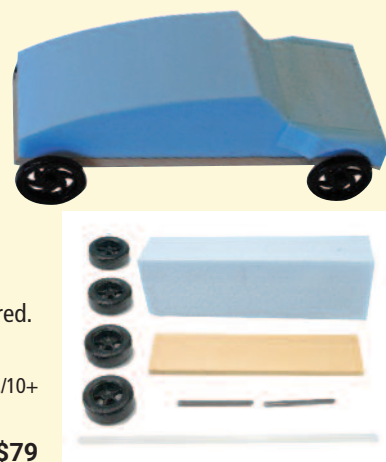
Shaping and assembly required.

Kit

842386 ..\$9.95 or \$8.95 ea./10+

Bulk Pack of 10

842387\$7.90 Per Kit \$79



KELVIN® Multi-Lane Timer

Easy to operate timer is ideal for competitions and timing from 1 to 6 lanes (with the 2 add-on units). The bright LED displays are large enough for the whole class to view.

All the lanes are timed beginning when the cars are released. When cars pass the sensors at the end of the ramp they stop the counter and the winning lane is displayed on top and the rest in winning order. The lane number is shown on the left and the time it took is shown on the right. The starter unit includes: multi-lane controller, power adapter, and cables (50 ft. long).

841393 Starter Unit with Controller (for up to 6 lanes) & 2-Lane Display\$345
841394 2-Lane Display (Optional Add-On)\$225
780083 Extra Long Sensor Cable (75 ft. long)\$45





Bulk Pack
Per Kit Price
As Low As

\$5

KELVIN® Balloon Car

Kit includes: balloon, balloon holder, stand, wheels, axles and wood.

841257 Kit **\$5.95** or **\$5.75** ea./10+ or **\$5.45** ea./25+
842579 Bulk Pack of 30 **\$5 Per Kit \$150**



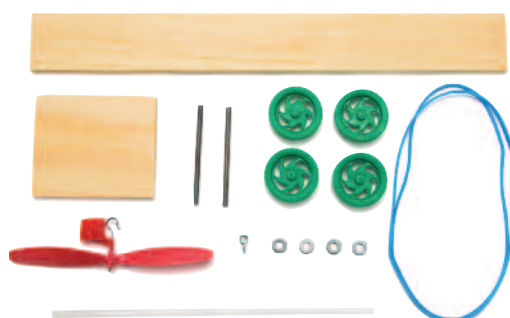
Bulk Pack
Per Kit Price
As Low As

\$450

KELVIN® Balloon Racer

Kit includes: balloon, balloon holder, [4] wheels, [2] axles, wood, and hardware.

842477 Kit **\$5.95** or **\$4.95** ea./10+
842482 Bulk Pack of 30 **\$4.50 Per Kit \$135**



Bulk Pack
Per Kit Price
As Low As

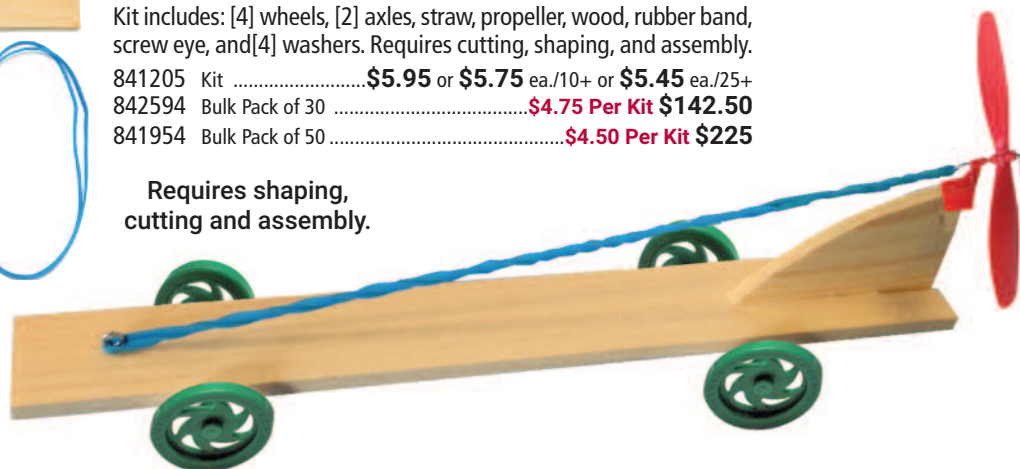
\$450

KELVIN® Rubber Band & Propeller Car

Kit includes: [4] wheels, [2] axles, straw, propeller, wood, rubber band, screw eye, and [4] washers. Requires cutting, shaping, and assembly.

841205 Kit **\$5.95** or **\$5.75** ea./10+ or **\$5.45** ea./25+
842594 Bulk Pack of 30 **\$4.75 Per Kit \$142.50**
841954 Bulk Pack of 50 **\$4.50 Per Kit \$225**

Requires shaping,
cutting and assembly.



Laser Cut Wood

KELVIN® Pre-Cut Rubber Band & Propeller Car

Kit includes: [4] wheels, [2] axle, straw, propeller, laser cut wood, rubber bands, and hardware. Requires assembly.

842590 Kit **\$9.95** or **\$8.95** ea./10+
842593 Bulk Pack for 25 **\$7.80 Per Kit \$195**

Bulk Pack
Per Kit Price
As Low As

\$780

BUILD YOUR OWN®
CAR KITS require assembly
and may also need shaping,
cutting, minor soldering and
use of a hot glue gun.





Bulk Pack
Per Kit Price
As Low As

\$7.80



Bulk Pack
Per Kit Price
As Low As

\$9.75

KELVIN® Rubber Band Powered Build A Better® Racer™

Though not mousetrap-powered, this vehicle teaches the same principles of physics and mechanics as our Mousetrap Racers (pg. 34). The unique design utilizes the energy stored in a stretched rubber band. Minor soldering is required.

841920 Kit\$11.95 or \$9.95 ea./25+
841921 Bulk Pack for 25\$7.80 Per Kit \$195

KELVIN® Designer Rubber Band Powered Build A Better® Racer™

Kit includes: slotted wheel, wheels, wood dowel, axles, corrugated plastic, rubber band and string. Requires minor soldering.

841878 Kit\$11.95 or \$9.95 ea./25+
841879 Bulk Pack for 20\$9.75 Per Kit \$195



Find More Kre8®
Modeling products in
the Architecture &
Design chapter chapter
on pgs. AD 2-9.



EDC KELVIN® Rubber Band Powered Cars Guide

Using cardboard, dowels, plastic plates, and rubber bands, students can build their own cars, and learn in a direct way the engineering concept of optimization by testing different sized rubber bands and different diameter plates as wheels. 55 pg. Guide.

651663\$9.95 or \$8.95 ea./10+



KELVIN® Kre8® Air-Propelled Racer

Design, build and decorate a car that moves well on flat surfaces! Kit includes: motor, switched battery holder, 3-blade propeller, Kre8® parts (connectors, rods, tubes, collars, gears, wheels), hardware, rubber bands, sand paper, and plastic strip. Requires AA batteries.

283657 Kit\$16.95 or \$14.95 ea./5+
283803 Bulk Pack for 10\$13.50 Per Kit \$135

Bulk Pack
Per Kit Price
As Low As

\$9.95

KELVIN® Kre8® Electric Racer

Quick and easy to make – see how fast it can go! Kit includes parts, switched battery holder and motor. Requires AA batteries.

283662 Kit.....\$12.95 or \$11.95 ea./5+ or \$10.95 ea./10+
283641 Bulk Pack for 20\$9.95 Per Kit \$199

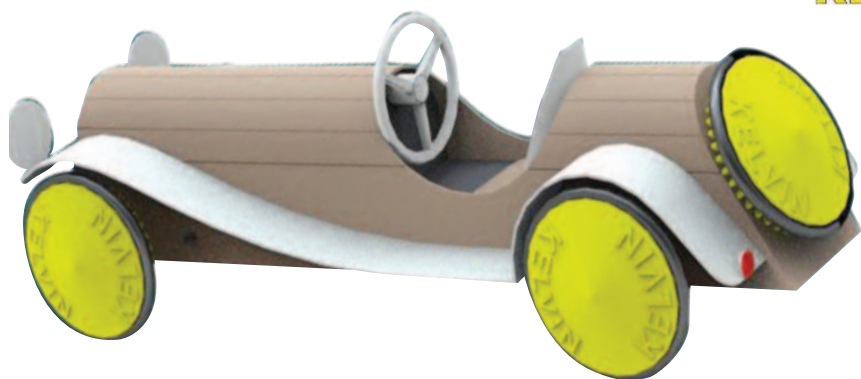
Kre8® kits can be assembled in regular classrooms. Optional Kre8® cutter (283653, pg. 54) can be used to score and snap tubes to length. Use snips (480009, pg. 54) to cut sheet materials and light blue tubes. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a registered trademark of KELVIN L.P.

Kits may require soldering, assembly, shaping & sanding of wood, balsa or foam. ⚠ **Warning:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.
www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices shown are for educational institutions.

BUILD & DECORATE

KELVIN® ENGINEERING PRINCIPLES KITS

Projects are constructed from rigid cardstock or chipboard and other hardware, such as gears, motors and wheels. In assembling these kits, students learn about the basics of engineering principles. Find More Kits at www.kelvin.com



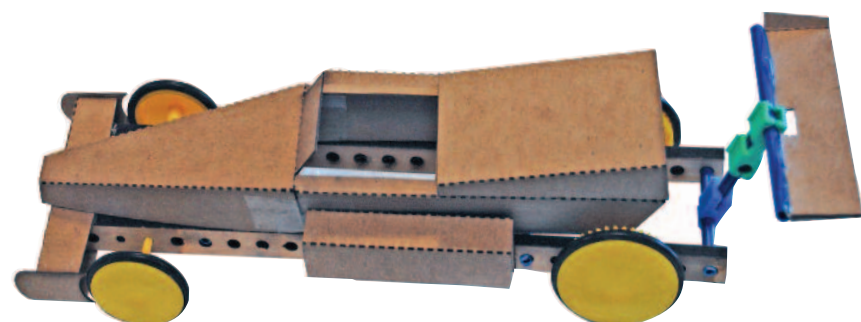
KELVIN® Engineering Principles™ Rubber Band Antique Car

Kit includes pre-scored cardstock, wheels, axles, rubber bands and detailed instructions.

842454 Kit\$19.95 or \$17.95 ea./10+
842455 Bulk Pack of 20.....\$14.95 Per Kit \$299

Bulk Pack
Per Kit Price
As Low As

\$14⁹⁵



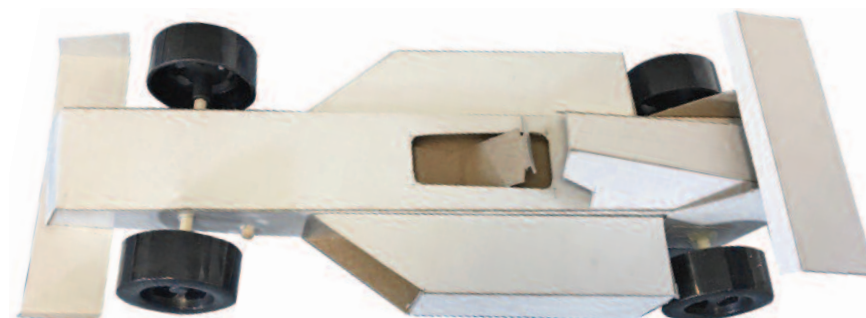
KELVIN® Engineering Principles™ Rubber Band Cardstock Racer

Kit includes pre-cut and scored chipboard, rubber band, wheels and axles.

842301 Kit\$19.95 or \$17.95 ea./10+
842302 Bulk Pack of 20\$15.95 Per Kit \$319

Bulk Pack
Per Kit Price
As Low As

\$15⁹⁵



KELVIN® Engineering Principles™ Rubber Band Racer

Kit includes: laser-cut and scored cardstock, rubber bands, axles and wheels.

842434 Kit\$17.95 or \$16.95 ea./10+
842437 Bulk Pack of 20.....\$14.95 Per Kit \$299

Bulk Pack
Per Kit Price
As Low As

\$14⁹⁵



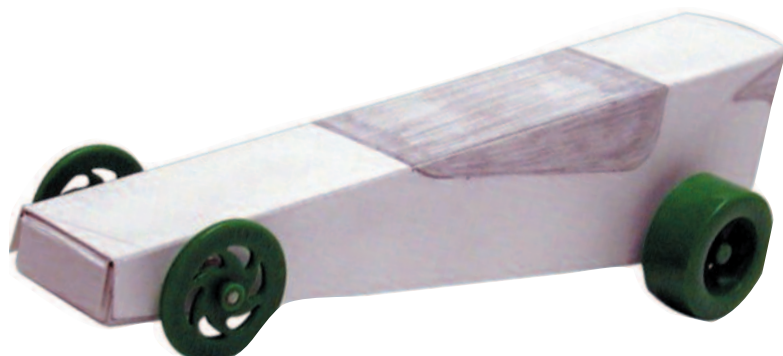
KELVIN® Engineering Principles™ Jet Balloon Car

Each kit includes: laser-cut and scored cardstock, balloon attachment, balloon, axles and wheels.

841314 Kit\$14.95 or \$12.95 ea./10+
842436 Bulk Pack of 20\$9.95 Per Kit \$199

Bulk Pack
Per Kit Price
As Low As

\$9⁹⁵



KELVIN® Engineering Principles™ Motor Dragster

Bevel gears change the direction of power. Kit includes: pre-printed cardstock, battery holder, motor, gear pack, bevel gear, axles, and wheels.

841323 Kit\$17.95 or \$16.95 ea./10+ or \$14.95 ea./20+





Bulk Pack
Per Kit Price
As Low As

\$5.95

KELVIN® E.V. Racer

Kit includes: motor, wheels, axles, set of 4 gears, AA battery holder, switch and wood base.

Kit for AA Alkaline Batteries

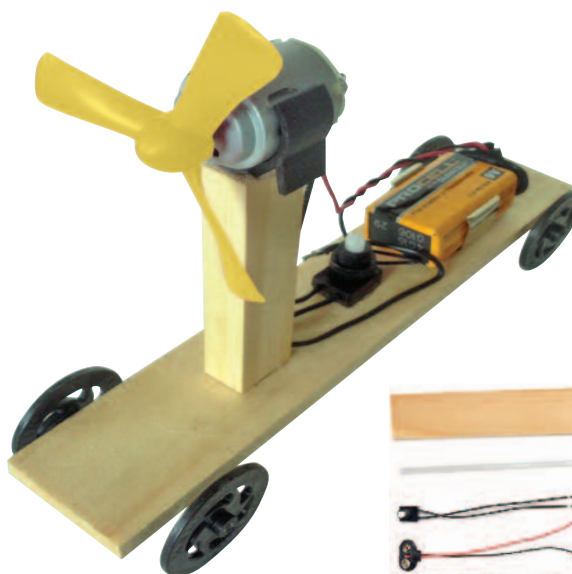
Requires [2] AA batteries.

841016 Kit....**\$7.95** or **\$6.95** ea./10+ or **\$6.35** ea./25+

841416 Bulk Pack of 25.....**\$5.95 Per Kit \$148.75**

Kit w/ [2] AA NiCad Batteries

840851 Kit....**\$6.95** or **\$6.75** ea./10+ or **\$6.45** ea./25+



Bulk Pack
Per Kit Price
As Low As

\$4.95

KELVIN® Air Motor Car

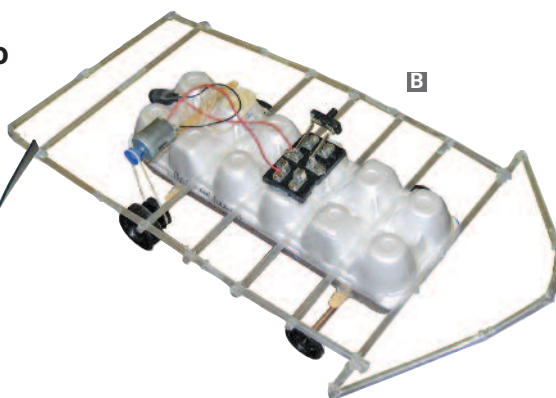
Kit includes: wheels, axles, motor, motor holder, straw, battery holder, propeller, switch, wood for base.

841208 Kit**\$5.95** or **\$5.45** ea./10+ or **\$5.25** ea./25+

841419 Bulk Pack of 30**\$4.95 Per Kit \$148.50**



**Recycle
trash into
a car!**



KELVIN® EggHead Pilot™ Car

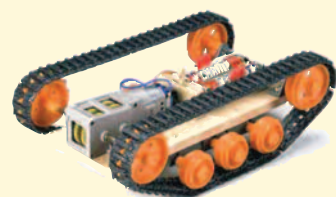
Bring in an empty foam egg carton and, with a few provided parts, create a vehicle. Kit includes: wheels, axles, propeller, wood, straws and rubberband. Requires use of hot glue gun.

841919 **A** Kit**\$2.95** or **\$2.45** ea./10+

KELVIN® Egg Roll Motor™ Car

Transform an empty foam egg carton into a student-designed vehicle! Kit includes: wheels, axles, motor, switch, pulley, wood, straws and tubes. Requires use of hot glue gun, simple soldering and teacher supervision.

841959 **B** Kit**\$3.95** or **\$3.45** ea./10+



A



B



C



D

Tamiya Tracked Vehicle Chassis

Ideal for robotics projects, adding control to a vehicle, or crane design. Comes with tractor base and necessary parts.

281654 **A** Kit**\$36.95** or **\$33.95** ea./3+

Tamiya Buggy Car Chassis

Kit comes with assembled transmission, gear shift lever, pneumatics tires, Ackerman steering system, chassis, roll bar, springs, battery holder, battery switch, and wooden chassis.

281668 **B** Kit**\$44.95** or **\$41.95** ea./3+

Tamiya Amphibious Vehicle Chassis

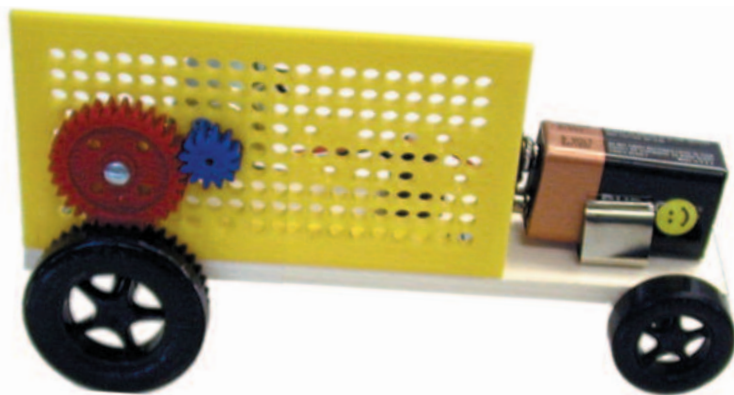
An amphibious vehicle, designed for travel on land or shallow water. Kit includes a chassis, submarine motor, floats, worm gear, propeller and rudder.

281656 **C** Kit**\$39.95** or **\$34.95** ea./3+

Tamiya 4-Wheel Drive Chassis

Two gear boxes (for front/rear), motor, battery holder, wooden chassis, roll bar, pneumatic tires, battery holder, drive shaft and a switch kit.

281667 **D** Kit**\$49.95** or **\$46.95** ea./3+



KELVIN® Gear Car

Students can change the gear combo on the mounting bracket to achieve different gear ratios and speed. Kit includes [4] gears, [2] front wheels, [2] rear gear wheels, mounting bracket for motors and gears, battery holder, switch, DC motor, [2] axles, [4] gear shafts and a straw. Requires a 9V battery, soldering and hot glue gun use.

841207 Kit\$11.95 or \$10.95 ea./10+ or \$9.95 ea./25+

Mounting Bracket for Motor and Gears

990204 5/pkg\$9.95 or \$8.95 ea./10+ or \$7.95 ea./25+

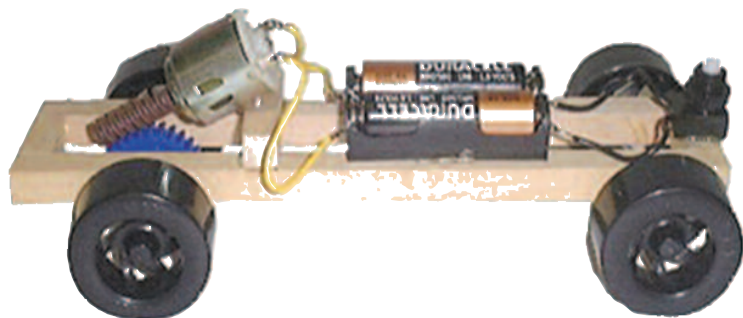


KELVIN® GR Cruiser

Kit includes wood blank, motor, gears, battery holder, wheels and axles. Requires drilling or gluing with hot glue.

841396 Kit\$8.95 or \$7.95 ea./10+

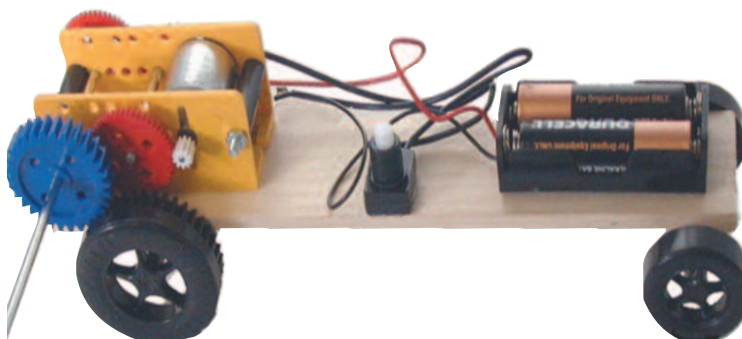
841425 Bulk Pack of 25.....\$6.95 Per Kit \$173.75



KELVIN® Gear Box Car

Change the gear ratio to get different speeds. Each kit includes: gearbox, motor, battery holder, switch, axles and wheels. Requires [2] AA batteries, soldering and the use of a hot glue gun for assembly.

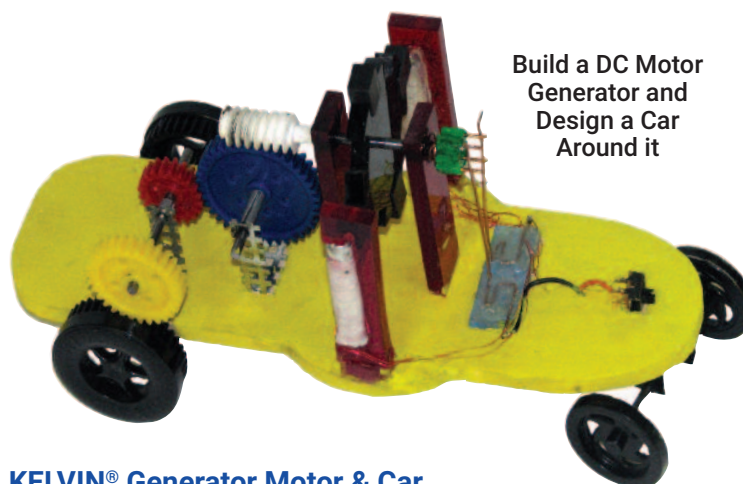
841256 Kit\$14.95 or \$12.95 ea./10+ or \$11.95 ea./25+



KELVIN® Worm Gear Car

Kit includes: wood, battery holder, worm gear, gear, motor, switch, [2] axles and wheels. Requires [2] AA batteries, soldering and use of hot glue gun for assembly.

841255 Kit\$9.95 or \$8.95 ea./10+ or \$7.95 ea./25+



Build a DC Motor Generator and Design a Car Around it

KELVIN® Generator Motor & Car

Build Your Own® DC motor generator to power your vehicle design. Wind the coils and assemble. An ideal challenge for high school students.

842087 Kit\$29.95 or \$27.95 ea./10+

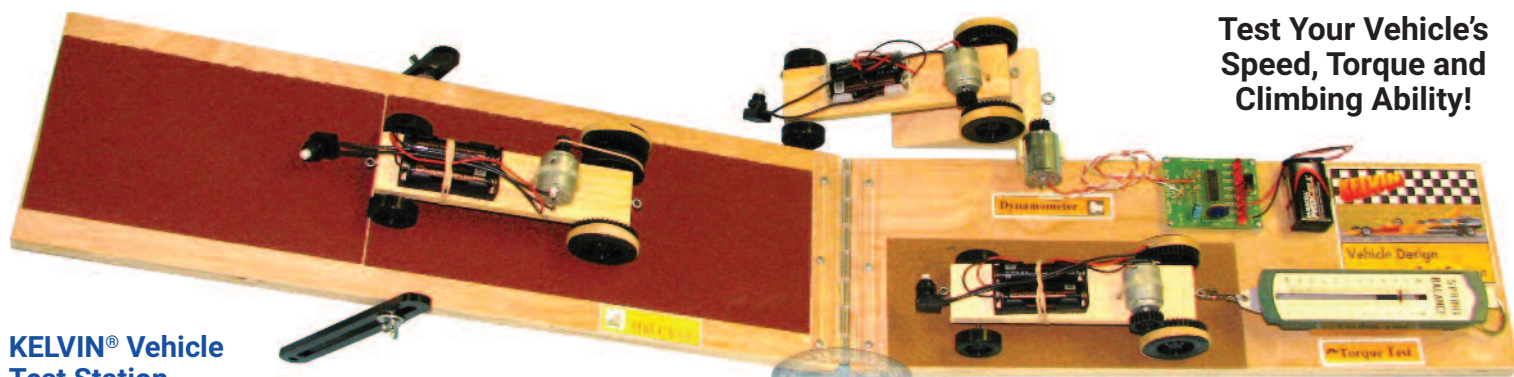


KELVIN® Bottle Car

Kit includes: solar motor, high speed motor, [4] wheels, [2] brackets, [2] propellers, axles, dowels, switch, battery holder battery snap, [2] foam blanks (for floats) and instructions.

841299 Kit\$11.95 or \$10.95 ea./10+ or \$10.45 ea./25+

841421 Bulk Pack for 20\$9.95 Per Kit \$199



Test Your Vehicle's Speed, Torque and Climbing Ability!

KELVIN® Vehicle Test Station

Help your students understand the use and importance of "testing" in the engineering and design process with KELVIN® Vehicle Test Station. This unique product will test a vehicle's speed, torque and climbing ability, helping your students to optimize their design solutions. The LED dynamometer will visually show the drive wheel speed. The more LEDs lit, the faster the wheels are turning. The gram scale will measure the torque of the vehicle in grams or Newtons. The adjustable ramp can be set at specific angles to measure the climbing ability of the vehicle. Batteries and vehicles not included.

842079\$295



Design, Build and Test Safety Features on Vehicles

KELVIN® Krasher™ Vehicle Safety Testing Track

Students design safety restraints (like bumpers and air bags) for a vehicle that they will build to keep an egg intact after an impact of up to 35 mph. System includes: launch track (5 ft. long), giant elastic band propulsion system and manual with vehicle plans.

840672 KELVIN® Krasher™ Track (see above)Shipping is \$50 **\$345**

840820 Track Extender - 8 ft. Long\$195

390565 Replacement Elastic Tubing, 50 ft. (Cut to Size).....\$59.95



KELVIN® Krasher™ Vehicle Bulk Pack

Kit includes: axles, wheels, glue stick, small balloons, bubble wrap, rubber bands, Pre-Printed Safety Car-dboard™, pins and wood sticks. For use with the KELVIN® Krasher™ System above.

840971 Bulk Pack for 10 **\$7.50 Per Kit \$75**

KELVIN® Pre-Printed Safety Car-dboard™ Pattern ONLY

Cut out the pattern from the sheet and then assemble a basic car.

420400 20 Sheets (see pic above)\$24.95 or **\$22.95** ea./5+

KELVIN® Krasher™ Track w/ Vehicle Kits, Impact Analyzer, Laptop & Pre-Loaded Software

841637Shipping is \$50 **\$1,995**



KELVIN® Odyssey™ Vehicle Impact Analyzer

Students design, build and test a bumper system for a crash test vehicle that will minimize the impact and recoil force created by a head-on collision into a test wall. A wide variety of materials and designs can be tested as students attempt to reduce the impact forces found in a vehicle collision.

The software will monitor and display a curve which indicates the impact and recoil forces present during the crash test. Students will attempt to

lower the impact and recoil forces through several tests. The maximum values for impact and recoil forces will also be displayed in real numbers.

Includes: Data Acquisition Interface with USB Port, USB Cable, Software (Windows), Sensor with a 6 ft. Cable Assembly, Impact Test Wall, Impact Test Vehicle with Wheels, [2] Bumper Bases with Velcro, Weight, Manual and Worksheets, and a Workstation Sign. Grades 4-5. Requires computer.

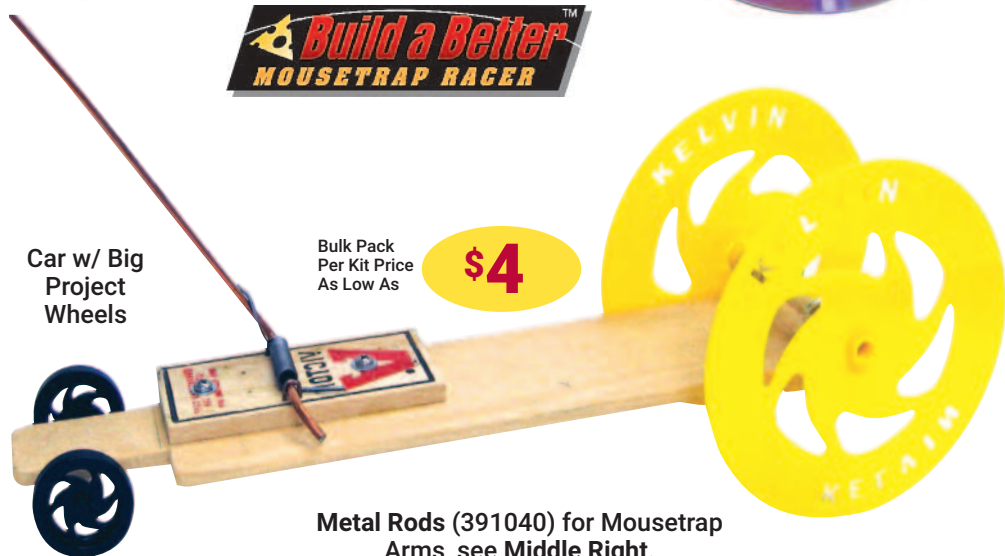
841604 Windows\$995

Design and Build a Vehicle That Uses Energy From a Mousetrap For Propulsion



Bulk Pack
Per Kit Price
As Low As

\$3.45



Car w/ Big
Project
Wheels

Bulk Pack
Per Kit Price
As Low As

\$4

Metal Rods (391040) for Mousetrap
Arms, see Middle Right.



KELVIN® Build A Better® Mousetrap Racer

Kit w/ CD Inserts for Wheels

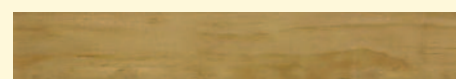
Kit includes: [2] KELVIN® CD inserts (requires CDs), [2] front wheels (1-3/8 in. dia.), mousetrap, wood dowel, wood base, cable ties, and [2] axles.

841282 Kit **\$3.95** or **\$3.75** ea./24+
841414 Bulk Pack of 100 **\$3.45 Per Kit \$345**

Kit w/ Big Project Wheels

Kit includes: [2] big project rear wheels (990181), [2] front wheels (1-3/8 in. dia.), mousetrap, wood dowel, wood base, cable ties, and [2] axles.

841206 Kit **\$4.95** or **\$4.45** ea./24+
842427 Bulk Pack of 50 **\$4 Per Kit \$200**



Pine Wood Chassis

970124 1-1/2 x 4 x 6 in. **\$1.35** or **75¢** ea./25+
970065 1/4 x 2.5 x 12 in. **\$1.50** or **\$1.25** ea./25+

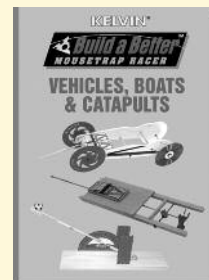


Victor Regulation Mousetraps

850699 10/pkg. **\$12.95**
851205 72/pkg. **\$76**

Metal Mousetrap Arm

391040 12 in. Long, 100/pkg. **\$49.95**



KELVIN® Build-A-Better Mousetrap Racer Guide

Ready-to-copy design briefs and challenges to engage students in the engineering design process as they build their vehicle. 43 pages.

652414 Color Guide **\$12.95**
652579 Black & White Guide **\$9.95**



Easy to
Build!

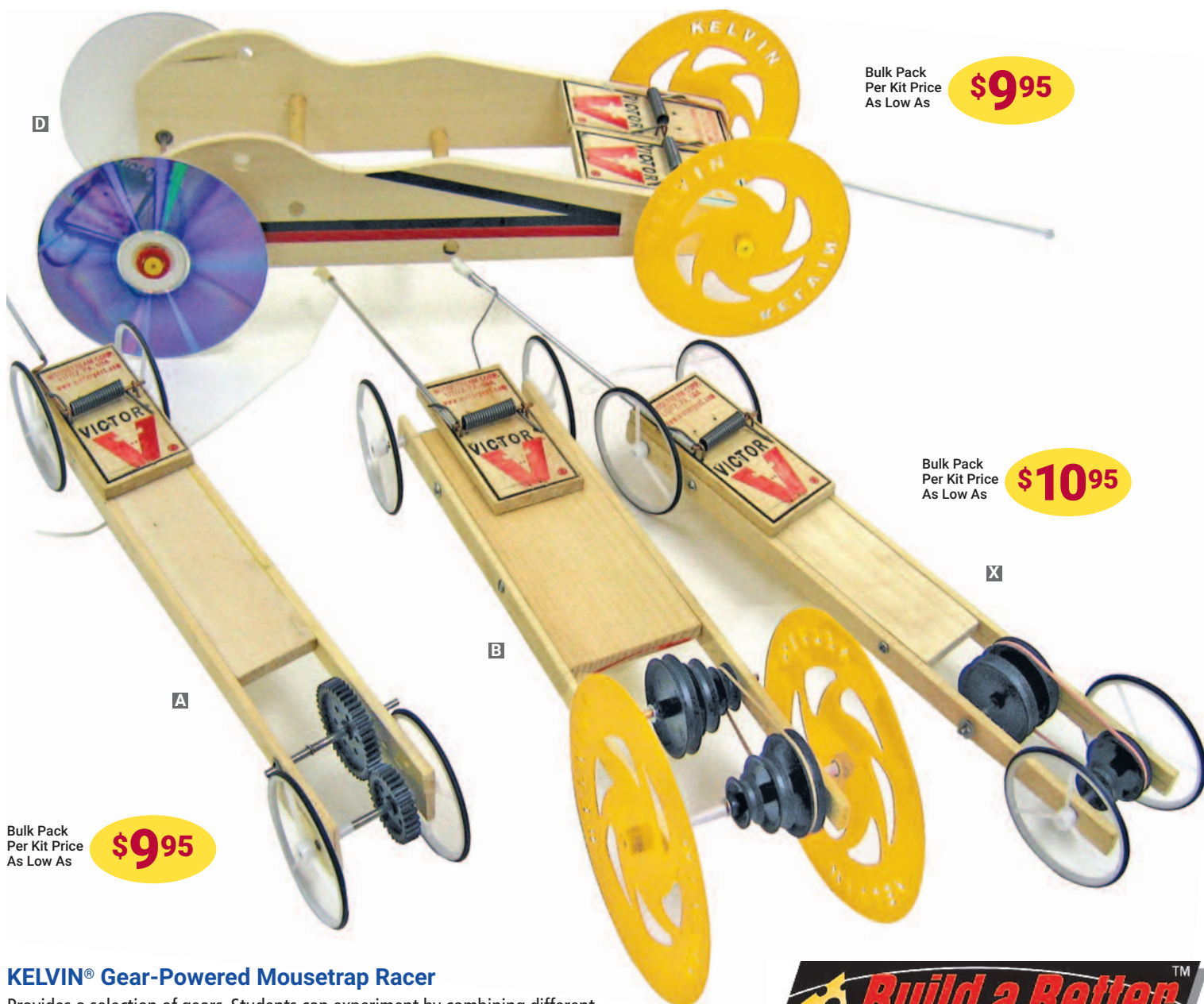
Bulk Pack
Per Kit Price
As Low As

\$6.95

KELVIN® Engineering Principles™ Mousetrap Car

Each kit includes: pre-cut and scored cardstock, [2] 4-3/4 in. dia. rear wheels, [2] 1-3/8 in. dia. front wheels, mousetrap, wood dowel rod with cable ties for mousetrap arm and [2] axles. Assembly requires use of hot glue gun and hand tools (provided by the teacher).

841315 Kit.. **\$9.95** or **\$8.95** ea./10+ or **\$7.95** ea./25+
842440 Bulk Pack of 30 **\$6.95 Per Kit \$208.50**



Bulk Pack
Per Kit Price
As Low As

\$9⁹⁵

Bulk Pack
Per Kit Price
As Low As

\$10⁹⁵

Bulk Pack
Per Kit Price
As Low As

\$9⁹⁵

KELVIN® Gear-Powered Mousetrap Racer

Provides a selection of gears. Students can experiment by combining different gear diameters and observe the effects on the vehicle's speed and distance traveled. Kit includes wheels, mousetrap, gears, wood dowel, cable ties, wood base and axles. Minor soldering is required.

841868 Kit.....\$12.95 or \$11.95 ea./10+ or \$10.95 ea./25+
841869 Bulk Pack of 20\$9.95 Per Kit \$199

KELVIN® Pulley-Driven XL Mousetrap Racer

Includes wheels, mousetrap, pulleys, wood dowel, cable ties, wood base and [2] axles. Minor soldering required.

841870 Kit.....\$13.95 or \$12.95 ea./10+ or \$11.95 ea./25+
841871 Bulk Pack of 20 Kits\$10 Per Kit \$200

KELVIN® Pulley-Driven Mousetrap Racer

Allows designers to create different combinations of drive and follower pulleys. Students create speed or added force, controlling the output of the vehicle's kinetic energy. Kit includes big project rear wheels, front wheels, mousetrap, pulleys, wood dowel, cable ties, wood base and axles. Minor soldering required.

841872 Kit.....\$14.95 or \$12.95 ea./10+ or \$11.95 ea./25
841873 Bulk Pack of 20 Kits\$10.95 Per Kit \$219



KELVIN® Rat Racer®

This giant double mousetrap racer has even more energy. Examine how far or fast it goes. Test the acceleration and compare results with the single mousetrap racer. Developed as an open ended design activity, students create their own body design, experiment with the position of the traps and the length of the lever arm. Kit includes big project rear wheels, front wheels, mousetraps, wood dowel, cable ties, wood base and axles. Minor soldering is required.

841874 Kit.....\$13.95 or \$12.95 ea./10+ or \$12.45 ea./25+
841875 Bulk Pack of 20 Kits\$9.95 Per Kit \$199

KELVIN® Ball-Bearing Double Mousetrap Racer

Learn about friction and power with the addition of ball bearings to the giant double mousetrap racer!

841876 Kit w/ [4] Ball Bearings\$35.95 or \$34.95 ea./10+ or \$33.95 ea./25+
841877 Bulk Pack of 10 Kits\$29.50 Per Kit \$295



KELVIN® Solar Racer™ w/ Wood Base

Each kit includes: solar motor, solar cell with alligator leads, battery holder, wheels, axles, tube holders for axles, washers, gear set, wood base and instructions.

841236 Kit **\$11.95** or **\$10.95** ea./10+
841415 Bulk Pack of 20 **\$9.95 Per Kit \$199**

Find Solar Cells in the Power & Energy chapter on pg. PE 7.



KELVIN® Solar Racer™ w/ Plastic Base

Each kit includes: solar motor, solar cell with leads, gear wheels, mounting hardware, axles, tube holders for axles, corrugated plastic and instructions.

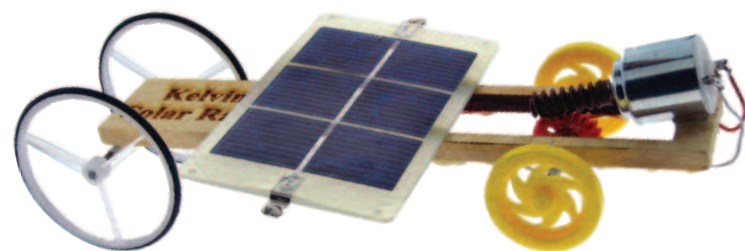
842095 Kit **\$11.45** or **\$10.25** ea./10+
842096 Bulk Pack of 20 **\$9.95 Per Kit \$199**

KELVIN® Solar Zip Racer™

The racer features an acrylic pre-cut chassis that is ready to assemble as well as an adjustable steering system, adjustable position solar panel support and geared transmission.

Kit includes: pre-cut acrylic base, solar motor, solar cell, wheels and connectors.

842085 Kit **\$19.95** or **\$17.95** ea./6+ or **\$15.95** ea./20+



KELVIN® HP1 Solar Racer™

Kit includes: [2] super lightweight wheels w/ rubber tires, [2] front wheels, [2] axles, [2] axle holders, [4] gears, [4] pulleys, worm gear, solar cell, solar motor, wood blank, [2] wires, and a guide.

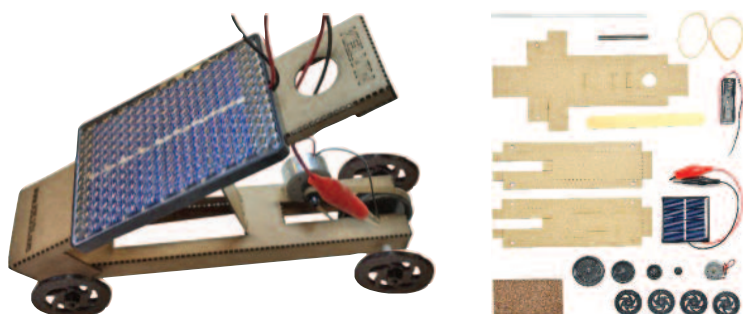
841789 Kit **\$21.95** or **\$19.95** ea./10+ or **\$18.95** ea./20+



KELVIN® Expandable Solar Racer™

Each kit includes: 200 mA / 2 V DC solar cell(s), solar motor, balsa wood blank, pulleys, wheels, gears, axles, rubber bands, propeller and grid sheets. Requires soldering.

840693 Kit w/ 1 Solar Cell **\$13.95** or **\$12.95** ea./12+
840987 Kit w/ 2 Solar Cells **\$19.95** or **\$17.95** ea./12+
840988 Kit w/ 3 Solar Cells **\$26.95** or **\$24.95** ea./12+



KELVIN® Engineering Principles™ Solar Car

Kit includes: pre-cut/scored chipboard, solar cell, rubber band, wheels and axles.

841322 Kit **\$14.95** or **\$12.95** ea./12+
842426 Bulk Pack of 20 **\$11.95 Per Kit \$239**



KELVIN® Kre8® Solar Racer

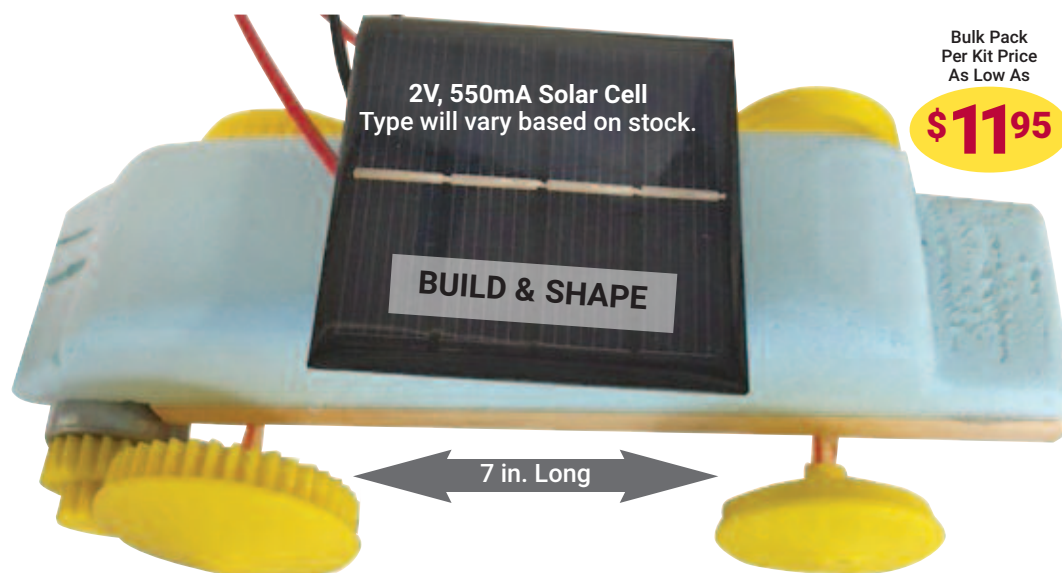
Quickly assemble a solar car without glue or nails. Connect an electric motor to convert the sun's energy into electricity. The solar panel and front wheels are adjustable. Design your own top or use design provided and clip in place. Requires assembly, measuring and cutting.

283691 Kit **\$19.95** or **\$17.95** ea./5+ or **\$15.95** ea./10+
283734 Bulk Pack for 20 Students **\$12.95 Per Kit \$259**

Kre8® kits can be assembled in regular classrooms. Optional Kre8® cutter (283653, pg. 2) can be used to score and snap tubes to length. Use snips (480009, pg. 2) to cut sheet materials and light blue tubes. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a registered trademark of KELVIN L.P.



With top clipped in place.



Bulk Pack
Per Kit Price
As Low As

\$11⁹⁵

KELVIN® Economy Solar Car

Teach your student's the principles of light to electricity conversions through this hands-on modeling adventure. Students will design and model the vehicle body and solar panel positioning mechanism.

Kit includes: 7 in. long foam body block, 2V, 200mA solar cell, wheels, axles, motor, gears, instructions and more. Requires assembly and tools for cutting, shaping, and gluing.

Kit

842409**\$15.95** or **\$12.95** ea./10+

Bulk Pack of 10 Kits

842413**\$11.95 Per Kit \$119.50**

Find Solar Cells in the Power & Energy chapter on pg. PE 7.

KELVIN® Solar Sedan

Teach your student's the principles of light to electricity conversions through this hands-on modeling adventure. Students will design and model the vehicle body and solar panel positioning mechanism.

Kit includes: 9-1/2 in. long foam body block, 2V, 550mA solar cell, wheels, axles, motor, gears, instructions and more. Requires assembly and tools for cutting, shaping, and gluing.

842415 Kit.....**\$19.95** or **\$18.45** ea./10+

842417 Bulk Pack of 10 ..**\$16.50 Per Kit \$165**



Scan
Code For
Product
Video

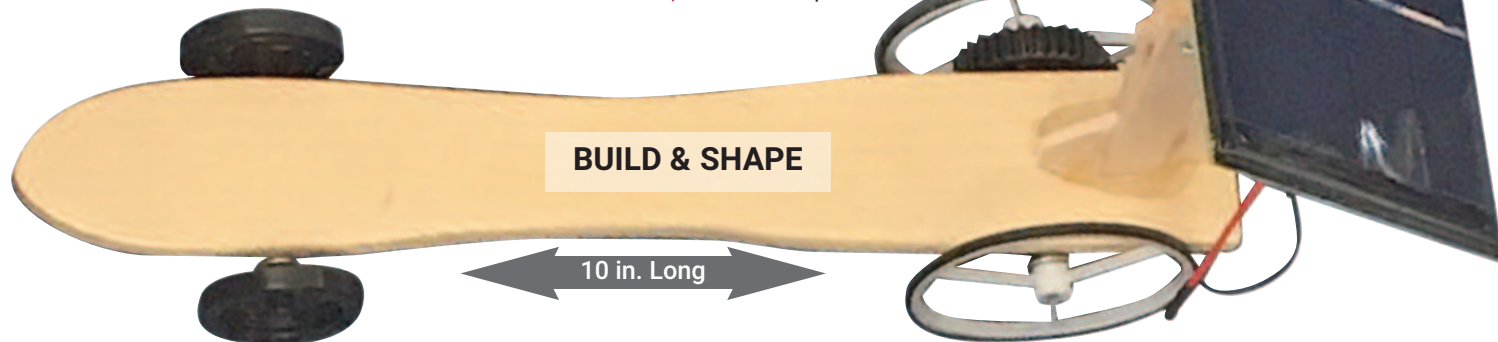
KELVIN® Solar Dragster

Teach your student's the principles of light to electricity conversions through this hands-on modeling adventure. Students will design and model the vehicle body and solar panel positioning mechanism.

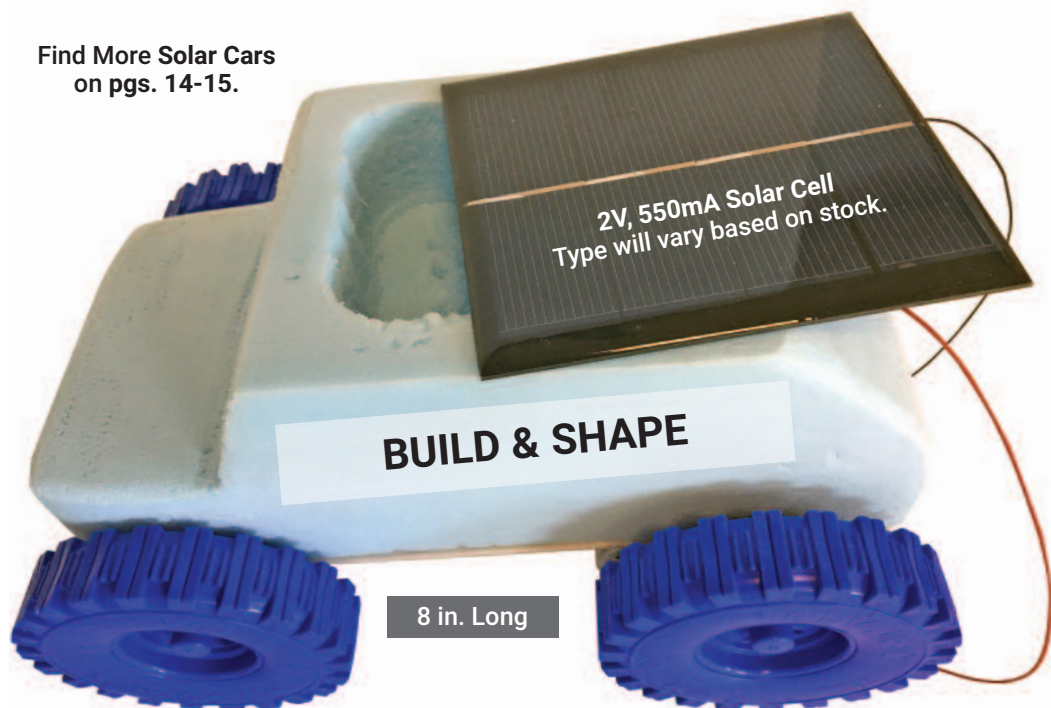
Kit includes: 10 in. long wood blank, 2V, 550mA solar cell, wheels, axles, motor, gears, instructions and more. Requires assembly and tools for cutting, shaping, and gluing.

842412 Kit - Shown Right**\$19.95** or **\$17.95** ea./10+

842414 Bulk Pack of 10**\$16.50 Per Kit \$165**



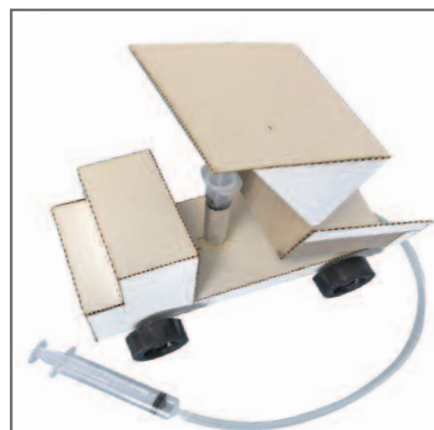
Find More Solar Cars
on pgs. 14-15.



KELVIN® Solar Monster Truck

Design a truck that can carry the largest load powered by a solar cell. Kit includes: foam body block, solar panel, wheels, axles, motor, gears, instructions and more. Requires assembly and tools for cutting, shaping, and gluing.

842416 Kit	\$19.95 or \$18.45 ea./10+
842418 Bulk Pack for 10.....	\$16.50 Per Kit \$165



KELVIN® Engineering Principles™ Hydraulic & Pneumatic Truck

Use pneumatic or hydraulic power for operation of the dumpster. Kit includes laser-cut and scored cardstock, wheels, tubing, and syringes.

841324 Kit ..	\$16.95 or \$14.95 ea./10+
Bulk Pack of 20 Kits	
842438	\$13.95 Per Kit \$279

Find More KELVIN® Engineering Principles™ Car Kits products on pg. 8.



Assembled controller included



Find More Kre8® Modeling in the Architecture & Design chapter on pgs. AD 2-9.

KELVIN® Kre8® Monster Truck

Steer this 8.66 in. long customizable monster truck model over objects on the table. Connect up to the included hand controller (3 V DC) to make it move forward, backward, and turn. Requires one AA battery.

283710 Kit w/ Controller	\$29.95 or \$26.95 ea./5+ or \$24.95 ea./10+
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Kre8® kits can be assembled in regular classrooms. Optional Kre8® cutter (283653, pg. 54) can be used to score and snap tubes to length. Use snips (480009, pg. 54) to cut sheet materials and light blue tubes. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a registered trademark of KELVIN L.P.

Design A Vehicle That Will Climb Over Obstacles!
**KELVIN®
Monsters Vehicle
Design Challenge**

Monster vehicles move along the obstacle track (8 ft. L) using low voltage power overhead wires and a variable power supply (not included).

Designed for easy storage, the track frame is constructed from wood and aluminum with built-in trays for wood, stones, etc. Teachers may elevate the track on one end to increase the climbing challenge of the truck.

Starter set includes: Obstacles Track and [4] Vehicles Design Kits (841676). Shipped flat. Requires variable power supply (842639).

841675 Starter Set.....**U.S. Shipping Included \$795**

842639 0-30 V / 0-5 A Power Supply w/ Polarity Box**\$145**


**KELVIN®
Monsters
Vehicle Design Kit**

Focusing on spring suspension and propulsion, students can work in teams or individually to design trucks. Kit includes: [4] Wood Wheels, Basswood (1/8 x 3/8 x 12 in.), [2] Plywood Pieces (1/4 x 3-1/4 x 12 in.), Hi-Speed Motor, Pulleys, Rubber Bands, [4] Compression Springs, Stranded Wire (2 ft. long, Red/White), Cardstock Template, Dowel Rods (3/16 in. dia. x 18 in. and 3/4 in. dia. x 6 in.), Aluminum Tube (1/4 in. dia. x 12 in.), Traction Material (6 x 12 in.), Felt, Hardware (Screws, Screw Eyes, Nuts, Washers), [4] Cable Ties, Plastic Clamp and instructions.

841676 Kit**\$34.95 or \$29.95 ea./10+**

841677 Bulk Pack of 9 Kits**\$28.95 Per Kit \$260.55**



Updated instructions include this model

**KELVIN® Monsters
Vehicle Design
Challenge Lab**

Includes: Starter Set (841675), Spring Maker (841345), and a variable power supply (842639).

841796 Lab**\$995**

U.S. Shipping Included



**KELVIN
MONSTERS
VEHICLE DESIGN CHALLENGE**


KELVIN® Spring Maker

Wind your own springs with KELVIN® Spring Maker and learn about math. The system creates several different thicknesses of springs that you can use with your cars, machines, and inventions.

A special Power Point presentation covers spring design, manufacturing, calculation of spring rate, and measurement of spring rate. It also includes student activity to manufacture spring scale.

The system includes: Spring Winder, Table Clamp, Metal Rods, Student Activity and Power Point Presentation. Can be mounted in a table vise.

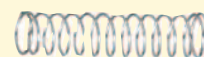
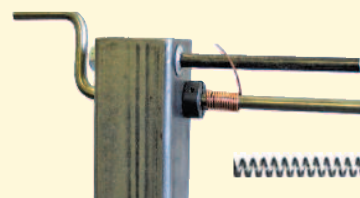
841345 Spring Maker System**\$235**

390982 Additional Rod Pack for Making Springs**\$49.95**

Compression Spring

5/16 in. OD. Spring rating is 0.02 in. Max workload is 1.02 Lb. Solid height is 0.28 in.

391119**\$1.25 or \$1.15 ea./10+**





Dragsters are propelled down the track using compressed air. This allows for design flexibility and uses less wood for body design.



Compressed Air Launches Dragsters Safely

THE KELVIN® ORIGINAL
NOT A COPY!

Find Air Compressors on pg.42.



KELVIN® Kel-Air™ Original Air-Powered Dragster Launcher

Launcher ONLY

No display; use the analog display on your compressor. Requires air compressor.

840814\$295

Launcher PLUS Track

Kel-Air™ Launcher, Track: 24 ft. long (in three 8 ft. long sections), Portable Air Compressor and [10] Vehicle Kits.

842447U.S. Shipping is \$350 \$1095

Launcher PLUS Track & Motion Timer

Kel-Air™ Launcher, Track: 24 ft. long (in three 8 ft. long sections), hand-held motion timer, portable air compressor, sensor mounting stands, instructions and [10] vehicle kits.

841100U.S. Shipping is \$350 \$1,495



Exact Pressure Measurement with Digital Display Air Pressure Gauge

KELVIN® Kel-Air™ Air-Powered Dragster Launcher w/ Digital Gauge

Launcher ONLY

Features a digital display pressure gauge for exact competition pressure every time (requires air compressor which can adjust air pressure). Other features include enhanced pneumatic valve controls, finish gate bumpers and a launch switch.

851967\$345

Launcher PLUS Track & Motion Timer

Kel-Air™ Launcher w/ digital display, track: 24 ft. long (in three 8 ft. long sections), hand-held motion timer, portable air compressor, sensor stands, instructions and [10] vehicle kits.

842596\$1,565
U.S. Shipping is \$350



KELVIN® Kel-Air™ ELECTRONIC No CO2™ Dragster Launcher PLUS 24 ft. long Track & Class View Timer™

Package includes: Electronic Air-Powered Launcher, ClassView™ Timer w/ power supply, track (24 ft. long in three 8 ft. long sections), start/finish sensor gates (pre-wired), hand controller set, [50] dragster kits and [2] portable air compressors. 110 V AC. USA plug.

841564 Electronic Air-Powered Dragster Package★ See Shipping Note Below \$3,250

851367 Electronic Air-Powered Dragster Launcher Only\$995

851518 Additional Hand Controllers, Set of 3 (R,B,Y)\$75

★ Shipping for U.S. contiguous states will be charged at actual cost. East coast may be around \$1000 and West coast may be around \$2000. You can make arrangements to pick up at KELVIN® or have your own shipper do so. Please email kelvin@kelvin.com for pickup options.

Compressed Air Launches Dragsters Safely

Find More KELVIN® Kel-Air™ No CO2™ Dragster Launchers & Kits on pg. 10.




KELVIN® Racing Track for Air-Powered Dragsters

Works with any Kel-Air™ Air-Powered Dragster Launcher. Track total length is 24 ft. long (in three 8 ft. long sections) and 12 in. wide.

842429Oversize Shipping (U.S. only) is \$295 **\$495**

Total Track Length is 24 ft. Long!

KITS
KELVIN® Kel-Air No CO₂™ Dragster Kit with 7-1/2 in. L Wood Blank

Pre-Drilled Air Hole

Kit includes: pre-drilled blank (7-1/2 in. L), wheels, axles, straw, screw eyes, and washers. Requires launcher (840814).

841091 Kit**\$4.95** or **\$4.65** ea./10+



Per Kit \$
for 10+
As Low As

\$4.65

KELVIN® Kel-Air No CO₂™ Dragster Kit with 10 in. L Wood Blank

Pre-Drilled Air Hole

Each kit includes: pre-drilled blank (10 in. L), wheels, axles, straw, screw eyes, and washers. Requires launcher (840814).

841093 Kit**\$5.95** or **\$5.65** ea./10+

841423 Bulk Pack of 50**\$5.25 Per Kit \$262.50**



Bulk Pack
Per Kit \$
As Low As

\$5.25

KELVIN® Kel-Air No CO₂™ Dragster Kit with 10 in. L Wood Blank

Pre-Drilled Air & Axle Holes

Each kit includes: pre-drilled blank (10 in. L), wheels, axles, straw, screw eyes, and washers. Requires launcher (840814).

842378 Kit**\$6.95** or **\$6.45** ea./10+

842380 Bulk Pack of 50**\$6.25 Per Kit \$312.50**



Bulk Pack
Per Kit \$
As Low As

\$6.25

Easy to Use for
Drilling Air Holes


KELVIN® Dragster Blank Drilling Jig

This unique jig makes it easier for students to hold the blank while trying to drill air input holes.

970046 Jig for 7-1/2 in. L Blank**\$49.95**

970047 Jig for 10 in. L Blank.....**\$59.95**

KELVIN® Drill Press w/ Hand Drill

Ideal for Student
S.T.E.M. Projects

Includes: Drill Press, Hand Drill, and [3] Drill Bits (1/16, 3/16 and 1/8 in.).

950301 ..**\$295** or **\$285** ea./3+

Hand Drill Only w/ [3] Drill Bits

950311**\$49.95**


BLANKS
KELVIN® Kel-Air No CO₂™ Dragster Blank ONLY

Pre-Drilled Air Hole

Axle holes to be drilled with teacher supervision.

7-1/2 in. L

390691 50/pkg.**\$2.75 Per Blank \$155**

10 in. L

390690 50/pkg.**\$3.50 Per Blank \$175**



Bulk Pack
Per Blank \$
As Low As

\$3.50

KELVIN® Kel-Air No CO₂™ Dragster Blank ONLY

Pre-Drilled Air & Axle Holes

Perfect for anyone that doesn't have the equipment to drill perpendicular axle holes. Holes fit bushings for 1/8 in. axles.

10 in. L

970386 50/pkg.....**\$4.45 Per Blank \$222.50**



Bulk Pack
Per Blank \$
As Low As

\$4.45

KELVIN® Kel-Air No CO₂™ Dragster POPLAR Blank ONLY

NO HOLES

Requires Drilling. Axle holes and air input hole are to be drilled with teacher supervision.

7-1/2 in. L

390556 100/pkg.**\$1.50 Per Blank \$150**

10 in. L

390555 100/pkg.....**\$2.95 Per Blank \$295**



Bulk Pack
Per Blank \$
As Low As

\$1.50

KELVIN® Kel-Air No CO₂™ Dragster BASS Wood Blank ONLY

NO HOLES

Requires Drilling. Axle holes and air input hole are to be drilled with teacher supervision.

7-1/2 in. L

970218 50/pkg.**\$2 Per Blank \$100**



Bulk Pack
Per Blank \$
As Low As

\$2



Total Track Length is 72 ft. Long!

KELVIN® HotShot Raceway™ CO2 Dragster Launcher

Self-contained mechanism doesn't have dangerous spring tension hammers that can cause injury. Works with the CO2 Racing Track (sold separately, see right). Requires adult supervision. Grades 6-12.

840711 Shown Above on Track (Sold Separately) ..\$695

KELVIN® HotShot Raceway™ CO2 Dragster Racing Track

Dual track measures 12 in. wide by 72 ft. in total length! Use monofilament line (330344) and screw eyes (390346) to keep dragster on track. Shipped in nine 8 ft. long sections.

841097 Shown above with Launcher (Sold Separately)U.S. Shipping Included \$2,500

KELVIN® CO2 Dragster Kit with PINE Blank

Pre-Drilled CO2 Hole

Each kit includes: pre-drilled blank

(12 in. L), wheels, axles, straw, screw eyes, washers, and instructions. **Requires CO2 cartridges** & launcher (851958).

842640 Kit\$6.95 or \$6.45 ea./10+

841422 Bulk Pack of 50.....\$5.45 Per Kit \$272.50



Bulk Pack Per Kit \$ As Low As

\$5.45

KELVIN® CO2 Dragster Kit with BASS Blank

Pre-Drilled CO2 Hole

Each kit includes: pre-drilled blank

(12 in. L), wheels, axles, straw, screw eyes, washers, and instructions. **Requires CO2 cartridges** & launcher (851958).

842641 Kit\$8.95 or \$8.45 ea./10+

842357 Bulk Pack of 50\$7.95 Per Kit \$397.50



Bulk Pack Per Kit \$ As Low As

\$7.95

KELVIN® CO2 Dragster Kit with Wood Blank

Pre-Drilled CO2 & Axle Holes

Kit includes: pre-drilled blank (12 in. L), wheels, axles, straw, screw eyes, washers, and instructions. **Requires CO2 cartridges** & launcher (851958).

842377 Kit\$9.45 or \$9.45 ea./10+

842379 Bulk Pack of 50....\$8.95 Per Kit \$447.50



Bulk Pack Per Kit \$ As Low As

\$8.95

BLANKS

KELVIN® CO2 Dragster Blank

Pre-Drilled CO2 Hole

Axle holes must be drilled. 1-1/2 in. wide with front height of 3/4 in. & rear height of 2-3/4 in.

Pine Wood Blanks

390363 8 in. L\$3.95 or \$3.45 ea./100+

390362 12 in. L\$5.50 or \$5 ea./100+

Bass Wood Blanks

970222 12 in. L\$6.95 or \$6.45 ea./100+

Balsa Wood Blanks

390347 12 in. L\$12.95 or \$11.95 ea./100+



Bulk Pack Per Blank \$ As Low As **\$6.50**



KELVIN® CO2 Dragster Blank

Pre-Drilled CO2 & Axle Holes

Perfect for anyone that doesn't have the equipment to drill perpendicular axle holes. Holes fit bushings for 1/8 in. axles. 12 in. long.

970387 Bulk Pack of 50\$6.50 Per Blank \$325

KELVIN® CO2 Dragster Kit with Balsa Blank

Pre-Drilled CO2 Hole

Kit includes: pre-drilled blank (12 in. L), wheels, axles, straw, screw eyes, washers, and instructions. **Requires CO2 cartridges** & launcher (851958).

842642 Kit\$14.95 or \$14.25 ea./10+

842599 Bulk Pack of 20\$13.95 Per Kit \$279

842358 Bulk Pack of 50\$12.95 Per Kit \$647.50



Bulk Pack Per Kit \$ As Low As

\$12.95

KELVIN® Essential Dragster Parts

Each kit includes: [2] rear wheels, [2] spoke wheels, axles, straw, screw eyes, and washers.

842643 Kit\$3.95 or \$3.45 ea./10+

842356 Bulk Pack of 50....\$2.95 Per Kit \$147.50

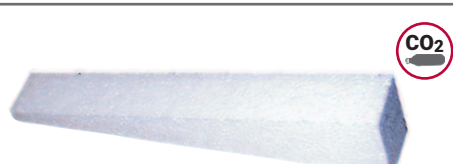


CO2 Cartridges 8 Gram

We only ship CO2 cartridges to the Continental U.S. via Ground Service.

500025 10/pkg.\$7.95 or \$7.45 ea./10+

500053 w/ Cap,10/pkg.....\$8.95 or \$8.45 ea./10+



NO HOLES

KELVIN® CO2 Dragster Foam Blank

Requires Drilling. Axle holes and air input hole must be drilled with teacher supervision. 1/4 in. front H x 1-1/4 in. rear H x 12 in. long.

390348 10/pkg.....\$19.95 or \$17.95 ea./100+



KELVIN® CO2 Dragster Painting Jig

Holds the dragster steady while students are painting them.

841105\$16.95 or \$14.95 ea./3+



Bulk Pack Per Kit \$ As Low As

\$14.50

Pre-Drilled Air Hole

Compressed Air Launches Dragsters Safely

KELVIN® K2™ Balsa Air-Powered Racing Car w/ Pre-Drilled Blank (Air Input Hole)

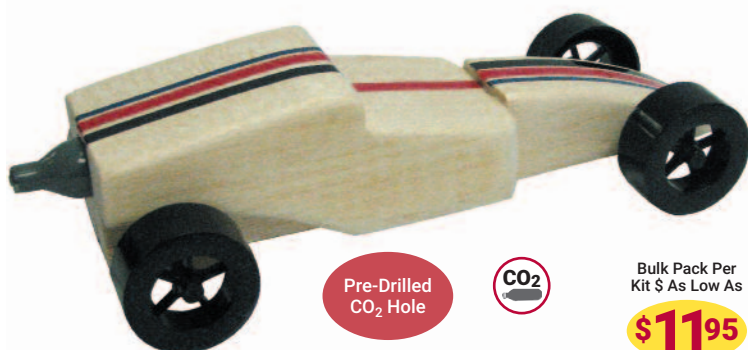
Design a race car that uses compressed air – no CO₂ cartridges!

Kit includes pre-drilled balsa blank (7 x 2-1/2 x 2 in.), wheels, axles, etc. Requires air-powered launcher, see pg. 18.

842017 Kit **\$12.95** or **\$11.95** ea./10+
842019 Bulk Pack of 10 **\$14.50 Per Kit \$145**

K2 Balsa Blanks ONLY

391246 NO HOLES, 7 in. L **\$13.95** or **\$11.95** ea./10+
391248 Pre-Drilled w/ Air Hole, 7 in. L **\$16.95** or **\$14.95** ea./10+



Pre-Drilled CO₂ Hole

CO₂

Bulk Pack Per Kit \$ As Low As

\$11.95

KELVIN® K1™ Balsa CO₂ Racing Car w/ Pre-Drilled Blanks (CO₂ Cartridge Holes ONLY)

Design a race car that uses CO₂ cartridges (sold separately and shipped ground, see pg. 20).

Kit includes: balsa blank (pre-drilled with CO₂ input hole, 8-3/8 x 2-1/2 x 2 in.), wheels, axles, etc. Requires a CO₂ Launcher, see pg. 20.

842016 Kit **\$14.95** or **\$12.95** ea./10+
842018 Bulk Pack of 10 **\$11.95 Per Kit \$119.50**

K1 Balsa Blanks ONLY

391247 NO HOLE, 8-3/8 in. L **\$13.95** or **\$11.95** ea./10+
391245 Pre-Drilled w/ CO₂ Hole, 8-3/8 in. L **\$16.95** or **\$14.95** ea./10+

KELVIN® Science Fair Pack for Transportation - 8 Kits to Explore



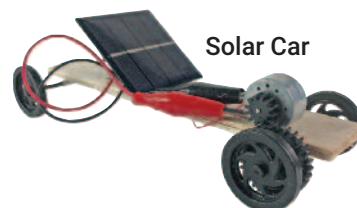
Universal Platform Car



Rubber Band Racer



Balloon Racer



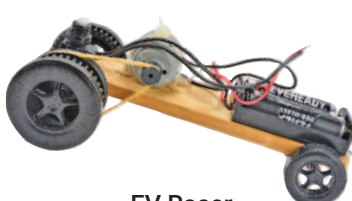
Solar Car



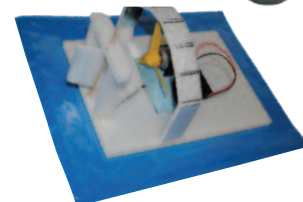
GR Cruiser



Gear Box Car



EV Racer



Hovercraft Racer

These selection of kits, with related instructions, are ideal for exploring land transportation at home or school. Single kits include: Universal Platform Car, Solar Car, EV Racer, Balloon Racer, Gear Box Car, GR Cruiser, Rubber Band Racer, and the Hovercraft Racer.

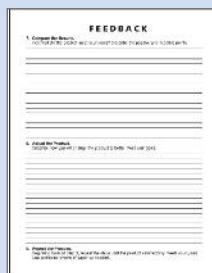
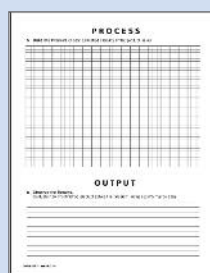
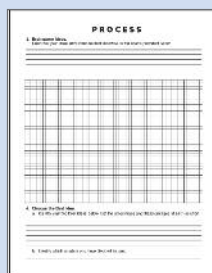
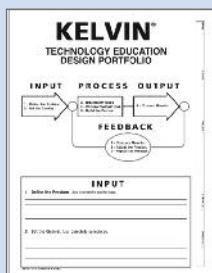
In addition, parts are supplied for more open-ended designs. These parts consist of a Motor Holder, Propeller, Gear, Pulley, Battery Holder, Motor, [2] Foam Pieces, and a Corrugated Board.

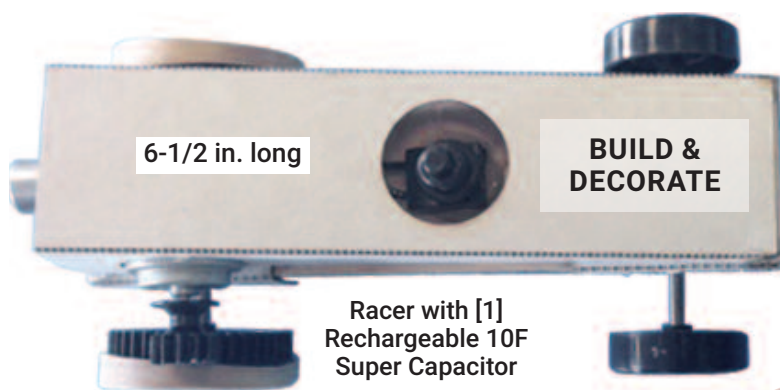
842592 KELVIN® Science Fair Pack for Transportation - [8] Kits & Parts **\$85**

KELVIN® Design Portfolios

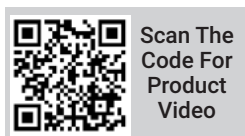
Design portfolios encourage students to use the problem-solving method (input, process, output & feedback) when planning and designing projects. Each portfolio consists of 4 pages for students to fill out.

651030 100/pkg. **\$25**





Racer with [2] Rechargeable 10F Super Capacitors



KELVIN® Super Racer™

Design a dragster vehicle with 1 or 2 super capacitors that can be recharged multiple times using the Capacitor Charging Unit (see right). Super Racer I measures 6-1/2 in. long with a 10F super capacitor. Super Racer II measures 8-1/2 in. long with [2] 10F super capacitors.

Comes with perforated cardstock cover that can be designed as you wish or taken off and use just the platform. Capacitor Charging Units listed below required. Testing track for two lanes available (842395, see pg. 32). Soldering, shaping and assembly required.

842390	Super Racer Kit with [1] 10F Super Capacitor	\$9.95 or \$8.95 ea./10+
842392	Super Racer Kit with [2] 10F Super Capacitors	\$15.95 or \$14.95 ea./10+
140054	10F Super Capacitor	\$6.95 or \$6.45 ea./10+

KELVIN® Super Racer™ Capacitor Charging Units

The energy from a NiCad battery is stored in the super capacitors. The charging unit LED light turns from red to green when fully charged. Disconnect and you are ready to go. Requires rechargeable D batteries and battery charger.

842393	A Unit for [2] D Batteries	\$26.95
842394	B Unit for [4] D Batteries	\$29.95

Battery Charger Ni-Cad/Ni-mh, 4-Cell

220035	\$34.95 or \$32.95 ea./3+
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D-Cell Rechargeable Battery

220029	\$6.95
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Recharges with 9V Battery

Find the Super Capacitor Track (842395) on pg. 4.

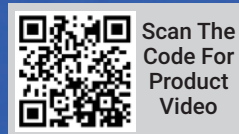
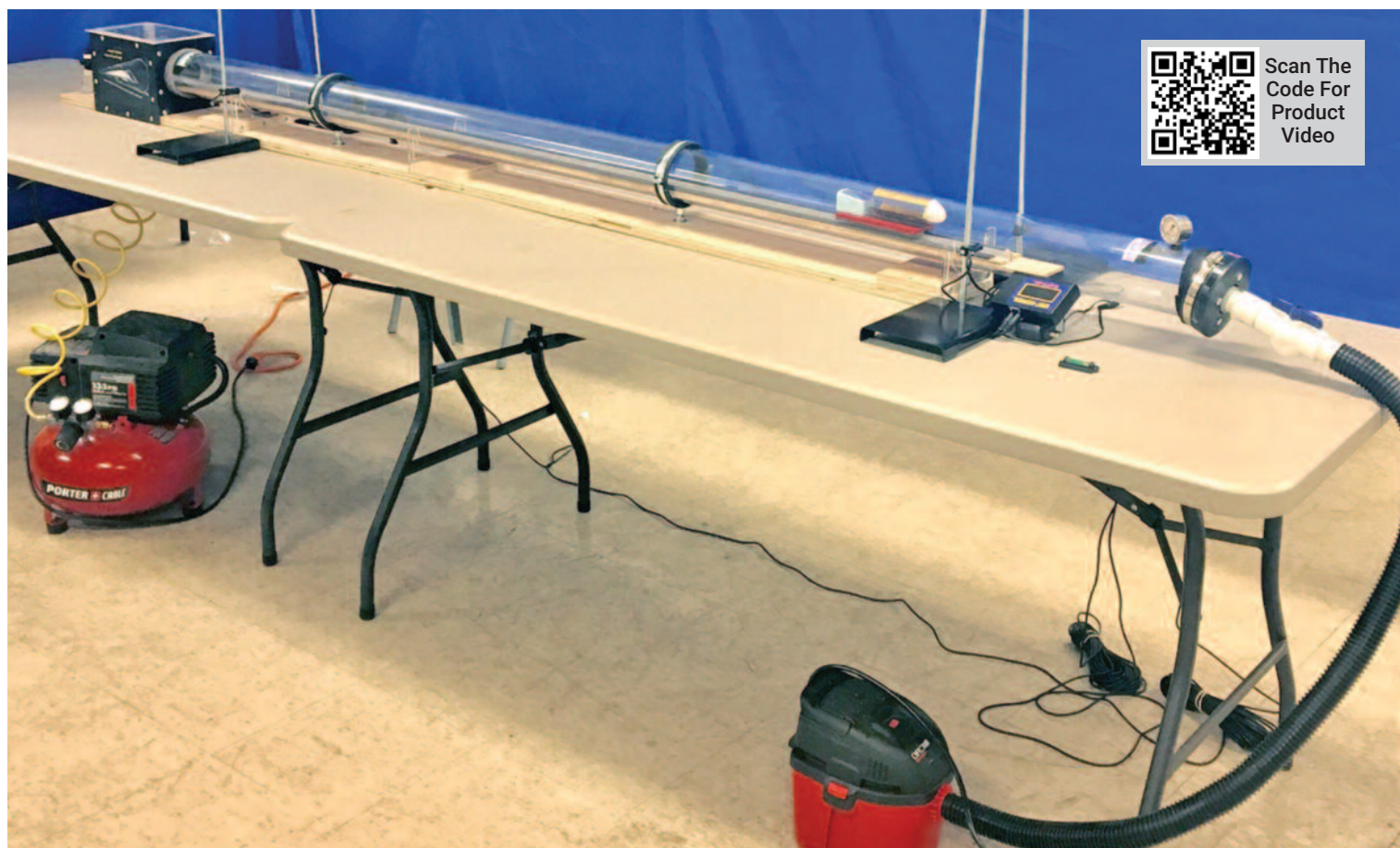
KELVIN® 20F Super Capacitor Dragster

Design a dragster that uses a 20F super capacitor that can be recharged multiple times using a 9V battery and a 9V battery snap connector.

Kit includes: 20F super capacitor and perforated cardstock cover that can be decorated as you wish or taken off and use just the platform. Measures 12 in. long.

This advanced activity requires 9V battery for charging, soldering, and shaping.

841802	Kit w/ [1] 20F Capacitor ..	\$16.95 or \$15.95 ea./10+
841803	Bulk Pack of 10	\$14.50 Per Kit \$145
140055	20F Super Capacitor	\$9.95 or \$8.95 ea./10+



Scan The
Code For
Product
Video

KELVIN® Hyperloop

Students design, model and test vehicles in a reduced pressure Hyperloop tube. The track and tube measures eight feet long. A vacuum is used to reduce the pressure within the tube while the vehicles travel on the track. A compressor provides the air power to move the vehicles down the track.

To begin, students will integrate math, science and technology concepts by designing pods, experimenting with different air pressures within the tube and air pressure powering the vehicle.

KELVIN® Hyperloop Starter Set

Comes with a Hyperloop Vehicle Launching System, a Single Lane Next Generation Maglev Track (8 ft. long), a clear Hyperloop Tube (5 in. dia. x 8 ft. long), Hyperloop Vehicle Bulk Pack of [10] Kits and instructions. Requires a vacuum and compressor. Add timing with the KELVIN® Motion Timer on pg. 25.

842421Shipping is \$195 **\$1,995**

KELVIN® Hyperloop Trainer

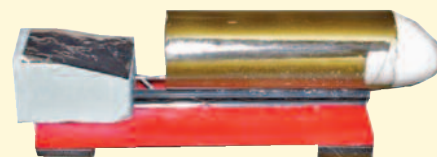
Includes: Hyperloop Vehicle Launching System, Next Generation 1-Lane Maglev Track (8 ft. L), clear tube (5 in. dia. x 8 ft. L), Motion Timer™ (w/ sensor cables & stands), Compressor, Vacuum, [10] Hyperloop Vehicle Kits and instructions.

842423Shipping is \$225 **\$2,295**

KELVIN® Hyperloop Vehicle Bulk Pack

Enough materials to build and design a hyperloop vehicle.

842422 Bulk Pack of 10**\$9.95 Per Kit \$99.50**



KELVIN® Odyssey™ Maglev Challenge

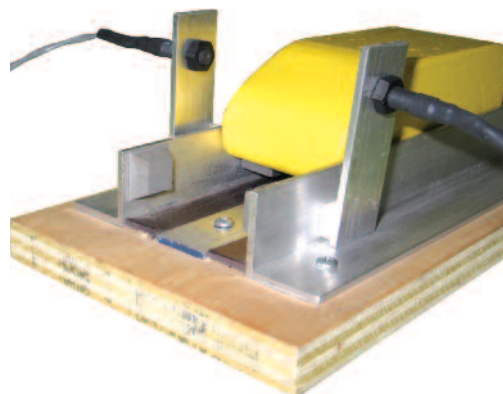
Design and construct a maglev vehicle that travels as fast as possible along a magnetic levitation track. This challenge enables students to design different types of vehicles using a variety of materials. This challenge gives students an opportunity to understand the mystery and excitement of magnetic levitation.

Over 50 interactive screens allow the student to research and solve each problem much like real engineers. Practical applications of math, science, and communication skills provide an integrated learning experience for the student. Integrated quizzes with online grading and printed results help track student progress.

841608**\$845**

KELVIN® Odyssey™ Magnetic Levitation Challenge w/ Laptop & Pre-Loaded Software

841627**\$1,995**



Connect additional tracks
for up to 16 ft. total length!

1-Lane
Track

THE ORIGINAL KELVIN® MAGLEV RACER™ TRACK

KELVIN® Maglev Track with Aluminum Sides & Electric Propulsion Gr. 5-12

Design, build and evaluate a maglev vehicle using a pre-assembled maglev track (4 or 8 ft. long). Combine the 8 ft. long tracks together using the maglev track connector (840451) and extend it to 16 ft. Comes with platform vehicle, wood base, self-adhesive magnetic strips, assembled track consisting of flat aluminum center rail and L-shaped aluminum guide rails. Electric power can be carried to the vehicles through the metal rails. Requires a power supply (842639).

842092 4ft. L.Shipping is \$45 **\$145** or **\$125** ea./3+

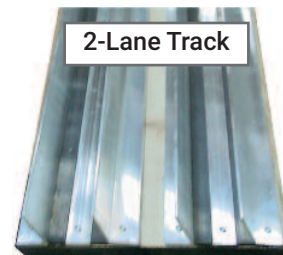
840445 8ft. L, 1-LaneShipping is \$295 or PU **\$295**

841209 8ft. L, 2-LaneShipping is \$295 or PU **\$335**

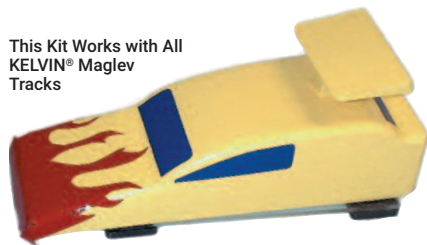
840451 Maglev Track Connector**\$26.95**

Variable Power Supply w/ Polarity Box

842639 0-30 V / 0-5 A**\$145**



This Kit Works with All
KELVIN® Maglev
Tracks



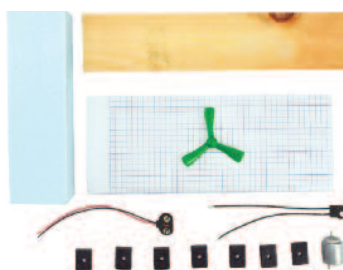
KELVIN® Basic Maglev

Propelled with a push, wind and sail, or rubber band and nosehook propeller. Includes: [8] maglev magnets, foam blank, nosehook propeller, basswood, dowel, straw, [2] rubber bands, card stock sheet, screw eye, grid paper, and instructions.

840665 Kit.....**\$6.95** or **\$6.45** ea./10+ or **\$5.95** ea./25+



This Kit Works
with All KELVIN®
Maglev Tracks



This Kit Works ONLY
with Electric Propulsion Tracks

KELVIN® Advanced Maglev

Propel like basic maglev or use motor and propeller when track is powered. Kit includes: [6] maglev magnets, 3-6 V DC project motor, wire (red and black), nosehook propeller, foam blank, basswood, masonite board, dowel, craft stick, screw eye, [2] rubber bands, grid paper, and instructions.

840666 Kit.....**\$9.95** or **\$9.65** ea./10+ or **\$9.25** ea./25+



KELVIN® Universal Maglev Base

Attach designs to base
with velcro strips.

840730 Kit**\$5.95** or **\$5.45** ea./10+ or **\$4.95** ea./25+

842595 Bulk Pack of 50**\$3.95 Per Kit \$197.50**

841412 Bulk Pack of 100.....**\$3.50 Per Kit \$350**

KELVIN® On Board Battery-Power Maglev

Kit includes: [7] maglev magnets, wired 9 V battery snap, wired pushbutton switch, 3-6 V DC project motor, propeller, foam blank (2 x 2.5 x 8 in.), basswood board, grid paper, and instructions.

841294 Kit**\$9.95** or **\$8.95** ea./10+ or **\$7.95** ea./25+



Foam Blank

Use to create a light weight body for maglev
designs. Measures 2 x 2.5 x 8 in.

841114 10/pkg...**\$14.95** or **\$13.95** ea./5+

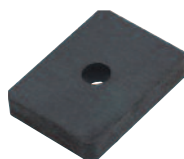
Maglev Magnets

Ideal for use in the design
of maglev vehicles and
tracks as well as other
projects and experiments.

Magnets measure 1 x 3/4 x 3/16 in.

640134 50/pkg.**\$19.95**

640090 250/pkg.**\$79.95** or **\$74.95** ea./3+



Adhesive Magnet Strips

Only for maglev
vehicles. 3/4 x 1/8 in.,
10 ft. long.

640102 N & S Set**\$125** or **\$99** ea./3+

640103 North Only.....**\$75** or **\$65** ea./3+

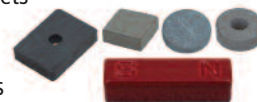
640104 South Only.....**\$75** or **\$65** ea./3+



KELVIN® Magnets Bulk Pack

Set of 62 magnets includes:

- [10] maglev magnets
- [13] disc magnets
- [13] ring magnets
- [13] cube magnets
- [13] bar magnets



841584**\$15.95** or **\$14.95** ea./6+



NO SIDE RAILS - See the Maglev Float Over the Track!



Bulk Pack
Per Kit
Price As
Low As

\$4.95

Add Student Maglev
Vehicle Design to
Platform Base

KELVIN® The NEXT Generation Maglev Racer™ Vehicle Platform Base

Add on a cardstock or a foam vehicle design to the platform base. Kit includes: [6] magnets, chassis and keel material.

842361 Kit **\$6.95** or **\$5.95** ea./10+
842598 Bulk Pack of 20 **\$4.95 Per Kit \$99**

Bulk Pack
Per Kit
Price As
Low As

\$6.50



KELVIN® The NEXT Generation Maglev Racer™ Vehicle

Powered by the track Kit comes with: [6] magnets, chassis and keel material in addition to a foam block, motor, propeller and wire. Foam requires shaping.

842365 Kit **\$8.95** or **\$7.95** ea./10+
842367 Bulk Pack of 20 **\$6.50 Per Kit \$130**



2-Lane Side-By-Side
Maglev Track

All NEXT Generation Tracks
work with KELVIN® Variable
Power Supply with Polarity
Box, 842639

Two
Level
Track

Variable
Power Supply
w/ Polarity Box

KELVIN® NEXT Generation Maglev Tracks™

The keel design base eliminates the need for side rails on the track. This track design change allows students to easily see the levitating effects of the magnets and increases interest in the activity. The design change also allows for wider body design and eliminates the problem of magnets applied beyond the edge of the base wedging the vehicle in the guide way.

Power can be easily picked up from the track. The included voltage meter displays the voltage being applied to the track rails. A bumper at the end of the track helps prevent maglev vehicles from flying off the guide way and getting damaged.

1-Lane Maglev Track w/ Panel Meter

842359 Assembled, 8 ft. Long Shipping is \$295 **\$345**

2-Lane Side-By-Side Maglev Track

842360 Assembled, 8 ft. Long Shipping is \$395 **\$595**

Maglev Track on Two Stacked Levels

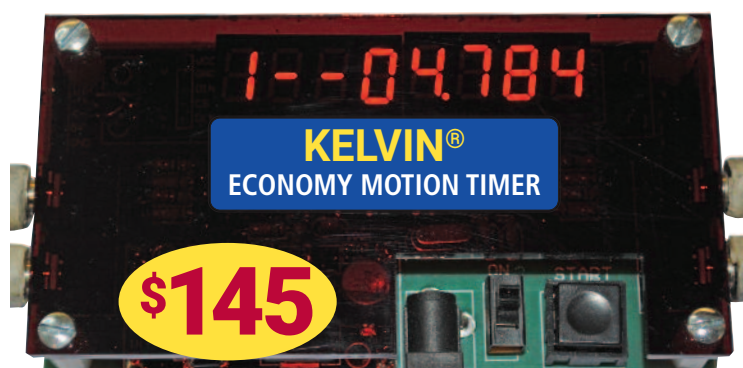
The track includes leveling feet and bumpers at the end of the guide way. Watching head to head vehicle performance from a side view helps students observe design differences and flaws helpful in optimizing their design solutions.

842364 Assembled, 8 ft. Long Shipping is \$350 **\$545**

KELVIN® Variable Power Supply w/ Polarity Box

Constant modes for voltage (CV) and current (CC). Adjustable with fine and coarse knobs. Low noise output and ripple. 110 V AC. USA plug.

842639 0-30 V / 0-5 A Power Supply w/ Polarity Box (See photo above) **\$145**



KELVIN® Economy Motion Timer

How much time did it take for your student's vehicles to travel? Measure time in 1 lane or 2 lane versions. Ideal for stem activities & competitions.

Portable, ideal for field testing—no computer required. Use with dragsters, maglevs, water channel testers, etc. Accurate to 1/1000 of a second. Features 7-segment, very bright red LED display.

- 842467 1-lane Economy Motion Timer w/ Sensor Cable (50 ft. L)\$145
 842468 1- or 2-lane Economy Motion Timer w/ 2 Cables (50 ft. L)\$275
 780083 Extra-Long Sensor Cable (1 Per Lane Needed), 75 ft. L\$45



The KELVIN® Elite Kel-Timer™ features redesigned start/finish sensors with LED lights that can be aligned quickly and easily.

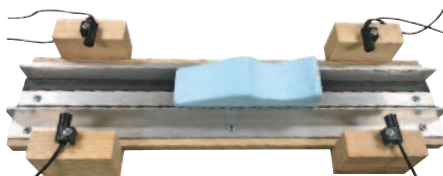
KELVIN® Elite Kel-Timer™ Motion Timer

New features include redesigned sensors with LED feedback and 4-line LCD backlit display with selectable units for distance and speed (ft, meters, m/h, km/h). This new Kel-Timer™ makes aligning sensors quick and easy. Each pair of sensors at both the start and finish gates has an LED light that indicates when the sensors are properly aimed. Any settings changes you make can be stored so that you do not need to re-enter them every time.

Ideal for 1 or 2 lane timing with 1/1000 second accuracy. Maximum 99 seconds. Modular RJ45 cable connectors can be chained together from start gate to finish gate for the sensors (one per lane). Uses inexpensive CAT5 cable to any length needed. Mini-USB serial connection to transmit race information to a computer or serial terminal.

Comes with two 20 ft. long cables for 2-lane competitions (see 780086 for longer cables) and 5V power adaptor (110V AC). Optional rechargeable battery pack (charged by any USB charger) and additional longer cables are available. Wood blocks by teachers, optional stand attachment available.

- 842483 Elite Kel-Timer™ Motion Timer\$345
 780086 CAT5 Network Cable, 75 ft. long, need one per lane)\$29.95
 780085 High Power Rechargeable Battery, Optional\$39.95



IDEAL FOR STEM ACTIVITIES & COMPETITIONS

NEWLY
UPDATED
DESIGN



NEW KELVIN® KelTimer™ Motion Timer Updated Design!

Portable, ideal for field testing; no computer required. Input distance in feet or meters and results are displayed as Time, Mi/h or Km/h. Features memory; remembers prior competitions.

Includes: 4-line LCD Display, Infrared Start /Finish Gates, [4] 50 ft. L sensor cables (use with a track up to 100 ft. L). Requires DC wall adaptor (or use [4] AA batteries). 110 V AC. USA plug.

- 840978\$395
 780061 Add. Sensor Cable, Set up to 100 ft., 1-Lane\$70

**KELVIN® New Standards™
S.T.E.M. Lab: Flight Gr. 4-7**

Students will learn about flight principles from a variety of activities. Build and test gliders and lift by forming a glider wing and control flight by adjusting wing flaps. Set the dihedral wing angle and wind the propeller that provides thrust for a balsa plane. Assemble the double rotors to fly the helicopter simulator.

Students can design their own display board (like sample left) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Team Pack

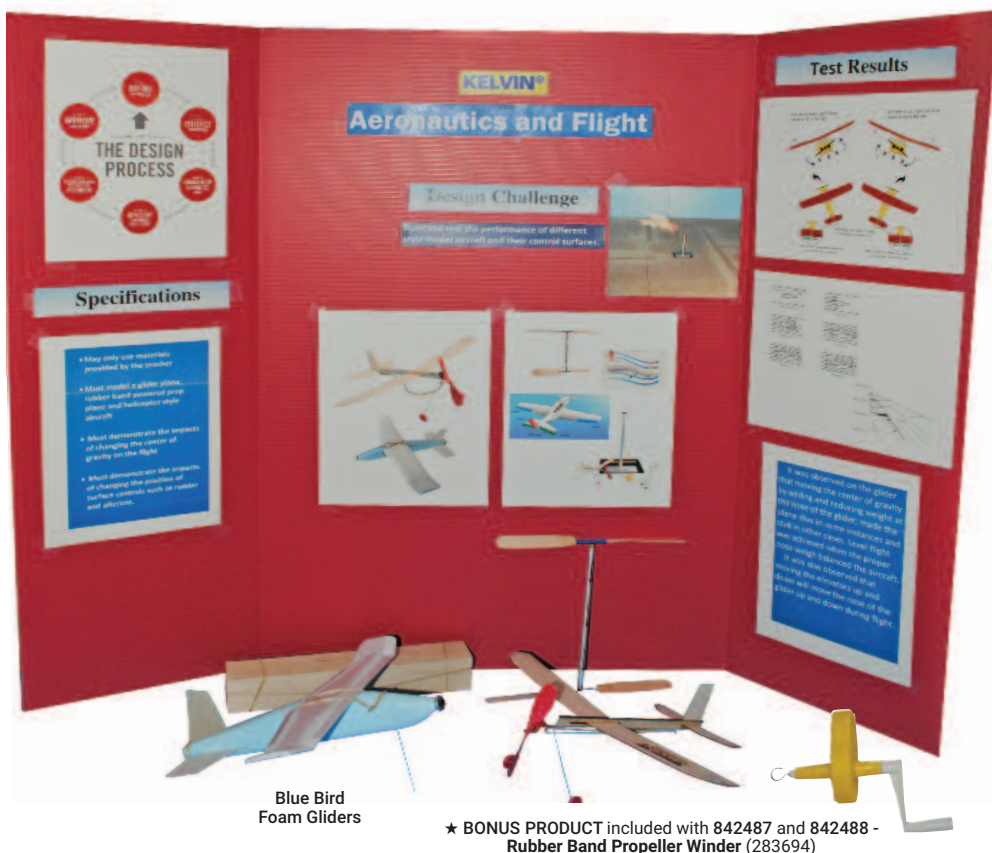
Includes Reusable Corrugated Plastic Display Board, [5] Blue Bird Foam Glider Kits, [10] Rubber Band Powered Plane Kits, [5] Double Prop Helicopter Kits, Wing Forming Jig and Abrasive Paper. Extra parts and an instruction manual complete the lab. All kits require assembly with hand tools.

842484 Team Pack\$165
842485 Class Pack - [3] 842484 PLUS 1 Board.....\$395

Advanced Team Pack

Includes Team Pack (842484) PLUS Rubber Band PowerPole™ (fly balsa planes tethered to the pole), Reusable Corrugated Plastic Display Board and ★ **BONUS** Rubber Band Propeller Winder.

842487 Adv. Team Pack PLUS ★\$195
842488 Class Pack - [3] 842487 Labs PLUS ★\$525



Blue Bird
Foam Gliders

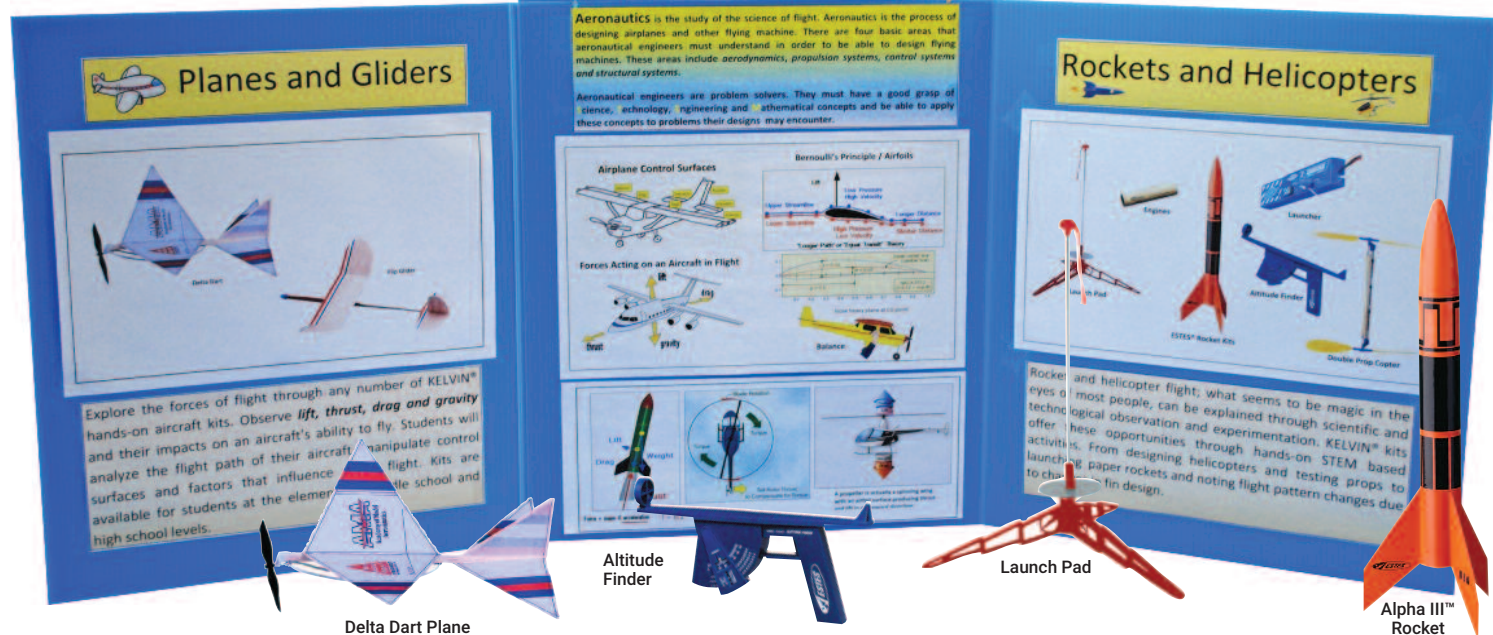
★ **BONUS PRODUCT** included with 842487 and 842488 -
Rubber Band Propeller Winder (283694)

Find More **KELVIN® New Standards™**
S.T.E.M. Labs in the S.T.E.M. chapter
on pgs. S 2-11.

**Aeronautics
and Flight**



**KELVIN® New Standards™ S.T.E.M.
Lab: Aeronautics & Flight Gr. 7-12**



Delta Dart Plane

Altitude
Finder

Launch Pad

Alpha III™
Rocket

Extend the study of aeronautics and flight to include aerospace technology and flight control. Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Includes Reusable Corrugated Plastic Display Board, [12] Alpha III™ Rockets, Rocket Engines, Launcher, Launch Pad, Altitude Finder, [12] Delta Dart Airplane Kits, [12] Flip Glider Kits and [5] Double Prop Helicopters.

842491 Team Pack\$495

Bulk Pack
Per Kit Price
As Low As

\$3.45



Bulk Pack
Per Kit Price
As Low As

\$3.45



KELVIN® Foam Glider

w/ Pre-Shaped Foam

Kit includes: pre-cut foam body and wing (requires shaping the foam body and wing), nose weights, rubber bands and instructions.

280613 Kit.....**\$4.95**

280611 Bulk Pack of 20**\$3.95 Per Kit \$79**

280612 Bulk Pack of 100.....**\$3.45 Per Kit \$345**

KELVIN® Foam Glider

w/ Foam Sheets

Kit includes: foam (requires you to design, cut out and shape the foam body and wing), nose weights, rubber bands and instructions.

280614 Kit.....**\$4.45**

280606 Bulk Pack of 20**\$3.45 Per Kit \$69**

**16. in. Wide
Wing Span**



Bulk Pack
Per Kit Price
As Low As

\$4.95

KELVIN® Blue Bird Glider

w/ 16 in. wide Wing Span

Each kit includes blue foam, Depron foam and cardstock tail section. The wingspan measure 16 in W. Requires cutting, shaping and drilling the foam before assembly.

842465 Kit**\$5.95**

842470 Bulk Pack of 25**\$4.95 Per Kit \$123.75**

**KELVIN® Clipper Glider Kits
w/ Balsa Sheet U-Cut & Design**

This version is a complete challenge for students, requiring them to design, layout, cut and shape the gliders from the balsa sheet.

13 in. Wingspan

841233 Bulk Pack of 10**\$4.95 Per Kit \$49.95**

18 in. Wingspan

842573 Kit**\$7.95 or \$6.95** ea./10+

**KELVIN® Clipper Glider
U-Cut & Design
or Pre-Cut Kits**

Bulk Pack
Per Kit Price
As Low As

\$4.95

**KELVIN® Clipper Glider Kits
w/ Pre-Cut Balsa Sheet**

This version has a balsa sheet that is pre-scored and requires limited cutting.

13 in. Wingspan

842572 Kit**\$8.95 or \$7.95** ea./10+

18 in. Wingspan

842574 Kit.....**\$12.95 or \$11.95** ea./10+

Choose
13 or 18 in. wide
Wing Span
Glidors



Bulk Pack
Per Kit Price
As Low As

\$4.95



Bulk Pack
Per Kit Price
As Low As

\$9.50

**KELVIN®
Rubber Band & Tissue Paper Glider**

Take the next step in teaching glider assembly and the principles of flight with this kit. An advanced introduction to aeronautics task allows students to assemble a 12 in. balsa frame and tissue covered wing and rear stabilizer.

Kit includes: balsa sticks, tissue paper, propeller motor, pins, glue, competition rubber band and detailed building instructions and drawings.

842628 Kit**\$7.95 or \$6.95** ea./10+

842629 Bulk Pack of 20**\$4.95 Per Kit \$99.95**

KELVIN® Rubber Band Plane

Learn about the principles of drag, lift, thrust and gravity by building rubber band-powered planes. Kit includes: balsa body, wings, prop, rubber band, and tissue paper.

281662 Kit**\$12.95 or \$10.95** ea./12+

841818 Bulk Pack of 30**\$9.50 Per Kit \$285**

**KELVIN®
Hang Glider**

From gliders to rockets, aerospace technology has evolved dramatically in a short period of time. Use this kit to introduce students to the engineering and science concepts associated with flight. Focus content on the forces of lift, drag, thrust and gravity.

22. in. Wide
Wing Span

This glider is made from a balsa wood frame and polyethylene clear plastic wing covering. With a wing span of 22 in. wide, the finished glider flies beautifully indoors or out.

842448 Kit.....**\$12.95 or \$9.95** ea./10+

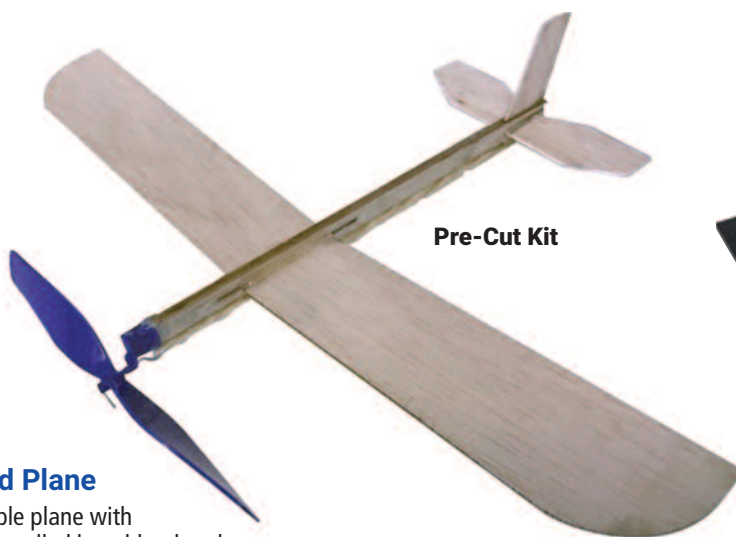

Pre-Cut Kit
**13 wide
Wing Span
Plane**
KELVIN® RBTP™
Rubber Band Power Plane w/ 13 in. wide Wing Span

Kit includes pre-cut balsa sheet, nose hook, propeller, wire and wheels. Works with Rubber Band TestrPole™. Requires glue (see below).

283693 Kit **\$9.45** or **\$8.95** ea./20+

Bulk Pack
Per Kit Price
As Low As

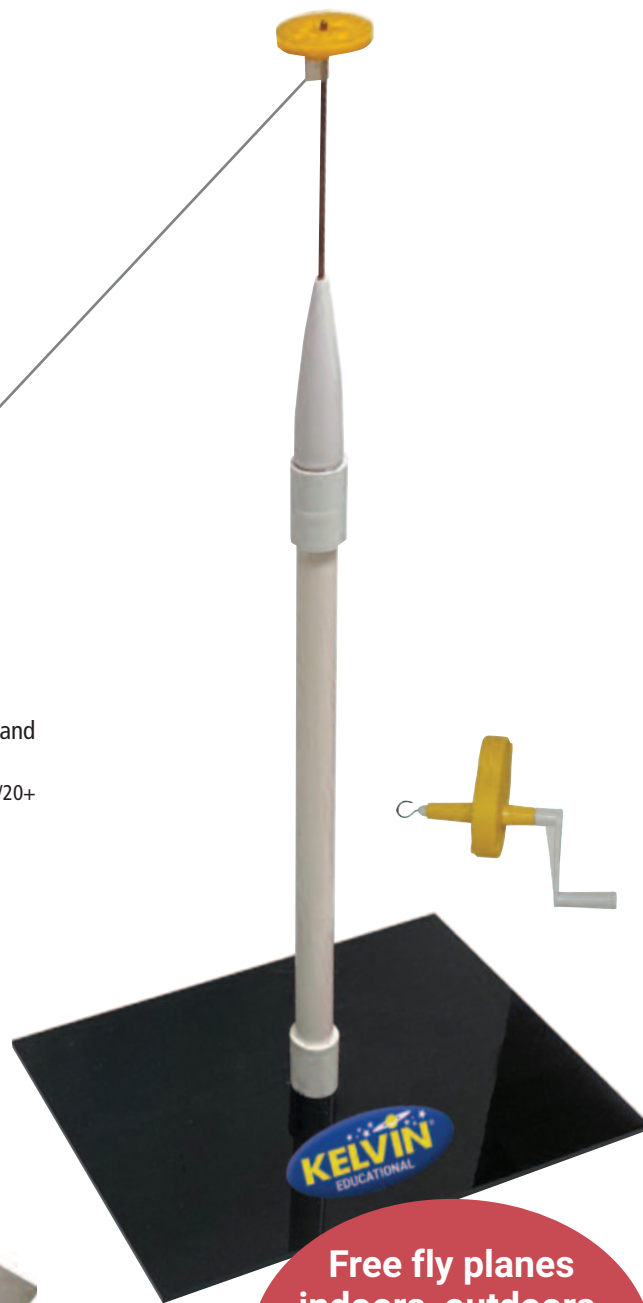
\$6.95


Pre-Cut Kit
KELVIN®
**Pre-Cut
Rubber Band Plane**

Ready to assemble plane with pre-cut balsa. Propelled by rubber bands. Works with Rubber Band TestPole™. Requires glue.

842634 Bulk Pack of 20 **\$7.95 Per Kit \$159**

842047 Bulk Pack of 50 **\$6.95 Per Kit \$347.50**



**Free fly planes
indoors, outdoors,
or test fly around
Rubber Band
TestPole™**

**KELVIN®
RBTP™**
**Rubber Band
TestPole™ Starter Set**

Students design, build and test a rubber band powered plane that they will fly around a stationary pole as many times as possible. It helps students understand the forces and mechanisms that make it possible for flight.

The starter set includes: Rubber Band TestPole™, [5] plane kits, hand winder and instructions.

842126 Starter Set w/ [5] Plane Kits **\$195**

Rubber Band Hand Winder Only 1:10

283694 **\$36.95**

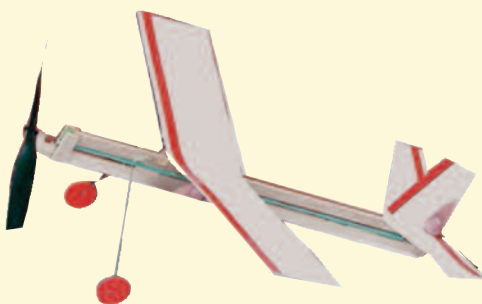
**KELVIN® Rubber Band
Flight Activity Class Pack**

Each students gets one kit and one booklet (for assisting in the plane construction) is required for each student.

Each kit includes balsa, wheels, axle, propeller and rubber band.

Class Pack of 12 Kits

841234 **\$3.00 Per Kit \$36**



Pre-Cut Kit

**18 wide
Wing Span
Plane**

**KELVIN® Jumbo RBTP™
Rubber Band Power Plane**

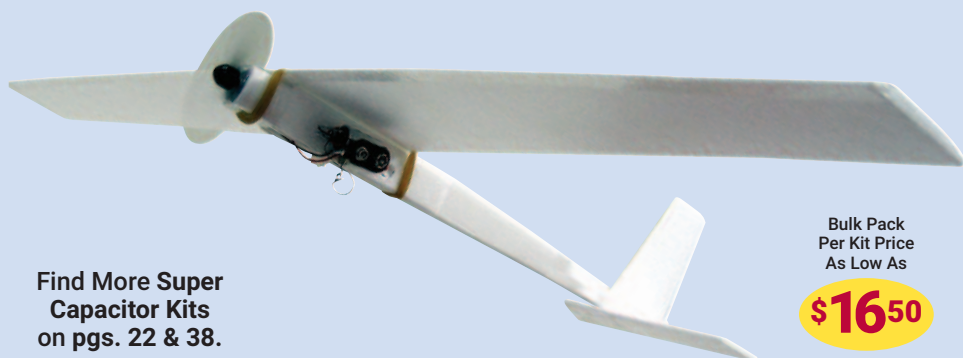
This jumbo glider features a very big 18 in. wing span. Kit includes: pre-cut balsa sheet. Works with the Rubber Band TestPole™. Requires glue (see below).

842578 Kit **\$19.95**
or **\$17.95** ea./10+
or **\$16.95** ea./20+



Glue

930046 Tacky Glue, 1 oz... **\$1.95** or **\$1.75** ea./6+
510005 Krazy Glue **\$2.95** or **\$2.65** ea./6+



**Find More Super
Capacitor Kits
on pgs. 22 & 38.**

Bulk Pack
Per Kit Price
As Low As

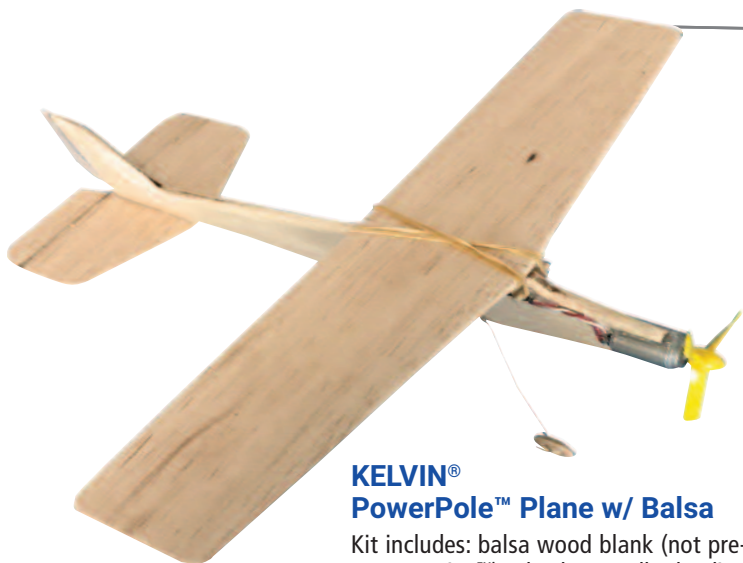
\$16⁵⁰

KELVIN® Super Capacitor Plane

Design and build a foam plane, charge the capacitor, engage the magnet activated switch and launch. The wings can be trimmed to affect the flight. Magnet activated switch disengages, if the plane should crash, turning off the motor.

Kit includes: foam that students cut and shape, motor, super capacitor, propeller, magnet, reed switch, wire and instructions.

841800 Kit **\$19.95** or **\$17.95** ea./10+
841801 Bulk Pack of 10..... **\$16.50 Per Kit \$165**



KELVIN® PowerPole™ Plane w/ Balsa

Kit includes: balsa wood blank (not pre-cut, U-Design™), wheels, propeller, landing wheels, and axle wire.

842446 Kit\$18.95 or \$17.95 ea./10+



KELVIN® PowerPole™ Plane w/ Pre-Cut Balsa

Includes: pre-cut balsa wood, motor, propeller, landing wheels, axle wire, and more.

842445 Kit ..\$25 or \$22.95 ea./10+

KELVIN® PowerPole™ Pre-Assembled Balsa Plane Trainer

Ideal for younger students who may find it easier to design a wing for the pre-assembled model plane Balsa wings can be removed with a screwdriver and replaced with student-designed wings.

840828 Assembled Plane Trainer\$95



KELVIN® PowerPole™ Cargo Plane

Kit includes: foam, foam core board, motor, [3] propellers, landing gear, and instructions with four experiments.

841673 Kit\$18.95 or \$17.95 ea./10+

KELVIN® Electric PowerPole™ Design Challenge

Students in middle school and up, can learn about aeronautics and problem-solving while they build a complete model from provided kit material and then test how it flies around the Electric PowerPole™. Planes can be controlled to fly faster and higher.

To begin the challenge, middle school students design the top wing; advanced and high school students design the whole plane. Planes are attached to the power pole for a controlled, 12-foot dia. flying area. Planes are evaluated on speed (rpm), load, and how high they can fly.

Includes: Electric PowerPole™ and [2] balsa plane kits (842446). Requires power supply (842639) and use of safety glasses. Gr. 5+.

851956\$195

KELVIN® Variable Power Supply w/ Polarity Box

Backlit, 3-digit LED can display 0-30 V and 0-5 A. Constant modes for voltage and current automatically switch with load. Adjustable with fine and coarse knobs. Low noise output and ripple with built-in protection for thermal, short circuit and overload.

Use polarity box to conveniently switch power polarity. Can be used with other power supplies that have a round jack. Standard banana plugs for output with regular lab cables. 8.8 x 3.2 x 6.5 in. 110 V AC. USA plug.

842639\$145

KELVIN® Electric PowerPole™ Timer

Goes on top of the PowerPole™ to track student-designed plane's distance, time, revolutions, and speed. The multiple sensor version has 8 sensors and is 8 times more accurate.

841260 1 Sensor, Win, USB\$99.95

841894 8 Sensors, Win, USB\$199.95

PowerPole™ Accessories

A



B



Power Cable for KELVIN® PowerPole™ From Pole™ to Plane

850811 A 7 ft. long\$2.25 or \$2.15 ea./10+

Cable w/ Jack Connector for KELVIN® PowerPole™ 2010

870118 B\$4.95 or \$3.95 ea./10+ or \$3.75 ea./10+

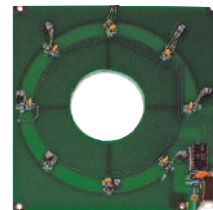
Upgrade Kit for Older PowerPole™ Models

For older PowerPole™ models with the phone swivel connector. Comes with: 3/4 in. PVC Pipe (15 in. Long), [2] Acrylic Arms, [4] Acrylic Rings, PVC Cap with Jack Connector, 30 ft. Twisted Wire and [4] Bumper Squares.

851509\$49.95



Scan The Code For Product Video



All planes on this page work with the **KELVIN® Electric PowerPole™** on pg. 32.



Piper Cub Plane Bulk Pack

Includes [5] cardstock patterns, motors, propellers, landing wheels and instructions. Teachers will have to supply glue and such.

842049\$59.95 or \$49.95 ea./2+



Piper Cherokee Plane Bulk Pack

Includes [5] cardstock patterns, motors, propellers, landing wheels and instructions. Teachers will have to supply glue and such.

842051\$59.95 or \$49.95 ea./2+



Cessna 172 Skyhawk Plane Bulk Pack

Includes [5] cardstock patterns, motors, propellers, landing wheels and instructions. Teachers will have to supply glue and such.

842055\$59.95 or \$49.95 ea./2+



Beechcraft Bonanza Plane Bulk Pack

Includes [5] cardstock patterns, motors, propellers, landing wheels and instructions. Teachers will have to supply glue and such.

842053\$59.95 or \$49.95 ea./2+



German ME 109 Plane Bulk Pack

Includes [5] cardstock patterns, motors, propellers, landing wheels and instructions. Teachers will have to supply glue and such.

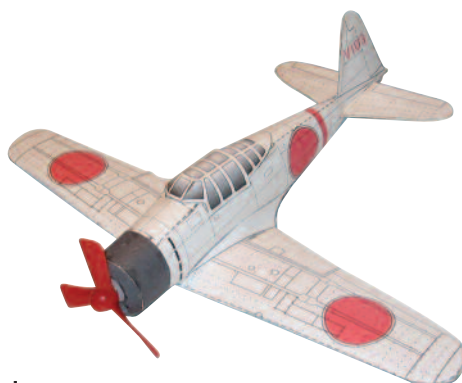
842059\$59.95 or \$49.95 ea./2+



British Spitfire Plane Bulk Pack

Includes [5] cardstock patterns, motors, propellers, landing wheels and instructions. Teachers will have to supply glue and such.

842063\$59.95 or \$49.95 ea./2+



Japanese Zero Plane Bulk Pack

Includes [5] cardstock patterns, motors, propellers, landing wheels and instructions. Teachers will have to supply glue and such.

842057\$59.95 or \$49.95 ea./2+



American P51 Mustang Plane Bulk Pack

Includes [5] cardstock patterns, motors, propellers, landing wheels and instructions. Teachers will have to supply glue and such.

842061\$59.95 or \$49.95 ea./2+



Balsa & Tissue Paper Plane

Design and test wing structure. Kit includes: adjustable balsa structure, wire to PowerPole, motor, propeller and tissue paper.

281663 Kit\$16.95 or \$14.95 ea./10+



Wright Brothers Replica Plane

Kit includes foam, propeller, landing wheels and instructions.

842125 Kit.....\$17.95 or \$16.95 ea./10+

842130 Bulk Pack of 10..\$14.95 Per Kit \$149.50



Bulk Pack
Per Kit Price
As Low As

\$16.95

PowerPole™ Foam Plane

Kit includes: foam, motor, propeller, landing wheels, phone jack connector, and instructions.

841672 Kit.....\$18.95 or \$17.95 ea./10+

840732 Bulk Pack of 10..\$16.95 Per Kit \$169.50

NEW**UPDATED DESIGN
with Adjustable Angle****Launches Two Ways, with
Elastic Tubing or, CO₂
Cartridges with the optional
CO₂ Launching Unit****KELVIN® Condor Super Size
Catapult Launcher**

Super-sized launcher with a 47 in. long track will launch your foam glider with excitement! Constructed from metal. To launch, use elastic surgical tubing or the CO₂ launching unit (283406).

283381 Launcher\$495

KELVIN® Condor™ Super Size Glider Bulk Pack

Foam glider has 21 in. long fuselage and a 24 in. wide wingspan. Includes foam (cut to rough shape of wing and fuselage), balsa, rubber bands, nose weights and instructions with wing templates. If not using the CO₂ Launching Unit (283406), an empty CO₂ cartridge (not included) is required for weight balance. Also, teacher supervision is needed. School use only.

283185 Bulk Pack for 20\$7.50 Per Kit \$150

OPTIONAL: CO₂ Launching Unit

Easily attaches to the launcher with two screws. To operate, the spring loaded firing pin is pulled back and locked into position. The plane is placed on the track and when the launch lever is released, the firing pin punctures the CO₂ cartridge. The escaping gas launches the plane forward at a high velocity. Teacher supervision required.

283406\$295

CO₂ Cartridges 8 Gram**We only ship CO₂ cartridges to the Continental
U.S. via Ground Service.**

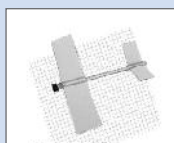
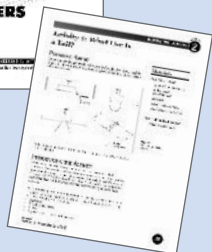
500025 10/pkg.\$7.95 or \$7.45 ea./10+

500053 w/ Cap, 10/pkg.\$8.95 or \$8.45 ea./10+

**Design It! Lesson Guide: Gliders**

Construct simple planes from paper. After testing designs for tails, bodies and wings, construct a rubber band launcher. This allows for a more consistent way of evaluating all of the variables. 64 pg. Guide.

651661 Guide\$9.95 or \$8.95 ea./10+

**Find More Design It! Guides in the
S.T.E.M. chapter on pgs. S 14-15.****GLIDERS****EDC****KELVIN®****KELVIN®
Skyrider™
Balsa Glider
Catapult Launcher**

The sturdy catapult launcher uses a heavy-duty rubber band for the power source, and will send your glider on it's way! Since no CO₂ cartridges or engines are required, students can economically launch one flight after another. Launcher (6-ft. L) disassembles for easy storage.

283414 Launcher\$165

**Balsa Glider Bulk Pack
w/ Activity Manual**

283415 Bulk Pack of 20..\$6.75 Per Kit \$135

**Catapult Launcher w/ Balsa Glider
Bulk Pack & Activity Manual**

Includes: Skyrider™ Balsa Glider Catapult Launcher, Balsa Glider Bulk Pack of 20, and Activity Manual.

283416 Launcher & Bulk Pack of 20.....\$285

Activity Manual

Step-by-step instructions take students from first design to a finished glider.

652340 Booklet, 10/pkg.\$29.95





Eagle Balsa Glider

Easy to assemble and great fun to fly. Ideal for beginners. Comes with balsa parts that fit together with no glueing; requires assembly. Kit includes printed wing, tail surfaces and canopy.

283801 Kit\$3.75 or \$2.95 ea./10+ or \$2.75 ea./25+



Whitewings Competition Class Pack

Ideal for Science Class, Scouting, or Events! The Science of Flight is now explained and demonstrated with the world's best gliders.

Pack includes: [30] Sky Cub III Pre-Cut Racers, Student Instructions, Teacher Manuals, Target Game and BONUS Wright Flyer Model.

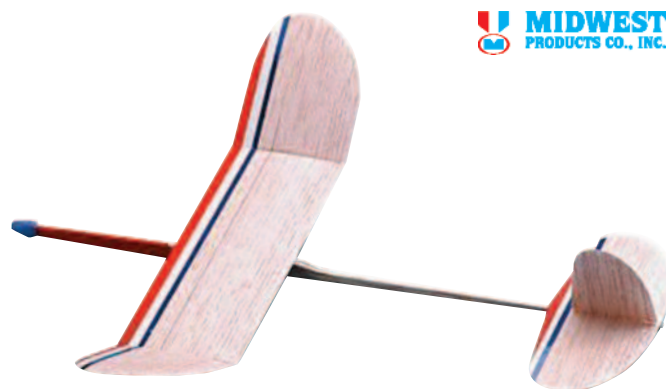
280377\$135 or \$125 ea./3+



Lancer Model Plane

Ideal for individual use or group model building such as in a school class. Each kit contains the right combination of building material and "power package" to assemble an attractive model with good flying ability. 24 in. wide wingspan.

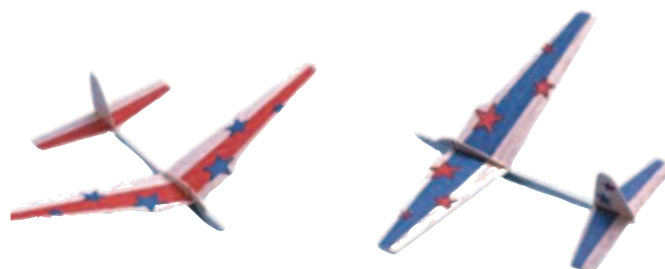
282406 Kit\$29.95 or \$27.95 ea./3+



Flip Glider Bulk Pack

Glider features wing tip dihedral for stability. This kit may be easily converted to an outdoor catapult launched glider.

280362 Bulk Pack of 35 Kits\$145



Star Glider Bulk Pack

Glidars are an economical first step in aviation science. Students are each supplied with two gliders that are easy to put together.

281983 Bulk Pack of 35 Kits\$75



Tech Glider System

Complies with TSA's "Flight Challenge" flying event. The Primary Pack (281980) includes balsa blanks for wings, fuselage and tail assembly, clay ballast, "B" size graph paper, Designer outlines and a design manual for teachers.

The Consumable Pack (281981), supplies all of the above, except for the teacher's manual. The Catapult Kit (281982) includes enough rubber to create 2 loops.

281980 Primary Pack, 24 Kits\$125

281981 Consumable Pack, 24 Kits\$86.95

281982 Catapult Only Kit\$44.95

Motor Loops

850695 1/8 in. dia. x 7 in long, 35/pkg.\$9.95



**Find More Rubber Bands & Propeller Winder
in the Project Resources chapter on pg. PR 22.**

KELVIN® Double Prop Helicopters

Propellers on planes helps pull it forward but when mounted propellers are mounted horizontally, they will lift a helicopter up.



Easy to Assemble

Kit with Plastic Propellers

Ready to use and easier to assemble. Kit includes propellers, balsa and rubber bands

842464 Kit\$7.95 or \$6.95 ea./10+



U-Design™ & Shape

Kit with Wood Propellers

You Design & Shape Propellers. Kit includes: dowel, balsa, thin wire, aluminum tube, rubber band and wood bead.

842457 Kit\$12.95 or \$9.95 ea./10+



KELVIN® Helicopter Flight Test Center

After designing and building a helicopters, students can actually observe them hovering in the Test Center viewing area. Using a variety of propeller blade arrangements provided they will gather data focusing on the properties of the blades including wind speed and power.

Includes: test center station, speed controller, power supply, multimeter, [10] foam body blocks, [3] motors, propellers (2, 3 & 4 blades), hand powered flying prop materials, wire and detailed instructions.

842449 Test Center for Class.....\$395

Helicopter Flight Test Center Consumables

Includes: [3] motor mount tubes, [4] dowels, [10] foam pieces (1 x 3 x 10 in.), and [6] balsa sticks (1/8 x 1/4 x 36 in.). Requires propellers and motors from test center (842449).

842450 Bulk Pack for 10\$24.95



Build-N-Fly Model Planes

These kits are the 2nd, 3rd and 4th skill levels, respectively, in the "Build-N-Fly" construction kit series. This series will teach you how to build and enjoy flying rubber-band powered model airplanes. The Cadet has a wing span of 14-1/2 in. long, the Cloud Buster, 17-3/4 in. long and the Fly Boy, 21 in. long.

282402 **A** Cadet Plane Kit\$22.95 or \$20.95 ea./3+

282403 **B** Cloud Buster Plane Kit\$31.95 or \$29.95 ea./3+

282404 **C** Fly Boy Plane Kit\$33.95 or \$30.95 ea./3+





Large Balloon -
Can be built
up to 5 ft.
Tall!



**Medium
Balloon**



**Small
Balloon**



NEW Updated Design **KELVIN® Geodesic Hot Air Balloon Challenge**

Give your students a lesson in geometry and measurement while they build hot air balloons based on geodesic domes. Balloons are launched using hot air from the updated launcher - great for flying in a gymnasium.

Plans and instructions are included for several different models all created from standard size tissue paper and ranging from 14 inches to over 5 feet tall. Bigger balloons help demonstrate surface area and volume concepts.

The thoroughly illustrated instruction manual includes information on the history of hot air balloons, plus tips for easy construction. Flat panels made up of pentagons and hexagons are easy to assemble and repair.

Comes with: launcher and a balloon starter pack of [5] small, [3] medium and [1] large balloon kits in addition to metal wire, tissue paper, and glue. Requires scissors for cutting and assembly of balloons. Grades 6-12.

841638 Launcher & Starter Pack **\$395**

Balloon Kits

Each kit includes: colored tissue paper, metal wire, and glue.

841651 Small Balloon Kit **\$11.95** or **\$10.95** ea./10+

841652 Medium Balloon Kit **\$14.95** or **\$12.95** ea./10+

841653 Large Balloon Kit **\$15.95** or **\$14.95** ea./10+

Balloons Bulk Pack

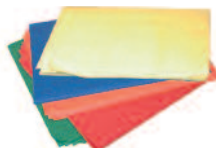
Bulk pack includes [15] small, [10] medium and [5] large balloon kits.

841639 Bulk Pack for 30 **\$6.33 Per Kit \$225**

Tissue Paper Pack

Assorted colors of tissue paper for hot air balloons and more. Sheets measure 20 x 30 in.

420399 50 Sheets **\$29.95**



Traditional Kite Class Pack

Students design their own kites and then build them using colorful tissue paper. This kit includes tissue paper, 36 in. long basswood strips, [20] glue bottles, [20] rolls of string and basic guide sheets. Enough for 20 students.

281707 Class Pack **\$155**

Kite Parts Bulk Pack

A variety of parts for student kites.

841426 Bulk Pack for 30 Students **\$165**

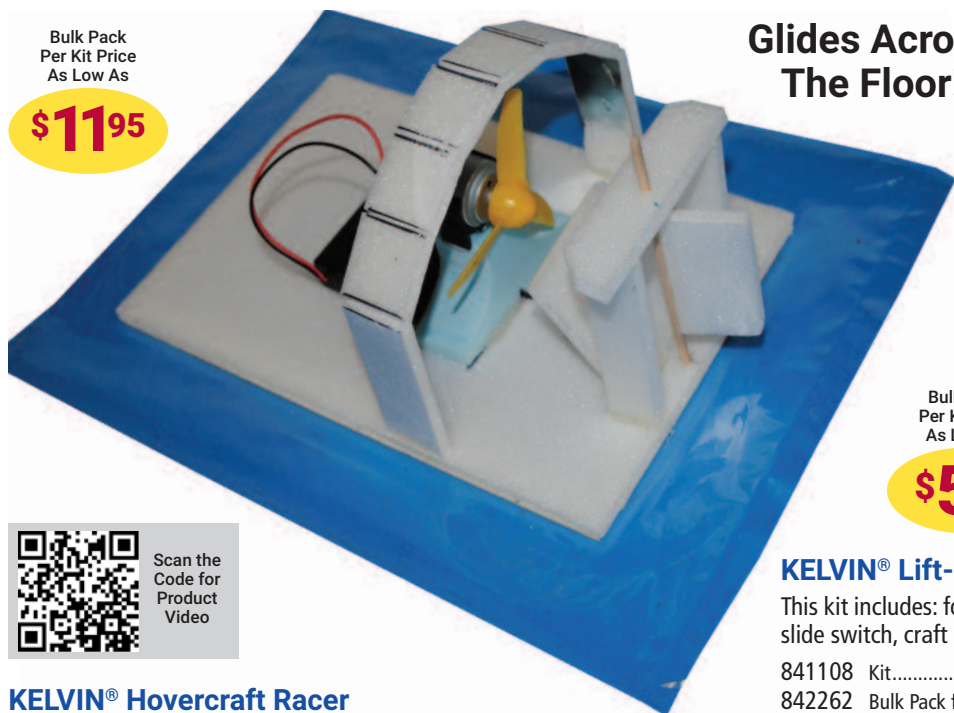


**Great
Outdoor
Activity**

**Launch Hot Air Balloons
in School Gymnasiums!**

Bulk Pack
Per Kit Price
As Low As

\$11⁹⁵



**Glides Across
The Floor!**



Bulk Pack
Per Kit Price
As Low As

\$5⁹⁵

KELVIN® Lift-Push Hovercraft

This kit includes: foam tray, propeller, motor, 9V battery snap, wire, straw, mini slide switch, craft sticks and clips. Requires 9V battery. Grades 6-12.

841108 Kit **\$7.95** or **\$6.95** ea./10+
842262 Bulk Pack for 25 **\$5.95 Per Kit \$148.75**

KELVIN® Hovercraft Racer

Students can design, build and compete with this model hovercraft. Kit includes: floating bag, foam, motor, propeller, battery holder and switch. Requires [4] AAA batteries as well as tools for cutting and shaping.

842389 Kit **\$15.95** or **\$14.95** ea./10+
842391 Bulk Pack of 15. **\$11.95 Per Kit \$179.25**

**Find More Super Capacitor
Kits on pg. 22.**



Bulk Pack
Per Kit Price
As Low As

\$12⁹⁵

KELVIN® Super Capacitor Hovercraft

Simple, but effective this super-capacitor hovercraft will float above a smooth surface. Use a regular or rechargeable battery to charge the super capacitor model for about 20 seconds. Turn on the switch and off it goes.

This kit includes a foam base, plastic, propeller (color varies), motor, super capacitor, reed switch, magnet, wire and instructions.

841804 Kit **\$15.95** or **\$14.95** ea./10+
841805 Bulk Pack of 10 **\$12.95 Per Kit \$129.50**

KELVIN® Advanced Competition Hovercraft

This hovercraft not only lifts and travels from one point of the room to another but can also glide across tile.

Kit includes:
[2] motors, foam trays,
[2] propellers (one for lift
and one for propulsion
forward), 9V battery snap,
slide switch,
wire, dowel rods, craft sticks and clips.
Requires 9V battery or wired battery pack as
well as designing, soldering, and assembly. Gr. 9 and up.

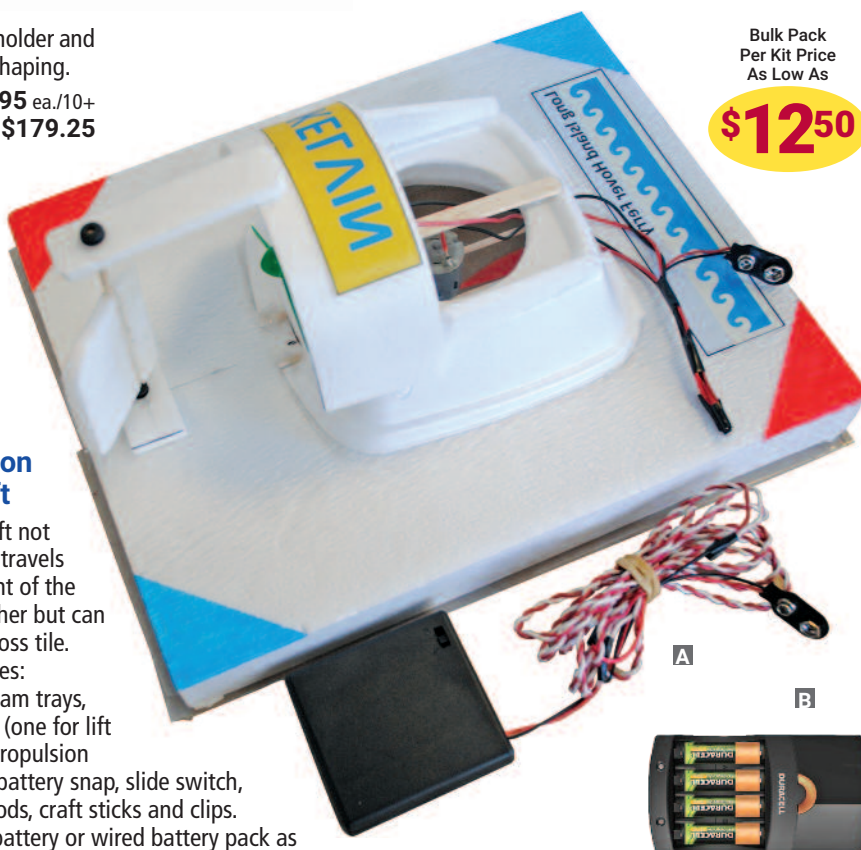
841109 Kit **\$17.95** or **\$16.95** ea./10+ or **\$15.95** ea./25+
842618 Bulk Pack of 10 Hovercraft Kits w/ Wired Battery Pack Kit **\$12.50 Per Kit \$125**
841420 Bulk Pack of 20 Hovercraft Kits w/ Wired Battery Pack Kit **\$12.50 Per Kit \$250**

Wired Battery Pack (Assembled) w/ Power Switch & 10 ft. of Wire

851510 **A** Requires [4] AA batteries **\$19.95** or **\$17.95** ea./10+

Quick Charger w/ [4] AA Ni-MH Batteries

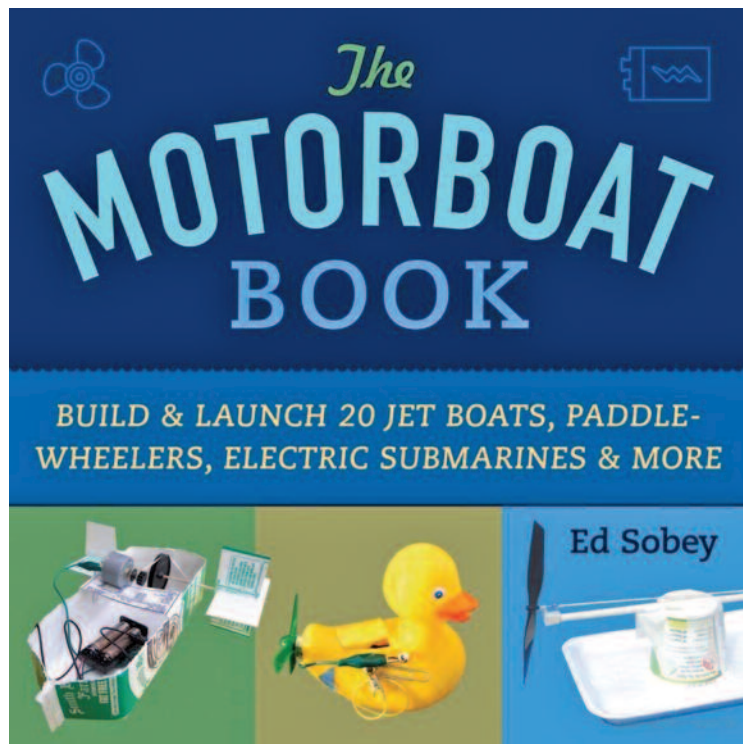
220155 **B** Charges in 1 to 2.5 hours, 4000 mW **\$49.95**



Bulk Pack
Per Kit Price
As Low As

\$12⁵⁰



KELVIN® New Standards® S.T.E.M. Lab: Boats

Student Examples


Using *The Motorboat Book*, this lab explores how to build more than 20 different boat models and six submarines through step-by-step instructions and photos. Electric motors, balloons, gears, water jets, belt drives, chemical reactions, steam, and even gravity are used to propel models over water. In addition, author Ed Sobey PhD., includes instructions for building accessories like a working fog horn or an "ocean" to test boats.

Boats Lab w/ Full Color Book & Parts

842549\$69.95 or \$59.95 ea./3+

Cool Melt Glue Gun w/ Glue Sticks

842552\$14.95



Kits may require soldering, assembly, shaping & sanding of wood, balsa or foam. ⚠ **Warning:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.
www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices shown are for educational institutions.

KELVIN® New Standards® S.T.E.M. Lab: Water Transportation


From buoyancy to hydrodynamics introduce students to the principles that govern the design of water vehicles. Using a series of hands on learning by doing activities, students design, build and test boats and submersibles. Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Team Pack

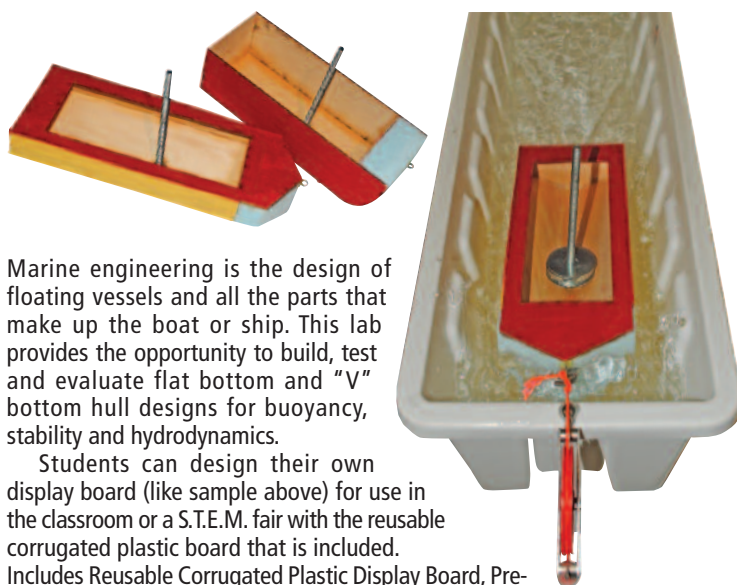
Includes Reusable Corrugated Plastic Display Board, [4] Basic Buoyancy Kits, [4] Rubber Band Powered Pontoon Boat Kits, [4] Basic Submarine Kits, [4] Motor Boat Kits and instructions. Grades 6-12.

842497 Team Pack - [16] Kits & Instructions.....\$175

Advanced Team Pack

Includes Reusable Corrugated Plastic Display Board, [3] Basic Buoyancy Kits, [3] Adv. Sub Kits, [4] Solar Boat Kits, [2] Kre8® Sea Explorer Kits, [2] Super Capacitor Hovercraft Kits and instructions. Grades 7-12.

842498 Advanced Team Pack - [14] Kits & Instructions\$325

KELVIN® New Standards® S.T.E.M. Lab: Marine Engineering Gr. 8-12


Marine engineering is the design of floating vessels and all the parts that make up the boat or ship. This lab provides the opportunity to build, test and evaluate flat bottom and "V" bottom hull designs for buoyancy, stability and hydrodynamics.

Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included. Includes Reusable Corrugated Plastic Display Board, Pre-cut 1/16 in. Bass Wood (to assemble into vessels), Testing Water Tank (35 in. L), Glue, Paint, Test Weights and Detailed Instructions (with background material).

842526 Water Tank, Bass Wood & Instructional Manual.....\$195

**KELVIN®
Motor Boat**

This kit includes a foam blank (2 x 2 x 8 in.), motor, switch, boat propeller kit, assembly and a battery holder.

841247 Kit\$10.95 or \$9.95 ea./10+ or \$8.95 ea./25+
842619 Bulk Pack of 20\$7.95 Per Kit \$159

Bulk Pack
Per Kit Price
As Low As

\$7⁹⁵

Bulk Pack
Per Kit Price
As Low As

\$11⁹⁵**KELVIN®
Solar Boat**

Design a boat powered by energy from the sun. The kit includes a foam blank (1 x 3 x 12 in.), solar motor, solar cell, propeller and [2] red wire leads.

841252 Kit\$16.95 or \$15.95 ea./10+ or \$14.95 ea./25+
842621 Bulk Pack of 10\$11.95 Per Kit \$119.50

**KELVIN®
Propeller Boat**

Kit includes a propeller, rubber band, dowel and foam blank (2 x 3 x 12 in.).

840852 Kit\$7.95 or \$6.95 ea./10+ or \$6.45 ea./25+
842620 Bulk Pack of 20\$5.95 Per Kit \$119

Bulk Pack
Per Kit Price
As Low As

\$5⁹⁵**KELVIN®
Pontoon Boat**

Design a boat that runs on an alternate form of energy. Kit includes [2] foam blanks (2 x 2 x 12 in.), wood parts, propeller and a rubber band.

841250 Kit\$9.95 or \$8.95 ea./10+ or \$7.95 ea./25+
842406 Bulk Pack of 20 Kits\$6.95 Per Kit \$139

Bulk Pack
Per Kit Price
As Low As

\$6⁹⁵**KELVIN® Solar Cell & Battery Boat**

Includes: solar cell, foam blank (2 x 3 x 12 in.), low volt motor, [2] different propellers, [2] red wire leads, AA battery holder, SPDT switch, grid paper, straw, dowel rod, tin plate, adapter, Kre8® tube and connector. Requires [1] AA battery.

840853 Kit\$19.95 or \$18.95 ea./10+ or \$17.95 ea./25+
842622 Bulk Pack of 10\$13.95 Per Kit \$139.50

Bulk Pack
Per Kit Price
As Low As

\$9⁹⁵**KELVIN® Balsa Boat Hull**

Design and shape a boat hull to be propelled by an inboard or outboard motor (not included). Includes a balsa blank (2 x 4 x 12 in.).

841113 Kit\$10.95 or \$9.95 ea./10+ or \$9.45 ea./25+

Motor Propulsion Kit

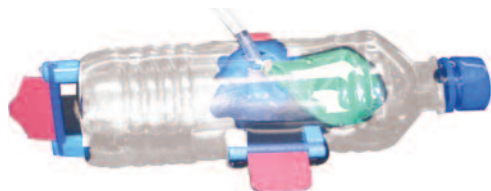
Kit includes a motor, 1 in. propeller, shaft and a mounting bracket.

280412 Kit.....\$9.95 or \$9.45 ea./6+

**KELVIN®
Air Boat**

Design an air boat like those used in the Everglades. Each kit includes motor, [2] foam blanks (2 x 2 x 8 in.), wood, propeller, switch and AA battery holder.

841251 Kit\$12.95 or \$11.95 ea./10+ or \$10.95 ea./25+
842623 Bulk Pack of 20\$9.95 Per Kit \$199



KELVIN® Basic Submarine

Designed with a younger student in mind, this basic version allows them to design, test and modify a submarine that ascends and descends in a tank of water. Discover the principles of buoyancy, balance, density and pressure while engaging in a hands-on, learning activity. Each kit includes plastic bottles, additional resource materials and instructions.

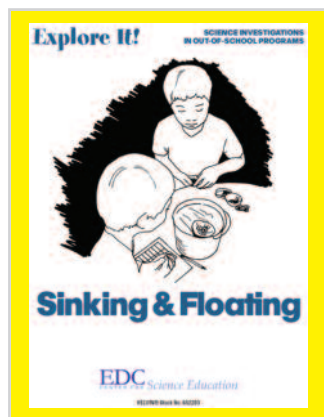
842105 Kit\$16.95 or \$14.95 ea./10+



KELVIN® Rubber Band Submarine

After assembling this unique rubber band powered submarine, students will experiment with different propellers, rudder sizes and the placement of stability wings. Bottle is included.

842108 Kit\$12.95 or \$10.95 ea./10+



Explore It! Guide: Sinking & Floating

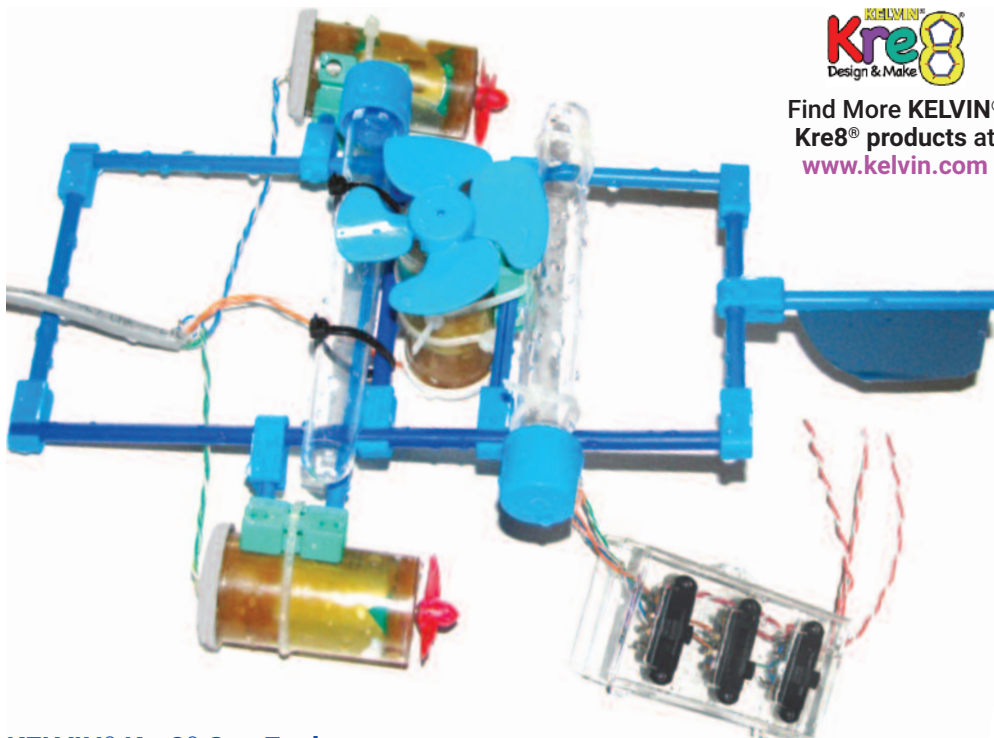


Explore the buoyancy of common objects and make boats from a variety of materials and shapes to see what will sink or float.

652283 Booklet.....\$9.95 or \$8.95 ea./10+

**Find More Explore It! Guides in the
S.T.E.M. chapter on pgs. S 16-17.**

The sight of a submarine disappearing into the vast ocean captures the imagination of both the young and old. How does the sub descend and then climb back to the water's surface? What propels the submarine deep underwater?



Find More KELVIN®
Kre8® products at
www.kelvin.com

KELVIN® Kre8® Sea Explorer

Students, in teams, design, build and test their own submersible vessel. The kit includes [3] motors (for vertical and horizontal control), plastic ballast tubes, control switches, frame parts, propellers, instructions and resource material. Requires a 6V lantern as well as soldering, and melting of low temperature wax.

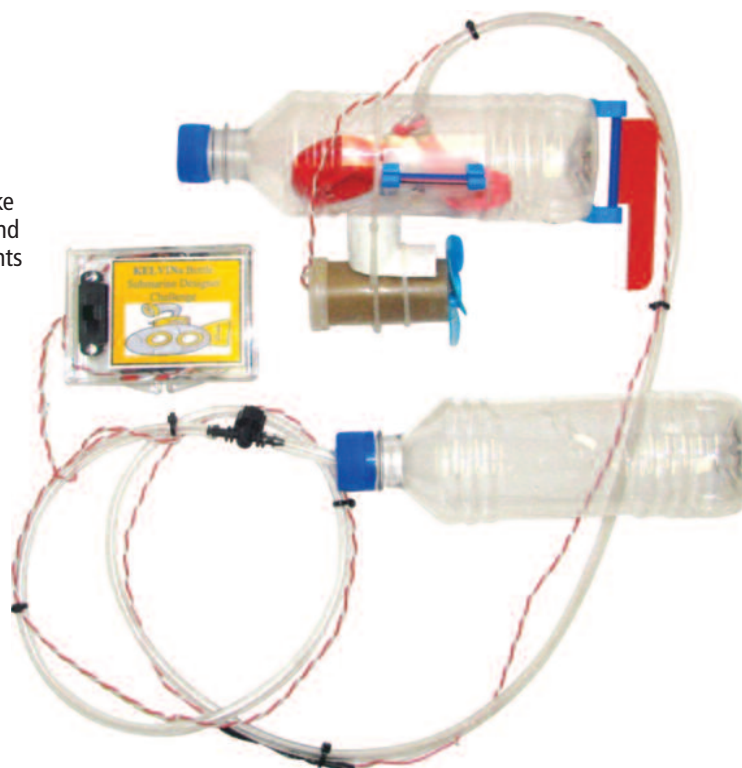
842107 Kit\$69.95 or \$59.95 ea./3+ or \$49.95 ea./10+


KELVIN® Advanced Submarine

Younger children can make the submarine descend and ascend while older students can add and test a propulsion system for the diving submarine.

Kit includes detailed instructions, plastic bottles and necessary materials for building designs.

Kit
842106,
\$27.95 or
\$24.95 ea./10+



 Launches rockets up to 3/8 in. dia.



Launch Model Rockets with Compressed Air!

KELVIN® Paper Rocket™ Air-Powered Launchers

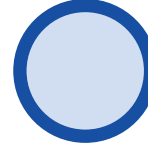
KELVIN® adjustable angle launch pad can launch paper rockets up to 175 feet using compressed air. Flight is based on fin design and assembly. The system includes pre-printed colored paper, launch pad, extension tube attachment, dowel rods and instructions. Requires a portable air compressor (see below). Suitable for Grades 5 and up.



840868 Single Launcher (Not Shown)\$345
841045 Dual Launcher (Above)\$395

Paper Rockets™ Body Tubes Bulk Pack Pre-Printed
420406 8-1/2 x 11 in., 500 Sheets7¢ Per Tube \$39.95

Portable Air Storage
500026 Portable Air Tank w/ 5-Gallon Volume\$120
500027 Portable Air Compressor w/ Built-In Air Tank\$245

 Launches rockets up to 3/4 in. dia.



KELVIN® Rocket Scientist™ Air Powered Launcher

Explore the factors that influence rocket flight. Students will design, build and test rocket performance by varying fin shape, size, and number, rocket weight, length and nose cone shape.

STEM based lab demonstrates the application of scientific theory and concepts. Air powered rockets require no rocket engines so students can economically perform multiple tests on their design. Rockets travel up to 60 feet in height depending on design.

In addition, use this system to test any model rocket that utilizes an Estes® B-20 body tube (0.75 in. diameter). This saves money because you are not wasting expensive rocket engines.

Comes with enough supplies for 20 students including: launcher, body tubes, balsa wood, plastic nose cones, foam nose cone fabrication materials and more. Additional bulk packs of consumables available (283405). Requires air compressor, see below.

851958 Launcher\$375
283405 Bulk Pack of 20\$6.25 Per Kit \$125

Portable Air Storage

500026 Portable Air Tank w/ 5-Gallon Volume\$120
500027 Portable Air Compressor w/ Built-In Air Tank\$245



Launch Model Rockets with Compressed Air!



Find ESTES® Equipment, Model Rockets, and Supplies on pg. 53 and at kelvin.com


**ESTES®
Model
Rockets**
220 Swift SKILL LEVEL 1

0.094 oz. Engines used: 1/4A3-3T, 1/2A3-4T, A3-4T.

283562 **A** Kit - 4.5 in. L x 0.54 in. dia. **\$11.95** or **\$10.95** ea./3+

Yankee™ SKILL LEVEL 1

Comes with self-adhesive decals, streamer recovery and die cut balsa fins. Engines used: 1/2 A6-2, A8-3, A8-5, B4-4, B6-4, B6-6, C6-5, C6-7.

281893 **B** Kit - 11 in. L x 0.74 in. dia. **\$15.95** or **\$14.95** ea./3+

Wizard™ SKILL LEVEL 1 – Max. Altitude of 1500 ft.

Engines used: 1/2A6-2, A8-3, A8-5, B4-4, B6-4, B6-6, C6-5, C6-7.

840277 **C** Kit - 12 in. L x 0.74 in. dia. **\$15.95** or **\$14.95** ea./3+

281833 Bulk Pack of 12 **\$79.95** or **\$74.95** ea./3+

Viking™ SKILL LEVEL 1 – Max. Altitude of 1470 ft.

Features multiple fin configurations. Engines used: 1/2A6-2, A8-3, A8-5, B4-4, B6-4, B6-6, C6-5, C6-7.

282036 **D** Kit - 12.1 in. L x 0.74 in. dia. **\$15.95** or **\$14.95** ea./3+

280083 Bulk Pack of 12 **\$145** or **\$135** ea./3+

Alpha® SKILL LEVEL 1 – Max. Altitude of 1000 ft.

The perfect rocket to get you started with parachute recovery (12 in.)! Engines used: 1/2A6-2, A8-3, A8-5, B4-4, B6-4, B6-6, C6-5, C6-7.

282034 **E** Kit - 12.3 in. L x 0.98 in. dia. **\$19.95** or **\$18.95** ea./3+

281837 Bulk Pack of 12 **\$145** or **\$135** ea./3+

Generic E2X Rocket SKILL LEVEL 1

Easy to Assemble. Customize with markers or paint. Includes a variety of foil self-adhesive decals. Engines used: A8-3 B4-4, B6-6, C6-5, C6-7.

281838 **F** 15 in. L x 0.976 in. dia, Bulk Pack of 12..... **\$145**

PLEASE NOTE:
Rocketry is a hazardous activity and an experienced adult should be in charge.

**Find More ESTES®
Supplies & Equipment
on pgs. 44-45.**

Big Bertha® SKILL LEVEL 1 – Max. Altitude of 500 ft.

2.2 oz. Engines used: B4-2, B4-4, B6-2, B6-4, C6-5.

282035 **G** Kit - 24 in. L x 1.64 in. dia. .. **\$29.95** or **\$26.95** ea./3+

Alpha III™ SKILL LEVEL E2X – Max. Altitude of 1100 ft.

Great first rocket with bright molded one piece fin unit, nose cone and parachute. 1.2 oz. Engines used: 1/2A6-2, A8-3, A8-5, B4-4, B6-4, B6-6, C6-5, C6-7.

282022 **H** Kit - 12.25 in. L x 0.98 in. dia. **\$26.95** or **\$24.95** ea./3+

280084 Bulk Pack of 12 **\$225** or **\$195** ea./3+

282023 Kit w/ Launcher & Engines..... **\$49.95** or **\$47.95** ea./3+

Bull Pup 12D™ SKILL LEVEL 2 – Max. Altitude of 675 ft. –

With plastic tail cone and authentic color decals! Great first scale model. 9.5 in. long x 1.33 in. dia. Engines used: A8-3, B4-4, B6-4, C6-5.

282048 **I** Kit - 9.5 in. L x 1.33 in. dia. **\$21.95** or **\$19.95** ea./3+

Mini Comanche 3™ SKILL LEVEL 2 – Max. Altitude of 500-900 ft.

Includes laser cut wood fins, decals, streamer and tumble recovery. 1.5 oz. Engines used: Booster Stages - A10-0T, Upper Stage - 1/2A3-4T (First Flight), 1/4A3-3T, A3-4T, A10-3T, Single Stage - 1/2A3-2T, A3-4T, A10-3T.

282049 **J** Kit - 31.1 in. L x 0.74 in. dia. **\$17.95** or **\$15.95** ea./3+

KELVIN® New Standards® S.T.E.M.
Lab: Space & Rocketry Gr. 7-12


Why do space shuttles start journeys like a rocket and finish them like a plane? Students explore aerodynamic, physics, and science principles in relationship to rockets.

Some activities explore how the rocket shape effects altitude. Students make a rocket from paper the fin they design determines the distance or altitude it will be able to fly. Hands-on activities feature building, launching, and evaluating ESTES model rockets.

This lab includes: Paper Rocket™ Dual Launcher, Alpha III Rocket Class Pack, Command Controller, [12] Wizard Rocket Kits, Altitude Finder, PortaPad Launcher, ESTES Emergency Repair Kit, Blast Off Flight Pack, model rocket engines, portable air compressor, masking tape, grid paper, [2] snap blade craft knives with [10] snap blades, [2] self-healing cutting mats, [2] scissors, [12] rulers plus a lesson guide, workstation sign, [3] excellence medallions and [30] tech excellence certificates.

840760 Lab **\$1,995**





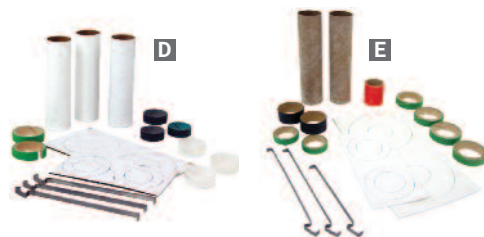
Rocket Body Tubes

Stock #	Type	L in.	Qty.	\$ ea.	\$ ea./5+
282064	BT-60	14.2	3	9.50	8.95
840500	BT-5	18	4	7.95	6.95
282061	BT-20	18	4	13.95	12.95
282062	BT-50	18	3	14.95	13.95
282063	BT-55	18	4	9.95	8.95



Parachutes

Assembled with canopy, shroud line and tape discs.
840505 12 in.\$5.95 or \$4.95 ea./5+



Rocket Engine Mounts

Regular Engines Kit

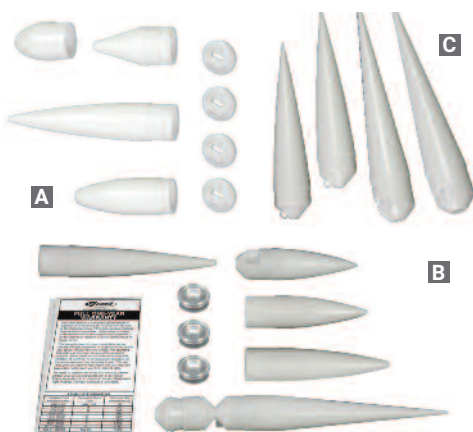
Fits BT-50, 55, 56 & 60 tubes. Includes parts to make [1] quick change mount for D-engine rockets.

282067 **D**\$9.95 or \$9.45 ea./5+

D & E Engine Mount Kit

Heavy duty engine mounts for D and E engines. Fits BT-55, 60 and 80 tubes.

282068 **E**\$14.95 or \$12.95 ea./5+



Rocket Nose Cones

Each package of nose cones contains a variety of shapes. Some cones are 1-piece, others 2-piece. All have eyelets for shock cord/shroud line attachments.

Stock #	Type	Art	Qty.	\$ ea.	\$ ea./5+
282070	NC-20	A	4	9.95	8.95
282071	NC-50	B	5	12.95	11.95
282072	NC-55	C	4	7.95	7.45



Shock Cords

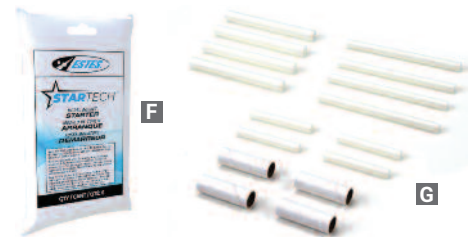
Two sizes of shock cords with mounts & instructions.

282060\$6.95 or \$5.95 ea./5+

Rocket Engine Hooks

Includes 3 different sizes. 7 engine hooks total.

282066\$5.95 or \$5.75 ea./5+



STARTECH™ Starters

Nichrome wire, dipped in a special chemical, reacts with heat to create a large burst that ensures ignition. Never misfire again! Includes 6 starters.

840496 **F** 6/pkg.\$9.95 or \$8.95 ea./5+

Launch Lug Pack

Contains [8] 1/8 in. dia., [4] 3/16 in. dia. as well as [2] 1/4 in. dia. launch lugs.

840504 **G**\$6.95 or \$5.95 ea./5+



Find ESTES®
Model Rockets &
Equipment on pgs.
43 & 45.



Blast Off Flight Pack

Includes [24] engines total (6 each of A8-3, B6-4, C6-3, C6-5), igniter plugs, [30] igniters and a package of recovery wadding [75 sheets].

840289\$83.95 or \$79.95 ea./3+



Rocket Engines

PLEASE NOTE: We can only ship rocket engines to the Continental U.S. via US Postal Service Ground Shipment. ★Minimum order of 3 packs.

Stock #	Type	Art	Qty.	\$ ea.	\$ ea./3+
282055	1/2 A3-4T	H	24	74.95	69.95
840231	A8-3	H	24	75.95	71.95
283036	B4-2	I	3★	14.95	13.95
283037	B4-4	I	3★	10.95	10.45
840232	B6-4	H	24	75.95	71.95
841365	B6-0 / B6-6	H	24	72.50	68.95
283039	C6-0	I	3★	14.95	13.95
282056	C6-5	H	24	85.95	82.95
282047	D12-3	I	2★	13.45	12.95

Recovery Wadding

Flame resistant recovery wadding protects the recovery system and is necessary to launch model rockets. Includes 75 sheets; enough for 18-25 flights!

840498 ..\$5.95 or \$5.65 ea./5+





E™ Launch Controller

Use this controller to launch E engine powered Estes model rockets. Comes complete with safety key and 30 ft. (9 m) of cable. Requires [4] AA alkaline batteries (not included). Adult supervision is required for anyone under 18 when launching "E" engine powered rockets.

282051\$34.95 or \$29.95 ea./3+



Blast Deflector Plate

Save your launch pad and don't launch without this ideal replacement for worn-out deflectors.

282052\$6.95 or \$6.45 ea./3+



Launch Rod

Two-piece launch rod (1/8 in. dia.) is ideal for most standard engine powered rockets. It attaches to the launch pad then you can align the launch lugs on your Estes rocket to the launch rod and slide it down.

282053\$13.95 or \$12.95 ea./3+



Maxi™ Launch Rod

Launch rod with extra strength and stiffness for heavier rockets and higher power motors. 3/16 in. dia. rod in two-pieces.

282043\$15.95 or \$14.95 ea./3+



Electron Beam® Launch Controller

Comes complete with safety key, continuity light, push button launch button, 17 feet (5.2 m) of cable and micro-clips for igniter hook up. No assembly required! Requires [4] AA alkaline batteries.

840287\$29.95 or \$27.95 ea./3+



Find More **ESTES®**
Supplies & Model
Rockets on pgs.
43-44.

Porta-Pad® II Rocket Launch Pad

Quick Assembly. Requires no glue or tools. Includes blast deflector, 2-piece launch rod (1/8 in. dia.), safety cap and key. Works with Maxi™ launch rod.

840380\$22.95 or \$21.95 ea./3+

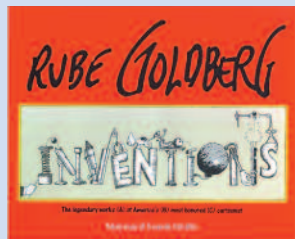


Determine Peak Altitude!

Altitrak™ Altitude Finder

Pull the trigger, follow the rocket in the sights to apogee, then release the trigger to lock the reading. It is that easy. Easy-to-read display gives you your altitude in meters along with the elevation angle. Use two Altitraks for greater accuracy. Track the altitude of your rocket without reducing the height by adding mass. Two Altitraks can give you much greater accuracy.

840284\$28.95 or \$26.95 ea./3+



Rube Goldberg® Inventions

Limited Availability. A collection of splendidly over-complicated inventions, comic strips, editorial cartoons, and sketches along with a biography.

651529 Book, 192 pages.....\$35

KELVIN® Chain Reaction Contraption

A coin drops into a container in a complex series of chain reaction steps to perform a simple task. The first lever is pulled and activates a second lever, which in turn activates a third lever pulling the magnet away from the steel ball. The steel ball rolls down the ramp tipping the teeter-totter and knocking the coin onto the exposed wires. A buzzer is then activated and, as a result, the vibration knocks the coin into the cup.

Kit includes: Plywood Base, Magnets, Plastic Cups, Required Hardware, Battery Holder, Steel Ball, Wire, Buzzer, Wood and Aluminum Strips and Instructions. Requires assembly, gluing, using shop tools, and [2] AA batteries. Students can work in teams of two.

841854 Kit\$39.95 or \$34.95 ea./6+ or \$32.95 ea./10+

841856 Bulk Pack of 10\$29.95 Per Kit \$299.95

Find More Chain Reaction
Contraption Kits in the
Architecture & Design
chapter chapter on
pg. AD 17.



Demonstrate the Principles of Autonomous Vehicles in the Classroom



AUTONOMOUS



Shown with Genie® Motor Control Board

KELVIN® Kre8® Autonomous Vehicle

Enhance robotics program, technology classes, or science explorations by introducing students to the revolutionary future of self-driving transportation — Autonomous Robotic Cars! Students build the basic robotic car and expand it with autonomous control by adding a motor control board to control [2] DC motors moving forwards and backwards.

Planning the car's route on the computer is easily done without having to learn program coding. Add conditions like what to do if an obstacle is sensed (left sensor?, right sensor? or both sensors?, go back?, how far?) or the destination is reached (make a left turn? Continue?).

When finished, download the program to the car using the included USB download cable. Disconnect the download cable and turn the power switch on. The car will then move as programmed on the class floor or teacher-designed mat with additional obstacles. The assembled car measures 17 x 18 cm. Once built, the car can be taken apart and rebuilt by the next group.

Two versions of the kit are available, featuring a GENIE® or Arduino® control board (FREE control software is available online). Both versions also include an Autonomous Vehicle Kit with: touch sensor package, wheels and body frame parts, [2] DC motors, AA battery holder and USB download cable. Requires AA batteries, Kre8® Tube Cutter (283653, below) or snips. Grades 6-9 with teacher support.



GENIE® Control Board (Assembled) with Autonomous Vehicle Kit

Requires [4] AA batteries.

842537\$99.95 or \$94.95 ea./5+ or \$89.95 ea./10+

Arduino® Control Board with Autonomous Vehicle Kit

Requires [6] AA batteries.

842538\$99.95 or \$94.95 ea./5+ or \$89.95 ea./10+



KELVIN® Kre8® Small Tube Cutter

Cuts up to 6mm dia. tubes including rigid pvc tubing.

283653\$7.95 or \$6.95 ea./10+ or \$6.45 ea./20+

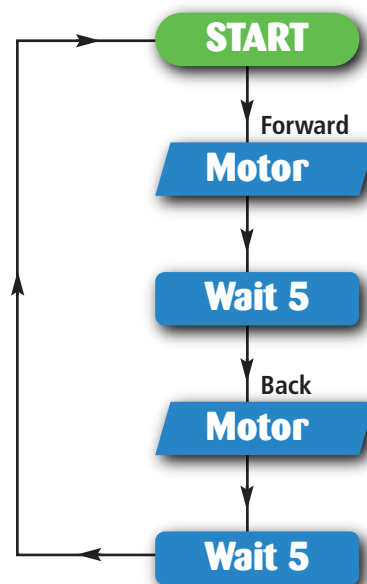
Utility Snips

7-1/2 in. long. Style may vary.

480009\$5.95 or \$5.45 ea./6+



Find More Kre8® Modeling products in the Architecture & Design chapter chapter on pgs. AD 2-9.



The GENIE® motor control board is easy to program using logic flow charts. This flow chart shows the program for a DC motor to move forward and then backwards.

Have students use the internet to find articles and videos of real self-driving cars. Use that as a starting point to discuss the pros and cons of autonomous vehicles.

Google's Autonomous Cars Will Now Be Considered 'Real' Drivers



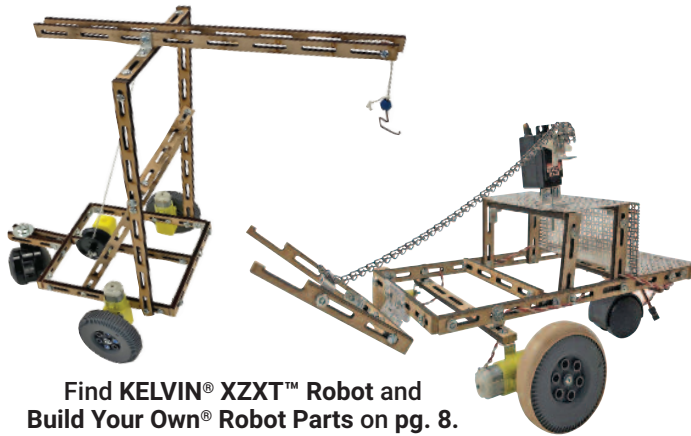
Read more at:

<http://time.com/4215387/google-self-driving-cars-real-drivers/>

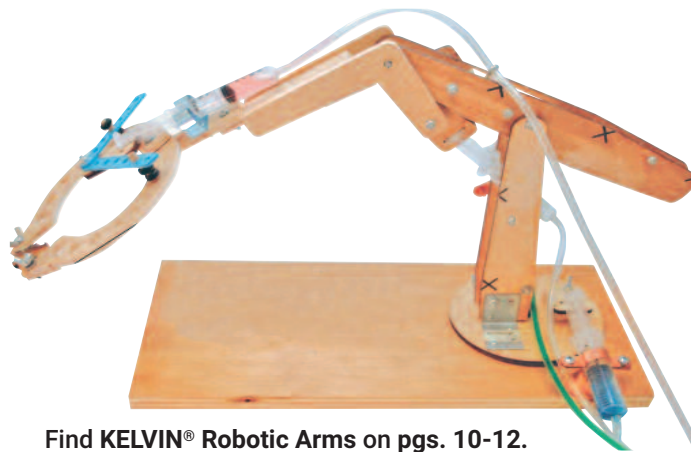
Kre8® kits can be assembled in regular classrooms. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a registered trademark of KELVIN L.P.

ROBOTICS

KELVIN® ENGINEERING IN SCHOOL



Find KELVIN® XZXT™ Robot and Build Your Own® Robot Parts on pg. 8.



Find KELVIN® Robotic Arms on pgs. 10-12.



Find KELVIN® GENIE Program It™ Activity on pg. 5.

Find KELVIN® ExcITE Robotic Control Packs w/ Micro:Bit Controller on pgs. 6-7.



Kre8
Design & Make

AUTONOMOUS

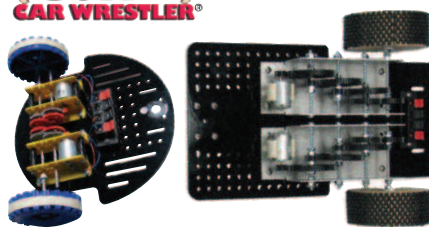
Find KELVIN® Autonomous Vehicle on pg. 4.



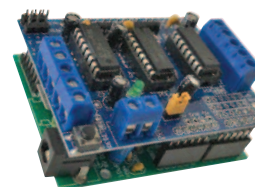
Find Turntable and Conveyor Belt on pg. 11.



Find on pg. 9.



Find Arduino® Compatible Control on pg. 3.



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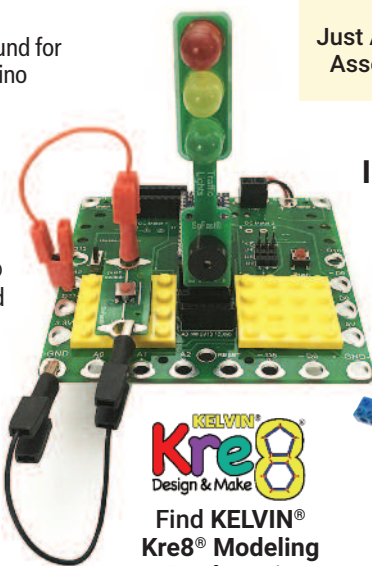
XZXT™ Robot, 8

SoFast® Playground for Arduino

Create circuits in seconds using SoFast® Playground for Arduino; designed for use with a plugged in 'Arduino Nano Every'. The Gator-Clips make connecting circuits quick and easy.

Activities can also include the Kre8® Making System, compatible toy brick kit parts and standard electronic components.

Program with popular FREE 'Arduino Create' or the offline Arduino IDE software. The SoFast® Playground for Arduino also includes dedicated connectors for plugging in: traffic lights, servo motors (up to 3), ultrasonic sensor, and addressable pixel LEDs.



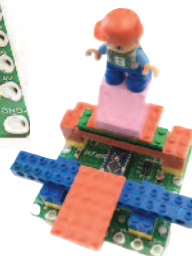
KELVIN®
Kre8
Design & Make

Find KELVIN®
Kre8® Modeling
Products in
Architecture
& Design on
pgs. AD 2-9.

Just Add Arduino to the
Assembled PC Board



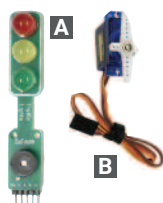
**Let Your
Imagination
Run Wild!**



Kit includes: Arduino Nano Every Assembled, SoFast® Playground for Arduino board, [8] bricks, [8] brick-compatible tiles, battery holder and connector (6V), [12] Gator-Clips, wire, and a tube. For DC Motor Control, you will need the Add-On Robot Car Pack.

283804 Kit\$99.95 or \$94.95 ea./5+

Add-On Parts



Plug-In Traffic Light

283806 **A**\$9.95

Micro Servo Motor

283807 **B**\$9.95

Basic Electronic Parts

283808 **C**\$9.95

Ultrasonic Distance Sensor

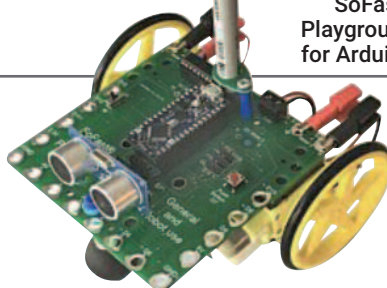
283811\$9.95

Gator-Clips w/ Wire Leads & Tube

283810 **D** 12/pkg.\$9.95

Tiles & Tape Brick-Compatible

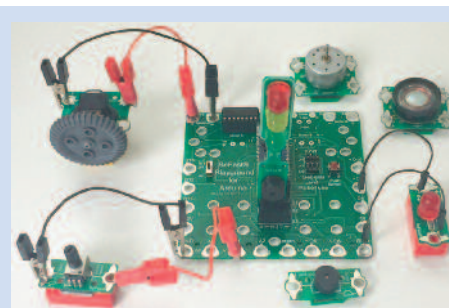
283809 **E** 20/pkg.\$9.95



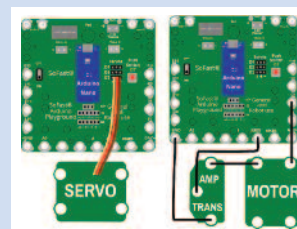
Robot Car w/ Motor Control

This add-on pack includes: [4] Gator-Clips, extra flexible wires, [2] DC motors, wheels, [6] brick-compatible tiles, [6] pins, front skid, pen holder, L293D driver chip and an alignment steel rod. Requires SoFast® Playground for Arduino (283204).

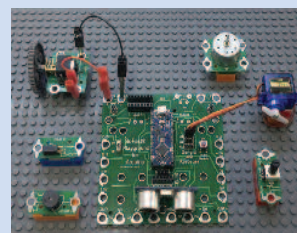
283805\$59.95 or \$54.95 ea./5+



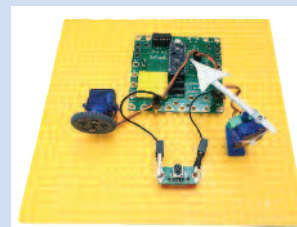
SoFast® Playground for Arduino with a few SoFast® Electronic carriers.



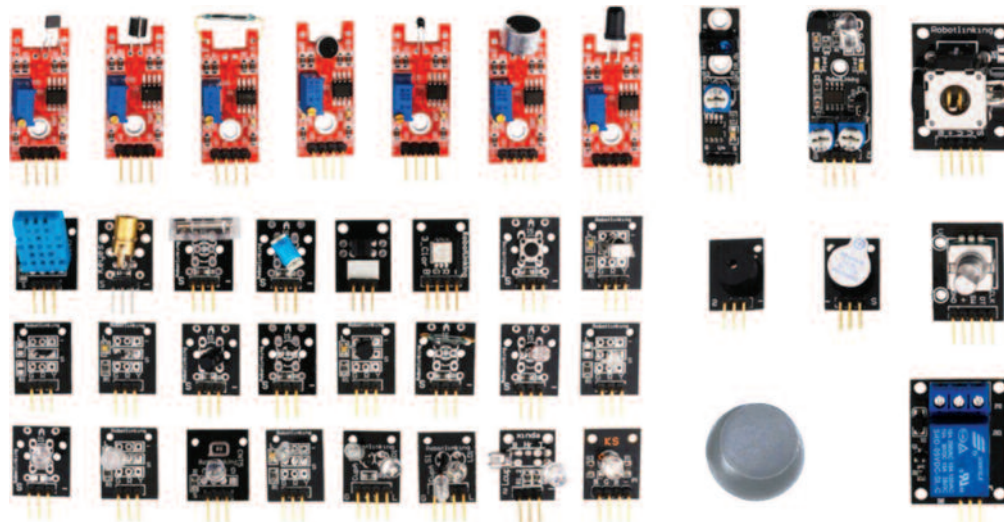
Sample
connection
diagrams
for SoFast®
Playground
for Arduino



SoFast®
Playground
for Arduino
on
compatible
toy brick
parts.



SoFast®
Playground
for Arduino
operating
two servos
via a
variable
resistor.

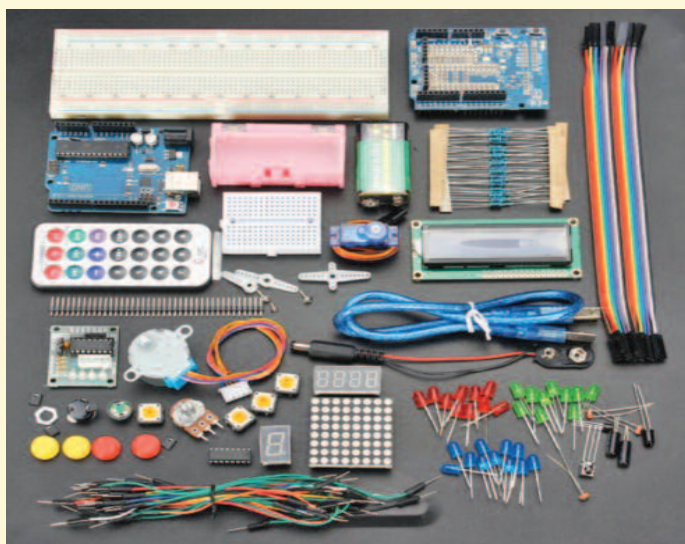


37 Modules Set **Arduino® Compatible**

Set includes: Active buzzer, passive buzzer, common cathode RG LED, common cathode two-color LED, RGB LED, RGB colorful LED, knock, shock switch, photo resistor, push button, tilt switch, infrared transmit, hydrargyrum switch, colorful auto flash, magnet-ring, hall, infrared receiver, analog hall, magic ring, rotate encode, light break, finger pulse, magnetic spring, obstacle avoidance, tracking, microphone, laser transmit, relay, analog temperature, 18b20 temperature, digital temperature, linear hall, flame, high sensitive voice, humidity, joystick PS2 and touch.

590467\$49.95 or \$44.95 ea./5+

**Find More Arduino-Comptible
Modules on pg. R3.**



UNO R3 Basic Starter Kit Arduino® Compatible

UNO R3 board, USB cable, prototype extension board, mini breadboard, 5V stepper motor with driver board, LEDs (green, red and blue), sensors (vibration, flame and temperature), infrared receiver, photoresistors, key caps, key switches, piezo buzzer, tone generator, adjustable potentiometer, jumper cap, large breadboard, remote control, screen, servos, component box, DuPont line, breadboard line, 220ohm resistor, dot matrix display, single digit 7-segment LED bar display, four digit 7-segment LED bar display, IC 74HC595, battery holder, 1K resistor, 10K resistor, 9V battery, 40-pin header, and more.

590465\$79.95 or \$74.95 ea./5+ or \$69.95 ea./10+

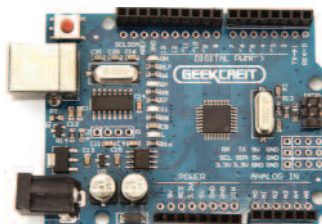
Find More Arduino-compatible modules on pg. R2.

UNO R3 Arduino® Compatible

The best board to get started with electronics and coding. Features: [14] digital input/outputs (6 PWM outputs) and [6] analog inputs, 16 MHz quartz crystal, USB connection, power jack, ICSP header and reset button. Compatible with Arduino IDE. Supports ISP download function.

Requires USB cable, AC/DC adapter or battery. 110 V AC. USA plug

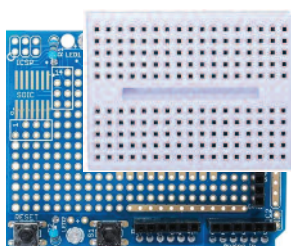
590460\$19.95 or \$18.95 ea./5+ or \$17.95 ea./10+



Uno R3 ProtoShield & Breadboard Arduino® Compatible

Mini breadboard is connected to the circuit board with double-sided adhesive. Parts can be soldered directly or through the mini breadboard. Comes with two LEDs and two pushbutton circuits that are ready to use, with all pins and power supplies present. Use with UNO R3 (see above).

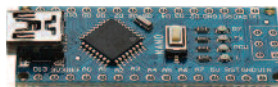
590461\$9.95 or \$9.45 ea./5+ or \$8.95 ea./10+



Nano V3 Arduino® Compatible

Compact board based on the ATmega 328P. Pins include 22 digital input/output (6 PWM outputs) and 8 analog inputs. Compatible with Arduino IDE. Supports ISP download function. Requires a Mini-B USB cable to get started.

590462\$15.95 or \$15.45 ea./5+ or \$14.95 ea./10+

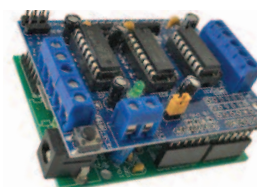


Stepper Motor Control Board

Arduino® Compatible

Assembled unit includes: motor control board, plug-on motor control shield, USB download cable, motor wires, and battery holder. Requires batteries.

842435 Assembled Unit\$54.95 or \$49.95 ea./5+
590484 Motor Control Board Only\$32.95 or \$29.95 ea./3+
590485 Plug-On Motor Control Shield Only\$24.95 or \$22.95 ea./5+



LCD Display

Arduino® Compatible

A low-power consumption character LCD module with a built-in controller. Can be easily interfaced with a MCU. White text, blue backlight.

590482\$19.95 or \$17.95 ea./5+

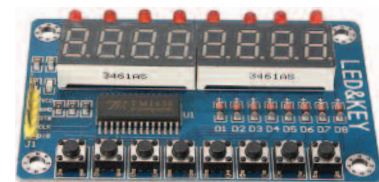


LED & Key Display

Arduino® Compatible

Gathers more than three common SCM peripheral circuits. Features 8-bits, [8] keys, [8] LEDs, [8] digital tubes, & common cathode LED digital tube.

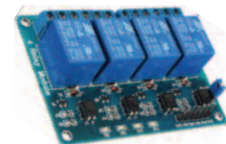
590474\$14.95 or \$13.95 ea./5+



4-Channel Relay Arduino® Compatible

Control various appliances and other equipment with a large current.

590483\$13.95 or \$11.95 ea./5+



Tricolor LED Arduino® Compatible

Access the current limiting resistor to prevent burn out. The PWM modulator with three primary colors can be mixed in different colors.

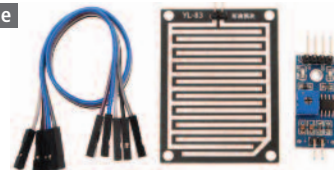
590479\$8.95 or \$7.95 ea./5+



Weather Sensor Arduino® Compatible

LED lights up when it senses wet weather conditions like snow, humidity and rain. Sensitivity can be adjusted with a potentiometer.

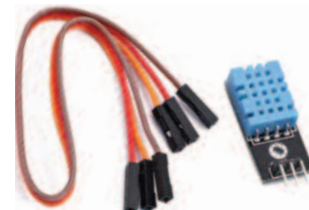
590481\$12.95 or \$11.95 ea./5+



Digital Temperature & Humidity Sensor Arduino® Compatible

Pre-calibrated digital output. Easy to integrate with other applications. 20-90% humidity (+-5%), 0-50 degrees temperature (+-2 degrees). Comes with Dupont Cable.

590469\$13.95 or \$11.95 ea./5+



Sound Detection Sensor Arduino® Compatible

Electronic microphone with single-channel signal output.

590480\$10.95 or \$9.95 ea./5+

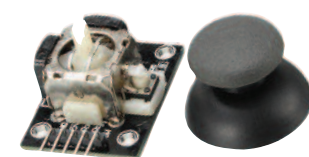


PS2 Game Joystick

Arduino® Compatible

Connect two analog inputs and control a robot with X/Y control.

590473\$9.95 or \$7.95 ea./5+



Demonstrate the Principles of Autonomous Vehicles in the Classroom



AUTONOMOUS

Shown with Genie® Motor Control Board

KELVIN® Kre8® Autonomous Vehicle

Enhance robotics program, technology classes, or science explorations by introducing students to the revolutionary future of self-driving transportation — Autonomous Robotic Cars! Students build the basic robotic car and expand it with autonomous control by adding a motor control board to control [2] DC motors moving forwards and backwards.

Planning the car's route on the computer is easily done without having to learn program coding. Add conditions like what to do if an obstacle is sensed (left sensor?, right sensor? or both sensors?, go back?, how far?) or the destination is reached (make a left turn? Continue?).

When finished, download the program to the car using the included USB download cable. Disconnect the download cable and turn the power switch on. The car will then move as programmed on the class floor or teacher-designed mat with additional obstacles. The assembled car measures 17 x 18 cm. Once built, the car can be taken apart and rebuilt by the next group.

Two versions of the kit are available, featuring a GENIE® or Arduino® control board (FREE control software is available online). Both versions also include an Autonomous Vehicle Kit with: touch sensor package, wheels and body frame parts, [2] DC motors, AA battery holder and USB download cable. Requires AA batteries, Kre8® Tube Cutter (283653, below) or snips. Grades 6-9 with teacher support.



GENIE® Control Board (Assembled) with Autonomous Vehicle Kit

Requires [4] AA batteries.

842537\$99.95 or \$94.95 ea./5+ or \$89.95 ea./10+



Arduino® Control Board with Autonomous Vehicle Kit

Requires [6] AA batteries.

842538\$99.95 or \$94.95 ea./5+ or \$89.95 ea./10+



KELVIN® Kre8® Small Tube Cutter

Cuts up to 6mm dia. tubes including rigid pvc tubing.

283653\$7.95 or \$6.95 ea./10+ or \$6.45 ea./20+

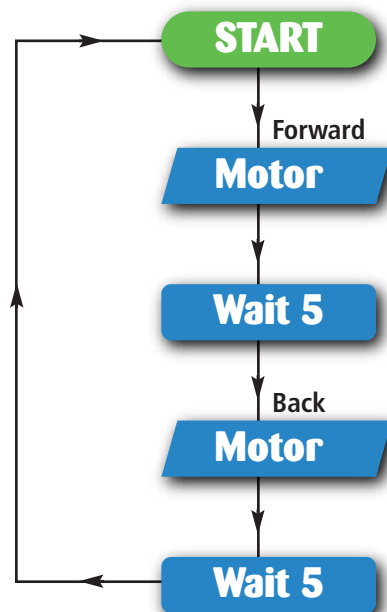
Utility Snips

7-1/2 in. long. Style may vary.

480009\$5.95 or \$5.45 ea./6+



The GENIE® motor control board is easy to program using logic flow charts. This flow chart shows the program for a DC motor to move forward and then backwards.



Have students use the internet to find articles and videos of real self-driving cars. Use that as a starting point to discuss the pros and cons of autonomous vehicles.

Google's Autonomous Cars Will Now Be Considered 'Real' Drivers



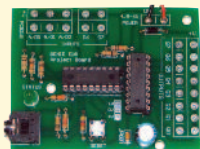
Read more at:

<http://time.com/4215387/google-self-driving-cars-real-drivers/>

Kre8® kits can be assembled in regular classrooms. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a registered trademark of KELVIN L.P.

GENIE PCB218 5 Inputs & 8 Outputs

All inputs can be used as digital inputs and control any of the outputs. Three inputs can be used as analog inputs. The outputs can control a number of different devices with built-in diodes for transient suppression.



842205 Kit ★\$27.95 or \$26.95 ea./5+

GENIE PCB418 5 Inputs & 5 Outputs

All inputs can be used as digital inputs and control any outputs. Three inputs can be used as analog inputs. They can be used to measure an analog signal and control an output. Outputs drive two small project motors and three servo motors at the same time.



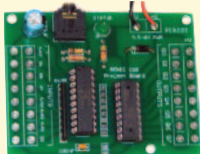
842211 Kit ★\$34.95 or \$32.95 ea./5+

Optional Microcontroller for 842205 / 842211

590444\$9.95 or \$8.95 ea./5+

GENIE PCB220 8 Inputs & 8 Outputs

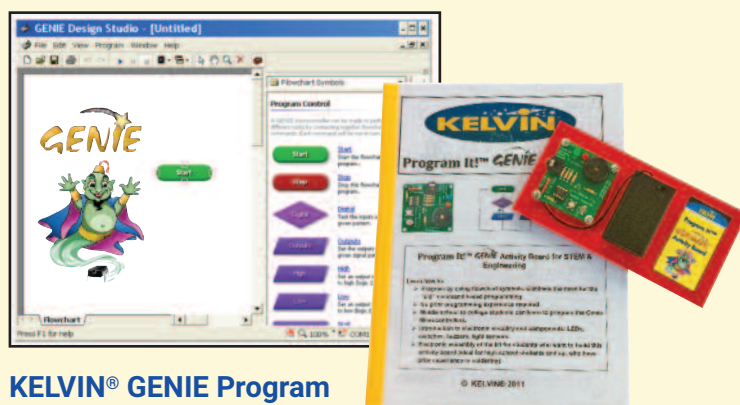
All inputs can be used as digital inputs and control any of the outputs. Four inputs can be used as analog inputs. They can be used to measure an analog signal and control an output. Outputs can control a number of different devices through a driver IC.



842207 Kit ★\$29.95 or \$28.95 ea./5+

Optional Microcontroller for 842207

590443\$8.95 or \$7.95 ea./5+


KELVIN® GENIE Program It™ Activity Starter Kit

With the help of amazingly easy to use software, program the GENIE Program It™ board to blink two LEDs in a specific sequence, respond to a switch or changing light conditions, or play a tune. After creating the program, send it to the GENIE Program It™ board via the USB cable and it will start running. Programs are stored in internal memory and will continue operating even if you turn the GENIE Program It™ board is turned off or batteries replaced.

Kit includes: small printed circuit board (with programmable IC, [2] LEDs, switch, light sensor, buzzer/speaker), Battery Holder with on/off switch, CD with Genie programming software and demo programs, Manual with instructions and many simple programs., USB Download Cable. and a see-through Storage Pouch. Assembly and soldering required or order assembled demo board.

842291 Kit (No Base & Requires Soldering)\$24.95

842292 Bulk Pack for 10 (No Base & Requires Soldering).....\$15 Per Kit \$150

842294 Assembled Demo Board w/ Mounted Acrylic Base\$75

780080 USB Download Cable (Additional)\$29.95

Find **KELVIN® Kre8®**
Modeling Products in
Architecture & Design on
pgs. AD 2-9.


KELVIN® Kre8® Curiosity Rover

Like the real Mars Rover, the front excavator and vision arms can be moved; steer it right, left, forwards and backwards. Powered by two motors and controlled with included remote controller. Requires AA battery.

283771 Kit w/ Assembled Manual Controller\$29.95 or \$27.95 ea./5+

283772 Bulk Pack of 10 Kits\$22.95 Per Kit \$229.50

KELVIN® Kre8® Mars Rover

This easy-to-build model of the NASA Mars Rover is steerable with included remote controller: right, left, forward, and backward. Comes with necessary parts. Requires AA battery.

283658 Kit w/ Assembled Manual Controller\$29.95 or \$27.95 ea./5+

283642 Bulk Pack of 10 Kits\$21.50 Per Kit \$215

Kre8® kits can be assembled in regular classrooms. Optional Kre8® cutter (283653, pg. 2) can be used to score and snap tubes to length. Use snips (480009, pg. 2) to cut sheet materials and light blue tubes. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a registered trademark of KELVIN L.P.

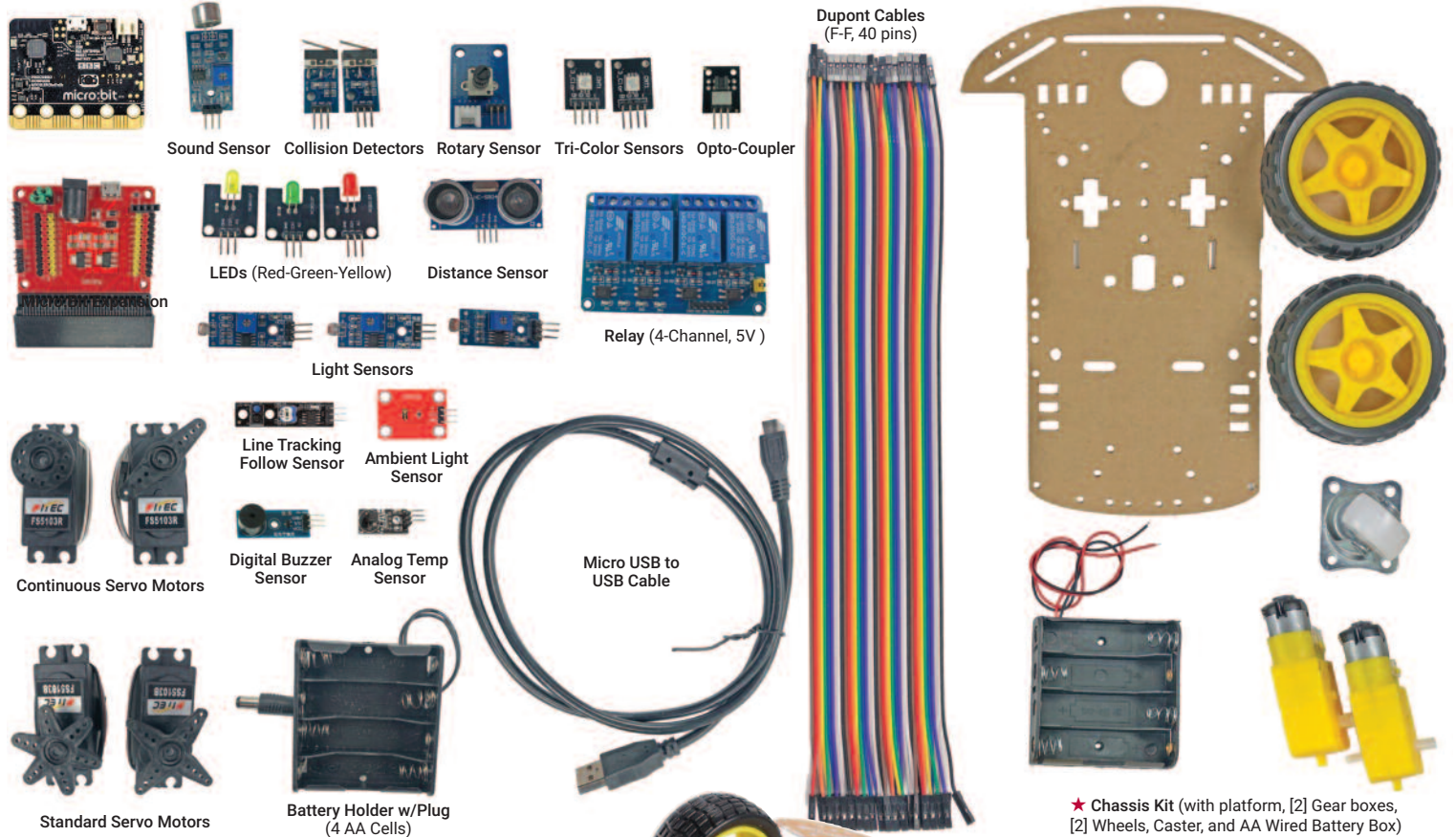
KELVIN® is partnering with NSF, ITEEA and ExCITE to introduce students to engineering careers. Students design, construct and experience programming as well as robotics. Ideal project for home or school learning.



ExCITE

EXPLORING COMPUTATION INTEGRATED INTO TECHNOLOGY AND ENGINEERING
An NSF Funded Partnership between Hofstra University and ITEEA, Award 1923552

Premium ExCITE Robotic Control Pack



Economy ExCITE Robotic Cntrl Pk



KELVIN® ExCITE Robotic Control Packs w/ Micro:Bit Controller

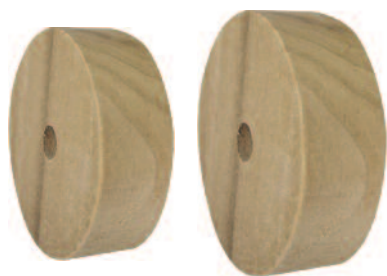
These innovative packs include the parts needed for valuable hands-on learning experience with engineering, robotics, computer control and electronics. Programs are written using Snap! to control real-world devices like motorized vehicles, lights, robotics, and mechanical systems. Grades 7-12.

283819 Economy ExCITE Pack.....\$125 or \$115 ea./5+
283816 Premium ExCITE Pack.....\$185 or \$175 ea./5+

KELVIN® Robotic Control Packs w/ Arduino® Controller (not used by Excite Project)

283820 Economy Pack\$125 or \$115 ea./5+
283818 Premium Pack.....\$185 or \$175 ea./5+

KELVIN® ExCITE Robotic Control Packs	Economy	Premium
Micro:Bit	1	1
Distance Sensor	1	1
Rotary Sensor	1	1
Light Sensors	1	3
Sound Sensor	1	1
Tri-Color Sensors	2	2
Red LED	1	1
Yellow LED	1	1
Green LED	1	1
Continuos Servo Motors	2	2
Standard Servo Motors	2	2
Battery Holder w/ Plug	1	1
Micro:Bit Expansion		1
Chassis Kit ★ See Above		1
Relay		1
Collision Detectors		2
Opto-Coupler		1
Line Tracking Sensor		1
Ambient Light Sensor		1
Digital Buzzer Sensor		1
Analog Temp Sensor		1
Dupont Jumper Cables		40
Micro-USB To USB Cable	1	1



Wood Wheels

1-1/2 in. thick, Fits 11/64 in. dia. axle.

2-3/4 in. dia.

282347 ..\$2.75 or \$2.45 ea./10+ or \$2.25 ea. 100+

3-3/4 in. dia.

283020 ..\$3.75 or \$3.45 ea./10+ or \$3.25 ea. 100+



Traction Material

Add to wood wheels for better grip. Cut to fit.

851308 12 in. W x 4ft. L\$15.95



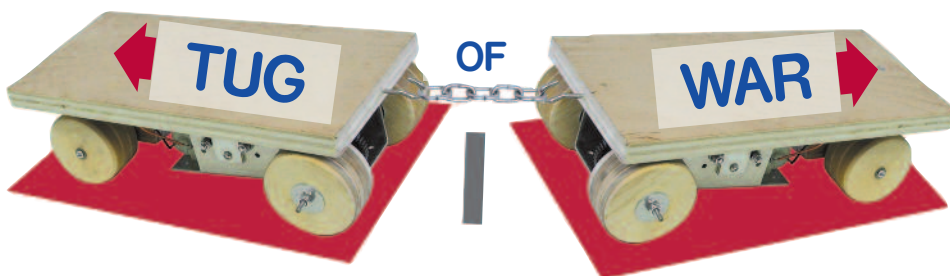
Axle Pack

Includes a threaded rod (8:32, 12 in. long), [4] flat washers (#10), and [4] nylon lock nuts (8:32).

842535\$4.95 or \$4.45 ea./10+

Washers Flat, steel-plated. #6 size.

390045 100/Box\$2.50



The first team that pulls the other over the line wins!

KELVIN® Tug-of-War Competition Vehicle Starter Pack

By altering gear ratios, vehicle weight, traction systems and wheel sizes, students build vehicles with the greatest pulling power. They can try to move the greatest weight or pull another vehicle across the threshold. A fun learning experience.

Pack includes: [2] reusable vehicle kits, connecting chain and instructions. Each reusable vehicle kit comes with: car platform (12 x 48 in.), [8] traction bands, [4] wood wheels (1-1/2 x 2-1/2 in.), gear box kit, motor, wires and hardware (screws, nuts, etc). Requires one power supply (842639) per vehicle.

842600 Starter Pack w/ [2] Reusable Vehicles Kits & Chain\$125

283123 Reusable Vehicle Kit\$45.95 or \$42.95 ea./4+

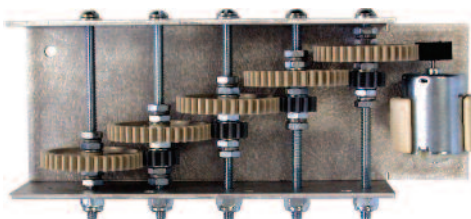
842639 Variable Power Supply w/ Polarity Box, 0-30 V / 0-5 A\$145



Variable Power Supply

KELVIN® Robotic Gear Box Kits

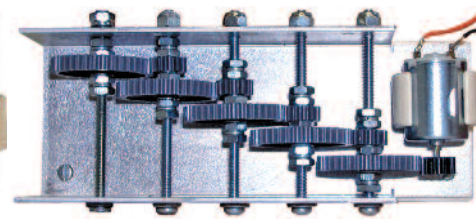
Build a gear box for robots or where a gear reduction or gearing change is needed. Kits include a pre-punched U-shaped bracket, motor, axles, gears, attachment hardware and instructions. Box measures 2.5 x 6.7 x 1.70 in. Wheels sold separately (see left). Students must enlarge holes in the gears to fit.



Gear Box for 1 Wheel

Connects to 1 Wheel. Ideal for multiple directional changes. Two gear boxes are required to transmit power to each wheel.

282360 Kit\$29.95 or \$27.95 ea./4+



Gear Box for 2 Wheels

Connects to 2 Wheels. Suitable for forward and backward motion with both wheels being driven by the same gear box.

283122 Kit\$29.95 or \$27.95 ea./4+

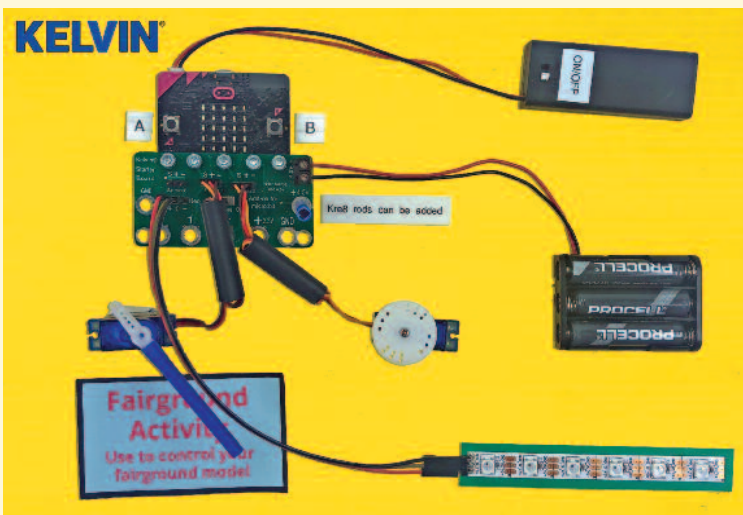
Find ExCITE Robotic Control Packs on pg. PR 6.



KELVIN® Fairground Micro:Bit Programmable Control Elem - MS - HS

Introduce students to programming using a block-based computer language. Kit includes: Micro:Bit microprocessor, Micro:Bit expansion board, micro servo motor, micro servo 360 motor, LED strip, USB cable, battery holder, corrugated plastic base, and demo program. Software is a FREE download.

283821 Starter Kit\$59.95 or \$57.95 ea./3+





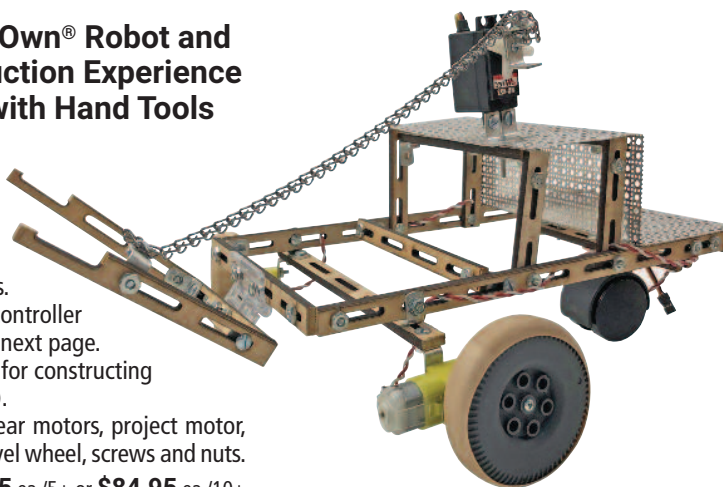
Build Your Own® Robot and Get Construction Experience Working with Hand Tools

KELVIN® XZXT™ Robot

Build a robotic car, crane, SUMO Car Wrestler® for competitions or, a Mars rover for remote tasks. To control the robot, choose a wired or wireless controller below or find Autonomous Motor Control on the next page. Students will experience using school hand tools for constructing their robotic structures (with teacher supervision).

Each reusable kit includes: frame parts, [3] gear motors, project motor, gear, pulley pack, metal chain, [2] side wheels, swivel wheel, screws and nuts.

842451 Reusable Kit.....\$95 or \$89.95 ea./5+ or \$84.95 ea./10+



Add WIRELESS Remote Control to Class Robotics Projects

KELVIN® 4+2 WIRELESS Remote Controller

Reusable and shareable. Each controller pair (transmitter and receiver) controls 4 project motors and 2 servo motors. Two of the motors are used for moving the car and the other two are available for other purposes. Includes: [2] transmitters, [2] receivers and [2] LiPo rechargeable batteries with charger.

842584 Remote Controller.....\$155 or \$145 ea./2+
220155 Quick Charger w/ [4] AA Batteries\$49.95

Add WIRED Remote Control to Class Robotics Projects

KELVIN® WIRED Hand Controller

Controls 4 motors. Includes: [4] directional switches and 15 ft. long cable. Requires D batteries or variable power supply (842639).

842306 Assembled\$39.95 or \$34.95 ea./10+
220014 D Alkaline Battery\$2.95 or \$2.75 ea./10+



Servo Motor

Lightweight motor outputs 44 to 57 oz. of torque per inch. 4.8-6V DC. Futaba S3003. Works with wheel below, see 391460.

851878\$14.95 or \$12.45 ea./5+



Robot Wheels Set

Includes: [2] wheels, [2] rubber bands and screws. Fits Servo Motor (851878) with screws.

391461\$3.95



Caster

White caster, 3/4 in. dia., comes with metal attachment plate, [4] screws and [4] nuts.

840389\$3.95



Caster

Black caster, 3/4 in. dia., comes with metal attachment plate, [4] screws and [4] nuts.

390959\$3.95



Caster with Brake

Black plastic caster, 3/4 in. dia. with threaded rod and nut.

391401\$4.95



KELVIN® Build Your Own® Robot Parts

Gear Box Motor

1:48. Double axis. 3-6V DC. Works with wheel below, see 391458.

391457\$7.95 or \$7.45 ea./10+



Economy Gear Box & Inline Motor

1:120, 100 RPM.

3-6V DC. Works with wheel below, see 391458.

282396\$7.95 or \$7.45 ea./10+



Tire w/Wheel

2.6 in. dia. Rectangular axle hole fits Gear Box Motor (391458) or Gear box & Inline Motor (282396) above.

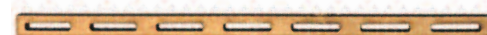
391458 2/pkg.\$7.95



Project Wire

Stranded. Stripped at both ends 10 in. L. 22 AWG.

391489 [20] Total - [10] Black & [10] Red\$4.95



Wood Struts 10 in. long. Cut to Size

391490 10/pkg.\$19.95 or \$15.95 ea./4+

Machine Screws

Binding head. 6-32. 3/8 in. L. 100/pkg.

390012\$3.95



Nuts

Steel. 6-32. 1/4 x 3/32 in. 100/pkg.

390034\$6.95



Angle Brackets

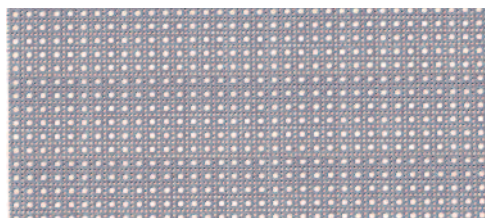
390124 20/pkg.....\$16.95



Sprocket Chain Cut to Size

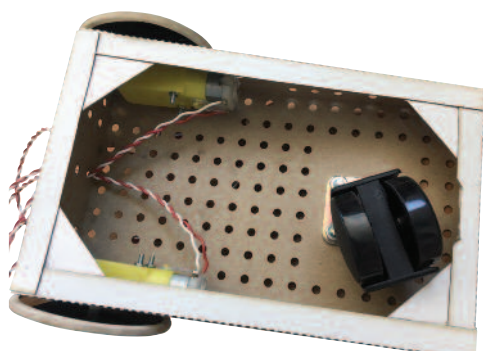
Measures 1/4 x 36 in. long. 5 links per inch. Chain works with KELVIN® gears on pg. 66.

750113\$5.95 or \$5.45 ea./3+



Metal Sheet Cut to Size, Perforated

391441 5 x 10 in.\$3.95

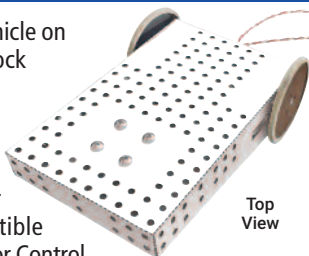


KELVIN® Cardstock Base for Robotic Vehicles

Build a robotic vehicle on top of the cardstock base and add control with the Wired

Hand Controller (842306, below) or Arduino®-Compatible Autonomous Motor Control Board (842435, below). Kit includes cardstock, [2] assembled gear motors, wires, a front wheel and [2] back wheels. Requires folding and hot glue gun assembly. Grades 6-12.

842433 Kit\$29.95 or \$25.95 ea./10+

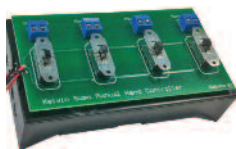


Top View

KELVIN® Wired Hand Controller

Works with SUMO Car Wrestler® Cardstock Base (842433) and other kits. The assembled wired controller includes: [4] directional switches and 15 ft cable. Requires D batteries or variable power supply (842639).

842306 Assembled.....\$39.95 or \$34.95 ea./10+
220014 D Alkaline Battery\$2.95 or \$2.75 ea./10+

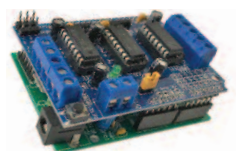


Autonomous Motor Control

Arduino® Compatible

Add this to a SUMO Car Wrestler® vehicle and make it autonomous. Assembled unit includes: motor control board, plug-on motor control shield, USB download cable, motor wires, and battery holder. Requires batteries.

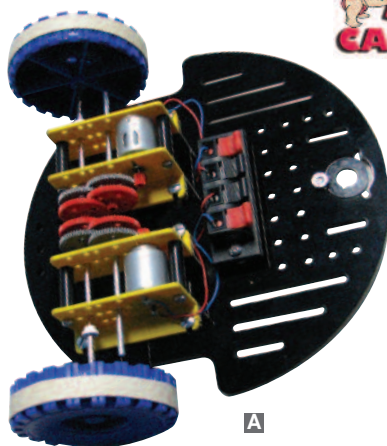
842435 Assembled Unit....\$54.95 or \$49.95 ea./5+



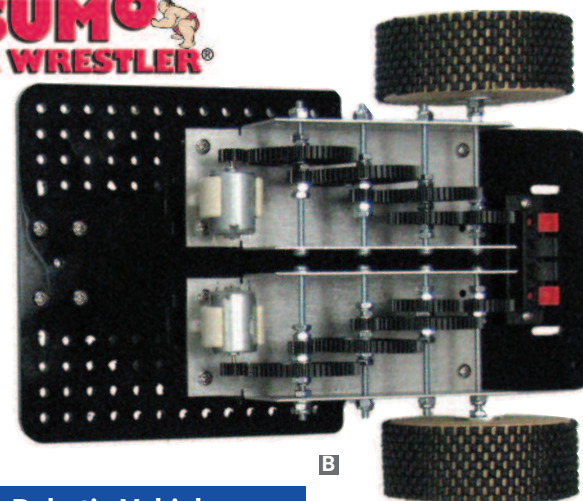
Wireless Controller Kit

Use for wireless ground control of up to [4] motors. Kit includes: receiver, servo motors, rechargeable battery, battery charger, and PC board. Requires assembly and soldering.

842078 Kit\$295



A



B

KELVIN® Plastic Bases for Robotic Vehicles

Small Plastic Base Kits Gr. 7-12

Kits include 7-1/2 in. plastic base, motors, plastic gear boxes, gear sets, wheels, traction bands, tether control, axles, washers, nuts and instructions.

842069 A Circular Kit\$49.95 or \$44.50 ea./10+

842071 Rectangular Kit ..\$49.95 or \$44.50 ea./10+



Whisker Sensors Kit

Take your robotic vehicle designs further by adding on whisker sensors. Kit includes: [2] lever switch sensors, whisker extenders, screws and wire to connect the robot controller (sold separately). Does not include plans or plastic vehicle base.

842277\$19.95 or \$17.95 ea./3+



CAR 1

Wheels Flippers



CAR 2

Wheels Flippers

KELVIN® 4 x 2 SUMO Car Wrestler® Wired Controller

Two Control Boxes & Two Dual Joysticks! Each joystick operates up to four motors each – two for flippers and two for wheels – on two student-designed robotic cars.

840896 Control Box w/ 2 Dual Joysticks.....\$685

841265 Replacement Dual Joystick Only\$39.95

Large Plastic Base Kits Gr. 9+

Kits include 10-1/2 in. bases, motors, larger metal gear boxes, gear sets, pre-punched U-shape gear bracket, wheels, traction bands, tether control, axles, washers, nuts and instructions.

842073 Circular Kit.....\$69.95 or \$64.95 ea./10+

842075 B Rect. Kit\$69.95 or \$64.95 ea./10+

KELVIN® Wood Bases for Robotic Vehicles



Basic Wood Base Kit

Includes motors, pulleys, gears, wheels and vehicle platform. No plans or electric parts are included; students must design and plan their own vehicle.

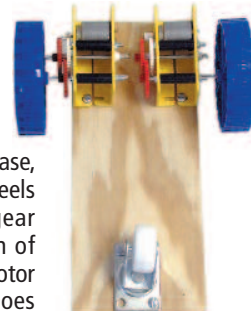
840847 Kit w/ [2] Motors..\$24.95 or \$22.95 ea./5+

840919 Kit w/ [4] Motors..\$29.95 or \$26.95 ea./5+

Advanced Wood Base Kit

Kit includes: [2] gear boxes with adjustable gear ratios (requires assembly), bass wood base, caster wheel, [2] big wheels and screws. Change gear ratio for manipulation of torque without servo motor batteries or receiver. Does not include electrical parts.

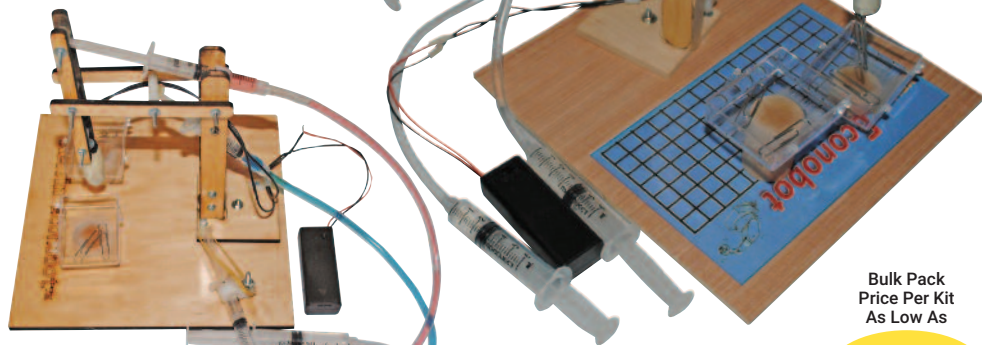
841293 Kit\$29.95 or \$26.95 ea./5+



KELVIN® Econobot™ Robotic Arm

The robotic arm moves on three joints - each controlled by water filled syringes. An electromagnet grabber is used to gather magnetic materials for a pick and place challenge.

Using craft sticks or pre-drilled and pre-cut wood parts, the Econobot™ is specifically developed to fit a limited budget and still provide a valuable hands-on experience for your students.



Econobot™ with Pre-Cut & Pre-Drilled Plywood Parts

Easy assembly. Includes detailed instructions and background material. Requires AA batteries for operation.

842425 Kit.....\$35 or \$29.95 ea./3+

DRILLING REQUIRED

Econobot™ with Craft Sticks

Wood parts **require drilling** (950301) in addition to cutting and assembly. Kits include detailed instructions and background material. Requires AA batteries for operation.

842410 Kit\$24.95 or \$22.95 ea./3+

842419 Bulk Pack of 10\$19.95 Per Kit \$199.50

Bulk Pack
Price Per Kit
As Low As

\$19⁹⁵

KELVIN® Drill Press w/ Hand Drill

Comes with: drill press, hand drill and [3] drill bits (1/16, 3/16 and 1/8 in.).

950301 ...\$295 or \$285 ea./3+

Hand Drill Only w/ [3] Drill Bits

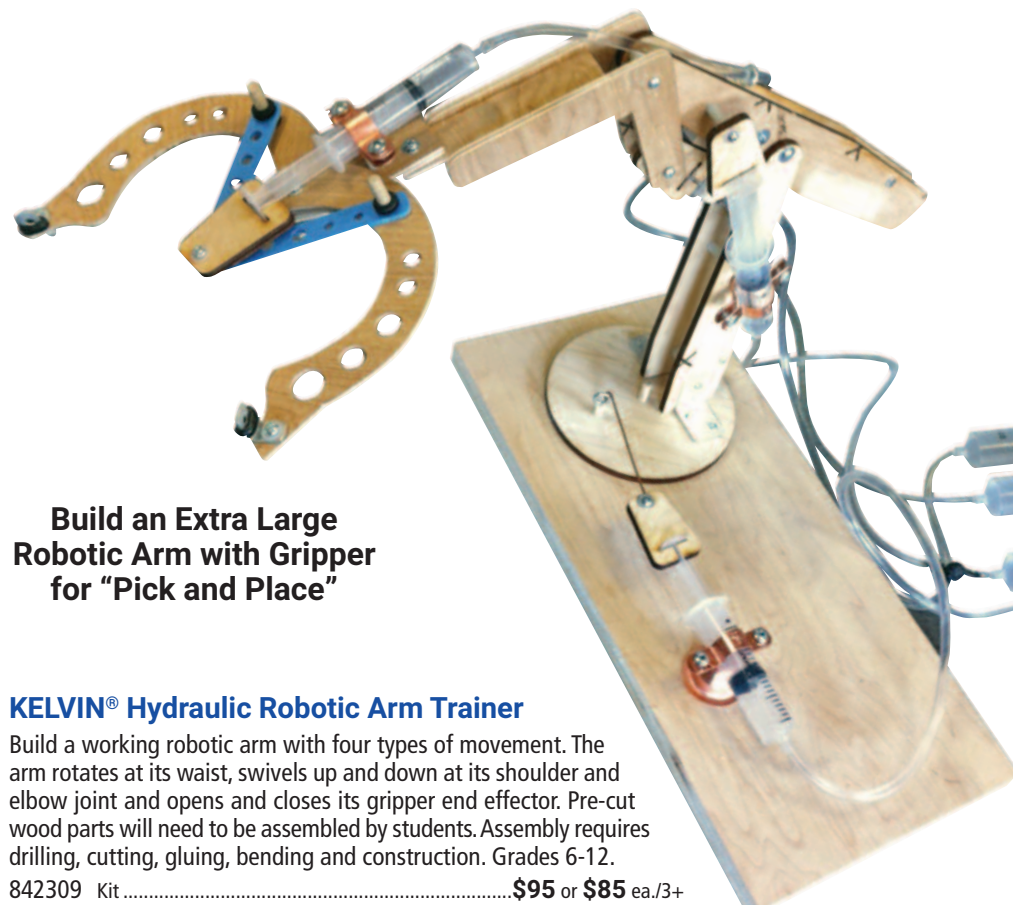
950311\$49.95



KELVIN® Build Your Own™ Robotic Arm Essential Parts

Since we don't know the material or design students will choose for their robotic arm, we've put together this kit with the parts they must use, such as: [3] syringes, [3] syringe holders, magnet wire, bolt washers for magnet head, and wire. In addition, we have added [3] 1 x 2 x 12 in. pieces of pine and [2] small aluminum plates. This is an open-ended design competition so we don't provide plans;. One kit required for a team of 3-4 students.

841333 Kit.....\$29.95 or \$27.95 ea./10+ or \$24.95 ea./20+

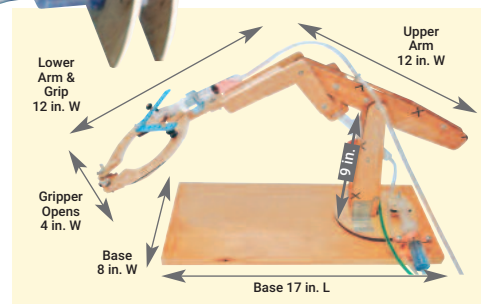


Build an Extra Large Robotic Arm with Gripper for "Pick and Place"

KELVIN® Hydraulic Robotic Arm Trainer

Build a working robotic arm with four types of movement. The arm rotates at its waist, swivels up and down at its shoulder and elbow joint and opens and closes its gripper end effector. Pre-cut wood parts will need to be assembled by students. Assembly requires drilling, cutting, gluing, bending and construction. Grades 6-12.

842309 Kit\$95 or \$85 ea./3+



KELVIN® Kel-Botics™ Robotic Arm System

The robotic arm is easy to program and control for PAUSE, REPEAT and GO TO using the included interface box.

The robotic arm is available as a kit or assembled. Both versions include a Kel-Botics™ interface, lesson guide and operating instructions on a flash drive. Requires [4] D batteries or Battery Eliminator (220119, see below). Win, USB.

Robotic Arm (Assembled)

Win, USB. 110 V AC. USA plug.

841046\$195

Robotic Arm Kit w/ Interface & Software

Requires advanced assembly (manual included).

841915 Gr. 7 & up\$295

Robotic Arm (Assembled)

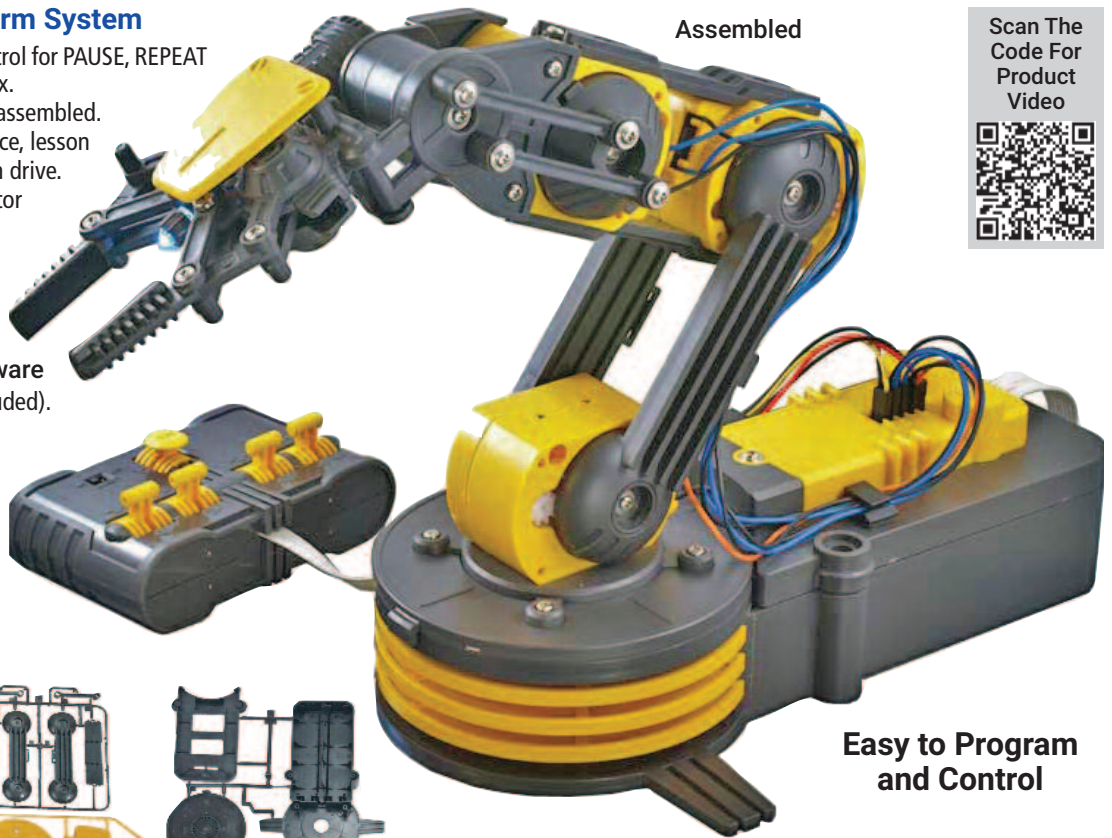
w/ Interface & Software

110 V AC. USA plug. Grades 3 & up.

841916\$395

Battery Eliminator

220119 Replaces [4] D Batteries ..\$36.95

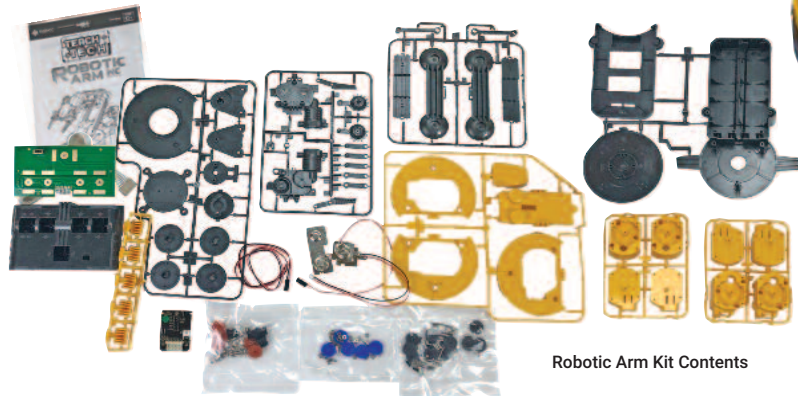


Assembled

Scan The Code For Product Video



Easy to Program and Control



Robotic Arm Kit Contents



Inside of Interface Box



Interface Box



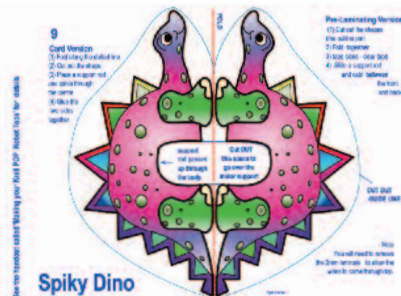
Find KELVIN® Kre8® Modeling Products in Architecture & Design on pgs. AD 2-9.



KELVIN® Kre8® POP Robots

Make the basic frame and then decide which top you want or design your own. Robots can move with wired manual controller. Kit includes: wired manual controller, parts needed, printouts for 5 types of robots, bag, and sand paper. Require AA battery.

283672\$25.95 or \$22.95 ea./5+ or \$18.95 ea./10+



Spiky Dino

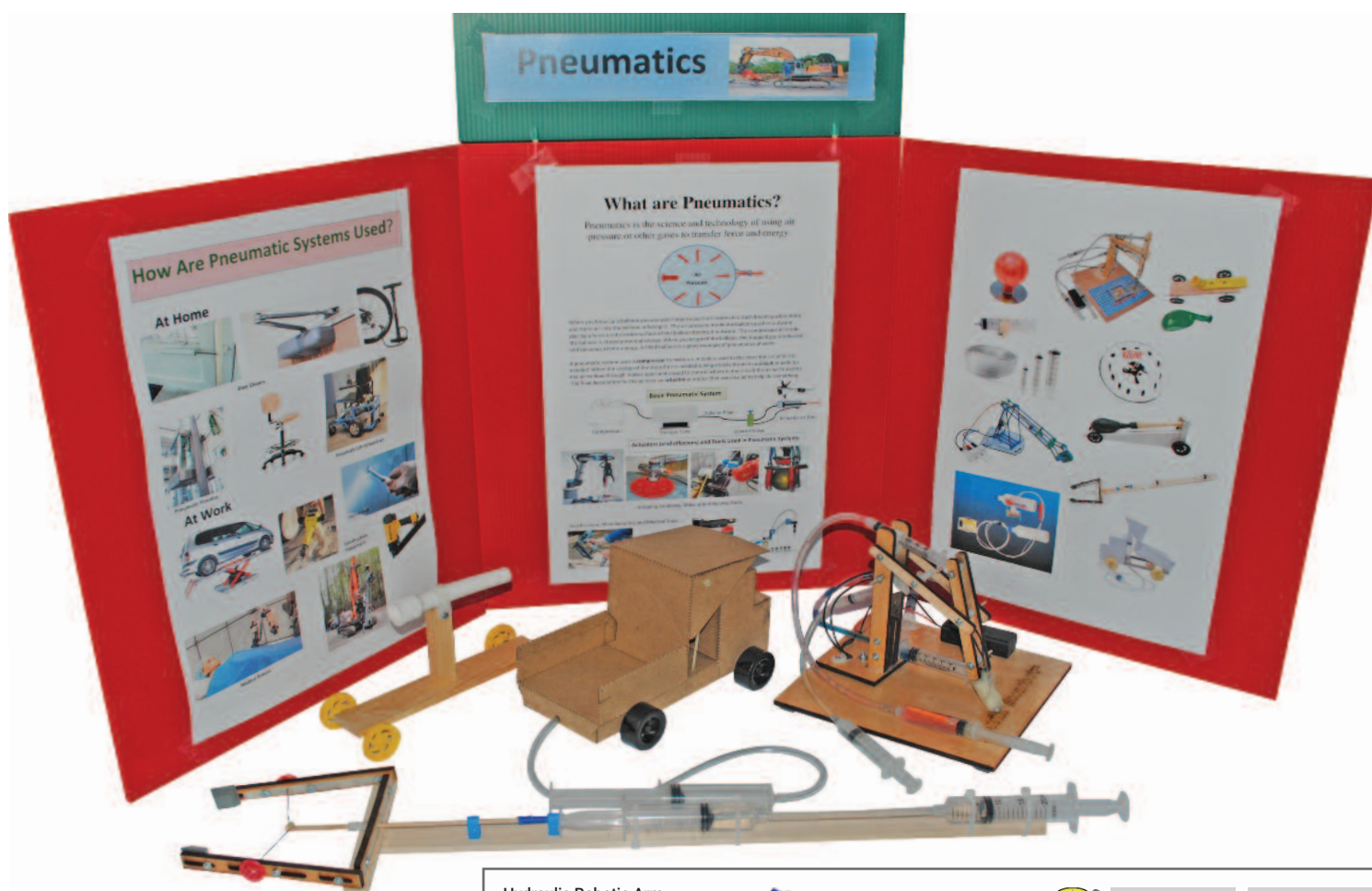


KELVIN® Kre8® Sumo Wrestler

Each kit comes with two different tops so you have a match with a friend.

Kit includes: multiblocks, connectors, slit rods, snap-off rods, tubes, wheels, gears, pulleys, washers, collars, end caps, switched battery holder, cardstock, bag, and sand paper. Requires [2] AA batteries.

283712 Kit\$10.95 or \$9.95 ea./5+ or \$8.95 ea./10+



KELVIN® New Standards® S.T.E.M. Lab: Pneumatics Gr. 7-12

Pneumatics and hydraulics is the use of compressed fluids to increase mechanical advantage and make work easier. This lab uses hands on activities to introduce the science and technology of pneumatic and hydraulics design and control. Students model existing systems, experiment with compressed fluids and design their own devices.

Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Basic Lab

Lab includes: Reusable Corrugated Plastic Display Board, [4] Balloon Hovercraft Kits, [4] Balloon Racer Kits, [4] Basic Submarine Design Kits, [3] Dump Truck Kits, [3] Economy Robotic Arm Kits, Syringes, Tubing and Instruction Manual.

842495 [18] Kits, Extra Parts & Manual\$155

Advanced Lab

Includes: Reusable Corrugated Plastic Display Board, [4] Kre8® Robotic Arm Kits (see right), [4] Grabber Arm Kits, [3] Dump Truck Kits, [3] Submarine Design Challenge Kits, [3] Economy Robotic Arm Kits, Syringes, Tubing and Manual.

842496 [17] Kits, Extra Parts & Manual\$295

Hydraulic Robotic Arm
(Comes with
Pneumatics
Advanced Lab,
842496)

Kre8®
Design & Make

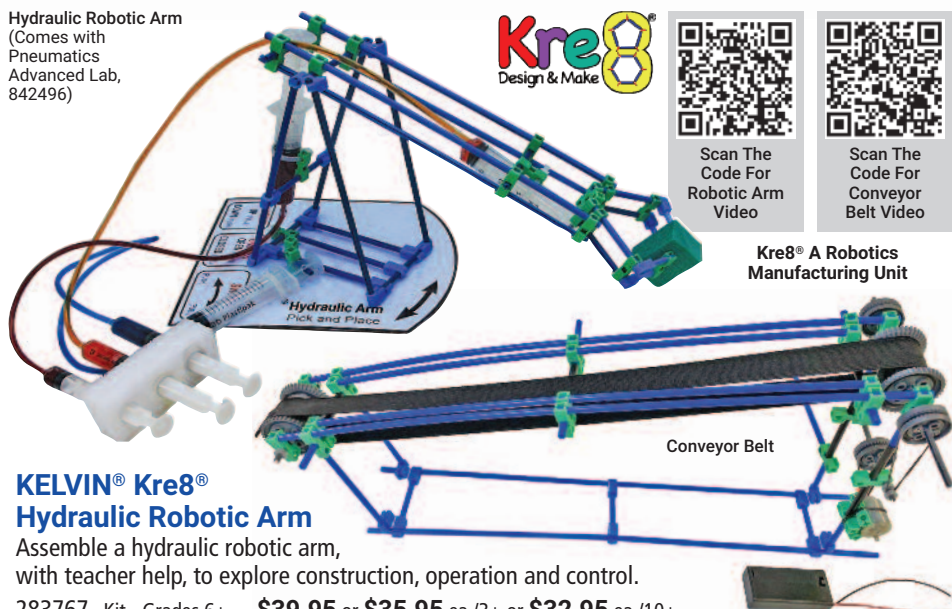


Scan The
Code For
Robotic Arm
Video



Scan The
Code For
Conveyor
Belt Video

Kre8® A Robotics
Manufacturing Unit



KELVIN® Kre8® Hydraulic Robotic Arm

Assemble a hydraulic robotic arm, with teacher help, to explore construction, operation and control.

283767 Kit - Grades 6+\$39.95 or \$35.95 ea./3+ or \$32.95 ea./10+

KELVIN® Kre8® Conveyor Belt

Construct a conveyor belt to demonstrate motion, speed ratios, gravity and compound gears. Changes angles. Kit includes switched battery holder. Requires [2] AA batteries.

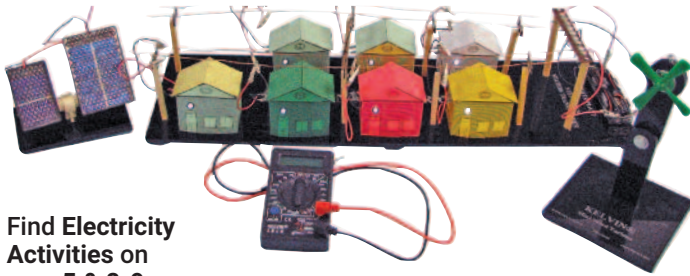
283650 Kit - Grades 6+....\$37.95 or \$34.95 ea./3+ or \$32.95 ea./10+

Find KELVIN® Kre8® Modeling Products in
Architecture & Design on pgs. AD 2-9.

Kre8® kits can be assembled in regular classrooms. Optional Kre8® cutter (283653, pg. 2) can be used to score and snap tubes to length. Use snips (480009, pg. 2) to cut sheet materials and light blue tubes. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a registered trademark of KELVIN L.P.

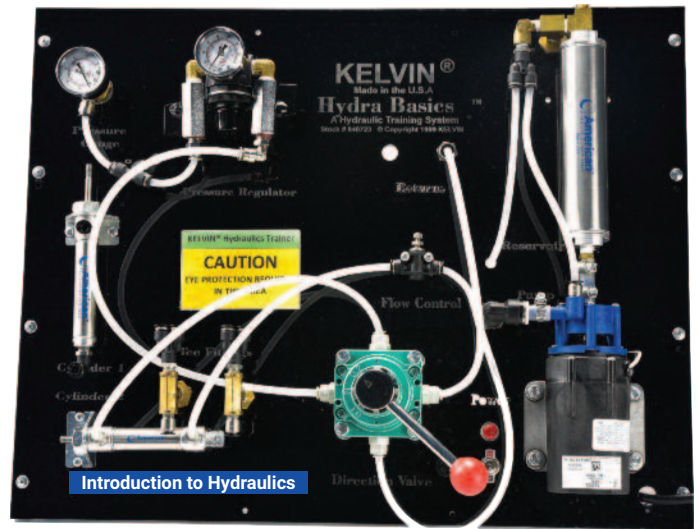
POWER & ENERGY

KELVIN® ENGINEERING IN SCHOOL



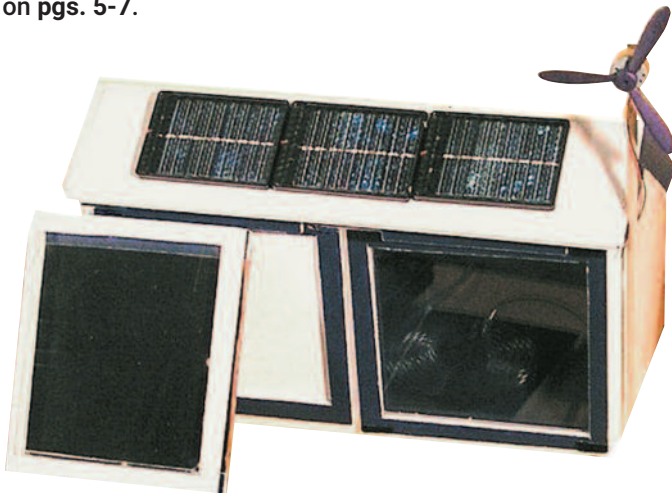
Find Electricity Activities on pgs. 5 & 8-9.

Find Power Grid Electrical Distribution on pg. 5.



Find HydraBasics™ & PneumaBasics™ Trainers on pg. 10.

Find Solar Energy Activities on pgs. 5-7.



Design, Make & Test the Blades for the Wind Turbine

Assembled Wind Turbine is OVER 45 in. TALL!



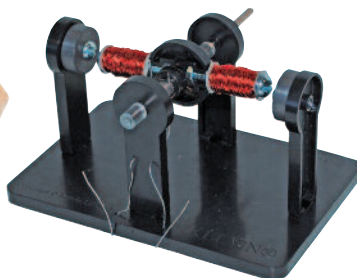
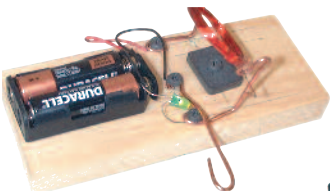
Find Wind Energy Activities on pgs. 2-5.

Find Experimental Wind Turbines on pg. 3.

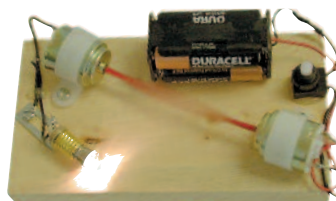
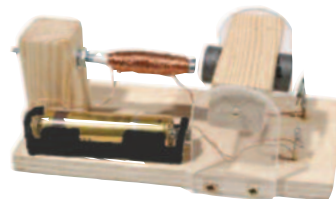
QUICK INDEX

- Active Solar Space Heater, 6
- Crank Lights, 9
- Electricity, 8
- Fluid Dynamics, 10
- Generators, 8-9
- Hydraulics, 10
- Hydroelectric Turbine, 2
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- Motors, 8-9
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- Pneumatics, 10
- Power Grid Distribution, 5
- Solar Cells & Kits, 7
- Solar Farm, 5
- Solar House, 6
- Wet Cells, 8
- Wind Farm, 5
- Wind Turbines, 2-5

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Find Motor Kits on pgs. 8-9.





KELVIN® New Standards® S.T.E.M. Lab: Alternative Energy Gr. 6-12

Explore different aspects of alternative energy - **wind**, **hydroelectric** and **solar** in teams of two students. Additional parts are included, so they can apply their knowledge with their own designs. Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Team Pack

Includes Reusable Corrugated Plastic Display Board, [2] Wind Turbine Kits, Hydroelectric Kit, Solar House Fan Kit, Solar Car Kit, Extra Parts and Instructions. Requires assembly with hand tools, a blower fan and running water access.

842472 Team Pack - [5] Kits, Extra Parts & Manual.....\$95

Class Pack

Includes Team Pack (842472) plus [1] Reusable Corrugated Plastic Display Board and ★ BONUS [2] 50LE Multimeters.

842473 Pack - [3] 842472 PLUS ★ BONUS\$295



★ BONUS
PRODUCT
w/ 842473

KELVIN® 50LE
Multimeter
w/ Buzzer,
990177, \$6.95
or \$6.45 ea./25+
or \$5.95 ea./50+

KELVIN® New Standards® S.T.E.M. Lab: Wind Turbine Design

Students design and construct a wind turbine as well as determining its efficiency by monitoring rotational speed. The goal is to create a turbine that turns as fast as possible with the wind source for a specific time.

The software will monitor and display the rotational speed of a vertical and horizontal wind turbine. A special graph will show the RPM while the actual RPM number will be displayed. Students can determine the most efficient turbine by comparing the highest recorded RPM or the greatest average RPM computed by the program.

Lab includes: USB data acquisition interface, USB cable, software (Windows), [2] magnetic sensors with cable, wood hubs, wind turbine test device, [2] magnets, fan, instructions and a workstation sign.

841632 Lab w/ PC, LCD Display, WIN Software\$1,995



Works with Wind
Farm on pg.5.

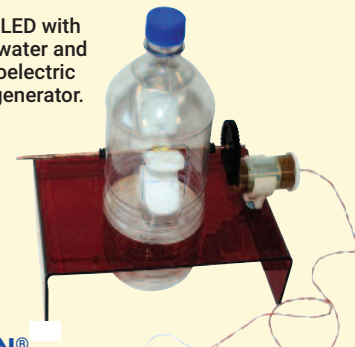


KELVIN® Wind Turbine Design

Design, build and test a wind turbine generator, on a horizontal or vertical axis, that will light an LED. Includes: plastic bottle with cap, DC motor, LED, acrylic mounting base (predrilled), wire, wood hub, motor mount, rotor materials and instructions.

842139 Kit\$19.95 or \$18.95 ea./10+

Light an LED with
running water and
the hydroelectric
turbine generator.



KELVIN® Hydroelectric Turbine Generator

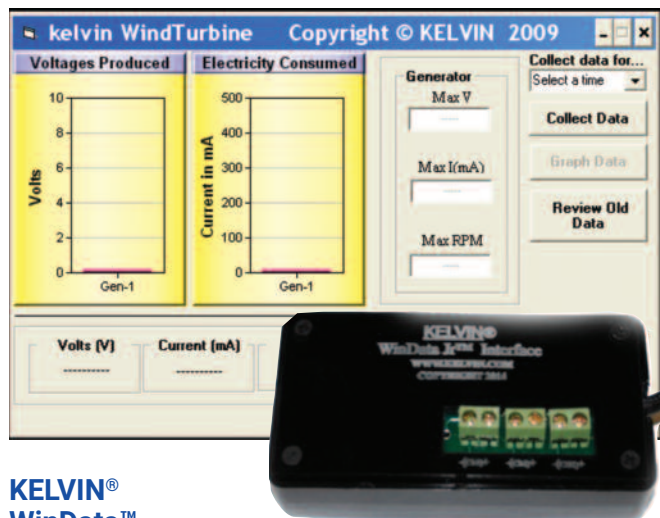
Hydroelectricity is a clean and renewable source of energy that supplies electricity to many parts of the United States. Assembling the kit gives students the opportunity to produce their own working hydroelectric generator that will light an LED. An additional challenge is to design turbine blades that provide the most efficient use of the moving water. Measure output with a multimeter. Running water is needed; some tools are needed for drilling. Red acrylic base is included.

842339 Kit\$35.95 or \$32.95 ea./5+

842340 Bulk Pack of 10\$295



Scan the
QR code
to buy
this now!



KELVIN® WinData™ Data Collection Interfaces

Add data collection to either Experimental Wind Turbine. Students can monitor 3 or 6 motor generators while the graph displays voltage on a computer. For best results, use with motor 851363.

842354	Win Data™ 3 - Up to 3 Motors	.....\$145
842363	Win Data™ 6 - Up to 6 Motors	.....\$225

KELVIN® Experimental Wind Turbine House

Students fold a cardstock model house and then create a LED circuit to plug into the wind turbine generator.

Each kit includes: cardstock, LED w/ holder, resistor, wire, clips, and connectors.

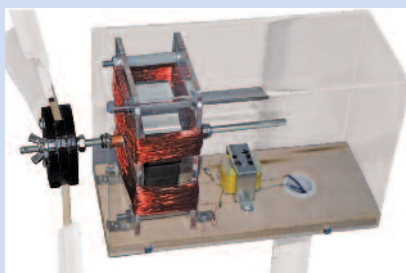
Requires an Experimental Wind Turbine, soldering and wiring.

Bulk Pack of 10	
652613	.....\$32.95



KELVIN® Experimental Wind Turbine w/ WIND-UP MOTOR GENERATOR & TRANSFORMER

Advanced students can build a motor generator and wind the motor coil. Kit includes: motor generator parts, hub, corrugated plastic for blades, PVC stand with sturdy base, multimeter, LEDs, breadboard, printed house layout, wire, terminals, and instructions. Requires a fan indoors.



842258	Advanced Kit w/ Stand	.....\$150
842257	Assembled w/ Stand	.....\$295

Transformer Generator Kit Only - Build Your Own®

Kit includes motor generator parts and hub. Requires motor/coil winding and assembly. Does NOT include blades, PVC stand or wind turbine parts.

851925	Advanced Kit - No Stand\$99 or \$89 ea./5+
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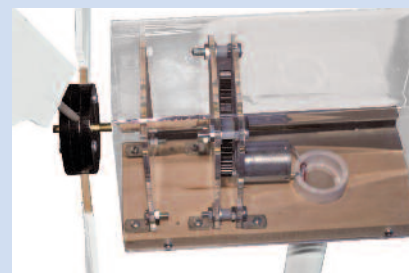
Students Design, Make & Test the Blades for the Wind Turbine

Assembled Wind Turbine is OVER 45 in. TALL!

Test rotor and blade designs by varying the rotor sweep, blade size and blade shape to change the electrical output of the generator. Test rotor output with the included multimeter or see how many LEDs are lit. Wind turbines can power a model house's LEDs!

KELVIN® Experimental Wind Turbine w/ MOTOR GENERATOR

Students can build a wind turbine that uses a motor generator. Kit includes: motor generator, gearbox parts, hub, corrugated plastic for blades, PVC stand with sturdy base, multimeter, LEDs, breadboard, printed house layout, wire, terminals, and instructions. Requires a fan indoors.



842267	Kit w/ Stand	.....\$135
842268	Assembled w/ Stand	.....\$225

Motor Generator Kit Only - Build Your Own®

Comes with motor generator, gearbox parts and hub. Does NOT include blades, PVC stand or wind turbine class parts.

851924	Kit - No Stand\$85 or \$75 ea./5+
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Experiment with wind power; a renewable energy source.



KELVIN® Economy Wind Turbine

See how wind can light an LED using a wind turbine and box fan (NOT included). Comes with: 2- and 3-bladed propellers, KELVIN® 50LE Meter, LED and alligator clips. 7 in. tall.

841958\$32.95 or \$29.95 ea./2+

Find More KELVIN® Kre8® Modeling in Architecture & Design on pgs. AD 2-9.



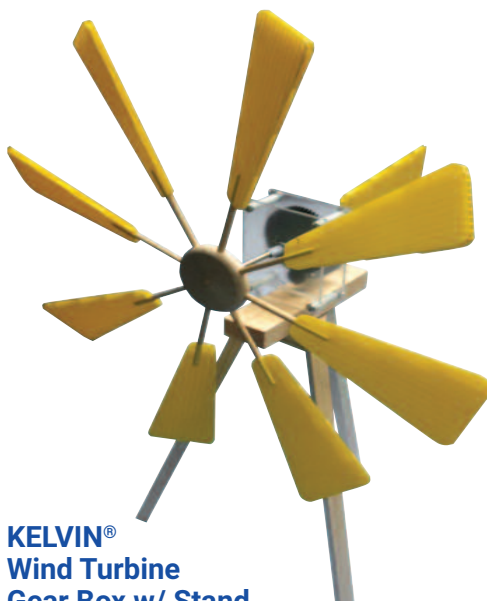
KELVIN® Kre8® Wind Generator

The solar motor is powered by the wind and provides energy to projects including powering up the LED. Adjust the gears and you can increase the motor speed. Students can experiment with the number, angle, size and shape of the blades. If there is no wind, you can use the orange finger spinner for testing purposes. Take the kit apart and build it again in the next class. Requires a blower for use with indoor experiments.

283733 Kit\$22.95 or \$18.95 ea./10+

283740 Bulk Pack for 20\$17.95 Per Kit \$359

Kre8® kits can be assembled in regular classrooms. Optional Kre8® cutter (283653, pg. 54) can be used to score and snap tubes to length. Use snips (480009, pg. 54) to cut sheet materials and light blue tubes. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a registered trademark of KELVIN L.P.



KELVIN® Wind Turbine Gear Box w/ Stand

Includes gear box and instructions. Teachers provide the blade material (corrugated plastic or cardboard).

842146 Gear Box w/ Stand\$39.95

Gear Box Only No Stand, No Blades

842068\$34.95 or \$29.95 ea./10+



KELVIN® Wind Turbine Lab

Produce, store and use energy. Individual pack includes: Adjustable Gearbox System, Turbine, Meter, LEDs, Super Capacitor, and Super Capacitor Dragster Kit (charge it and run it).

841984 Kit (No Box Fan)\$49.95

841960 Lab w/ Box Fan & [5] Kits\$295

390442 Box Fan, 20 in. x 20 in.\$39.95

Wind Turbine Consumables

Includes hub, [9] dowels, [20] corrugated board sheets (6 x 12 in.), [50] red LEDs and as a BONUS a Super Capacitor Dragster kit.

851462 Bulk Pack for 10\$99.95

KELVIN® Basic Wind Turbine Parts

Students design blades out of corrugated plastic or cardboard. Bulk pack includes: hub, motor, motor holder, and LED. Requires scrap cardboard, wood and blower.

842353 Bulk Pack for 20\$79



KELVIN® Wind Turbine Design Parts

Students can design blades out of corrugated plastic (see below). Kit includes: motor, advanced gears set, motor holder, wood hub, dowel, gearbox bracket, nuts, PVC, screws, washers, twisted wire, orange LED, resistors, threaded rod, and instructions. Stand/base not included - students build their own.

842097 Kit\$39.95 or \$36.95 ea./5+



KELVIN® Wind Turbine Blade Shape Design Kit

Includes: [10] corrugated plastic boards (12 x 24 in.) and [10] dowel rods.

283726\$19.95



Test Hubs

Use to create wind turbines, windsails, water wheels and more. 15mm thick hubs with 8 pre-drilled holes. Fits a 3/16 in. dia. dowel rod.

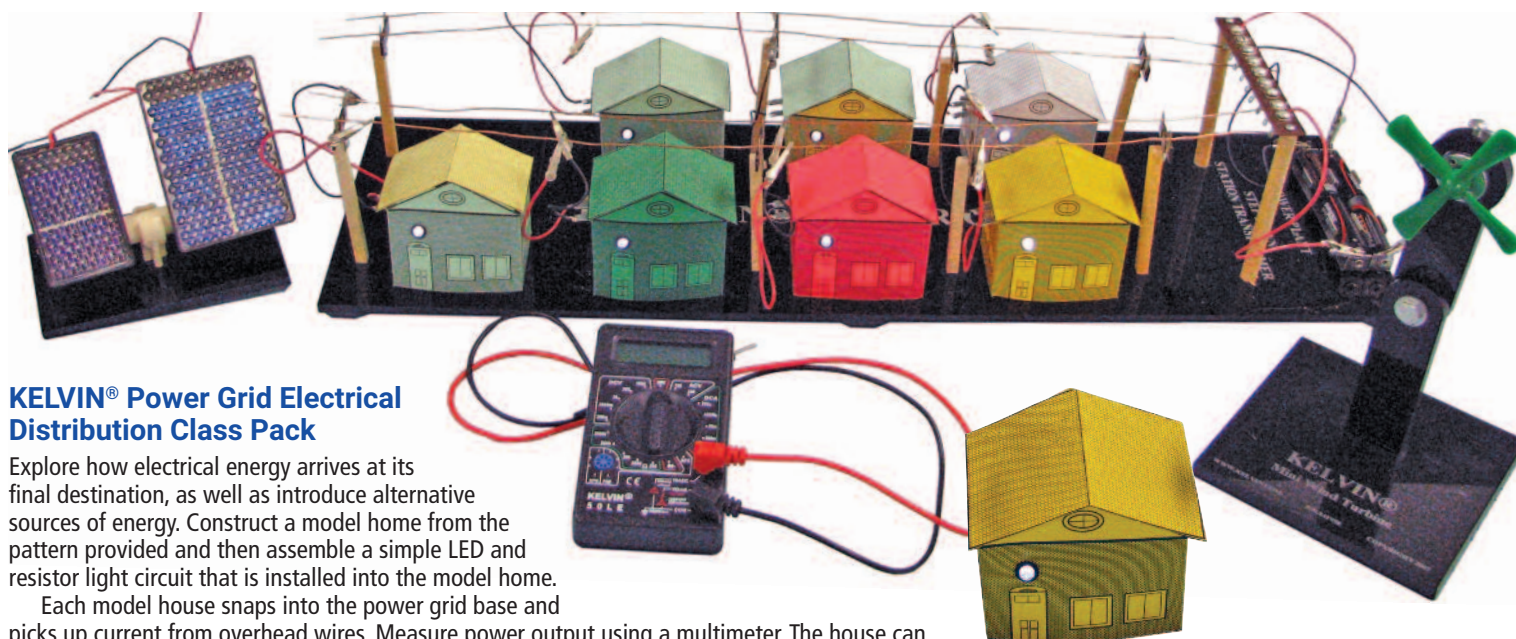
390616 10/pkg.....\$69.95 or \$66.95 ea./10+



Wood Dowel

3/16 in. dia. x 36 in. long. A minimum order of 10 is required.

85062975¢ ea./10+ or 70¢ ea./50+



KELVIN® Power Grid Electrical Distribution Class Pack

Explore how electrical energy arrives at its final destination, as well as introduce alternative sources of energy. Construct a model home from the pattern provided and then assemble a simple LED and resistor light circuit that is installed into the model home.

Each model house snaps into the power grid base and picks up current from overhead wires. Measure power output using a multimeter. The house can also work off the grid using electrical energy from the included solar cells or optional batteries or wind turbine generator (sold separately).

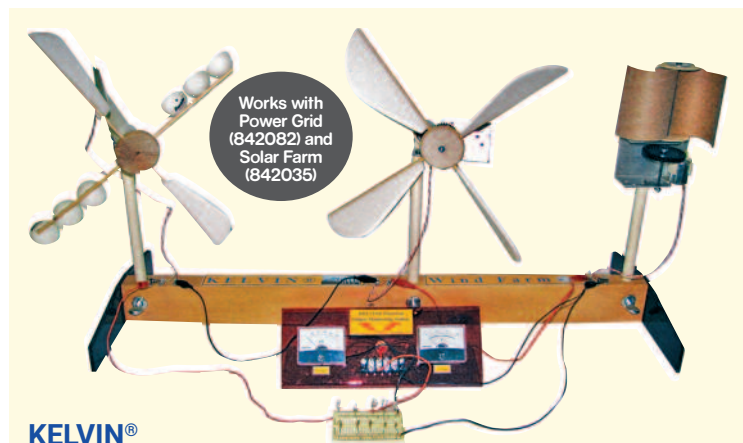
Class pack includes: grid base, preprinted mini model home patterns on cardstock, all electronic parts, solar cells and multimeter. Requires assembly. For off grid operation, [4] AA batteries (sold separately), and/or wind turbine generator (shown) not included.

842082 Class Pack for 24\$345 or \$295 ea./3+

Power Grid Mini Model Homes Bulk Pack

Comes with pre-printed cardstock, special LED, LED holder, wires, connector, and alligator clips. Requires Power Grid (842082).

652520 Bulk Pack of 10\$4.99 Per Kit \$49.95



Works with
Power Grid
(842082) and
Solar Farm
(842035)

KELVIN® Wind Farm Lab

Join three wind turbines in series or parallel and measure current and voltage for each generator or the total output of the wind farm as the load is varied. Lab includes base, analog display, wind blower and instructions.

842100 Lab\$345

Above Lab (#842100) plus Laptop w/ LCD Screen & Software with Data Collection Interface (#842099)

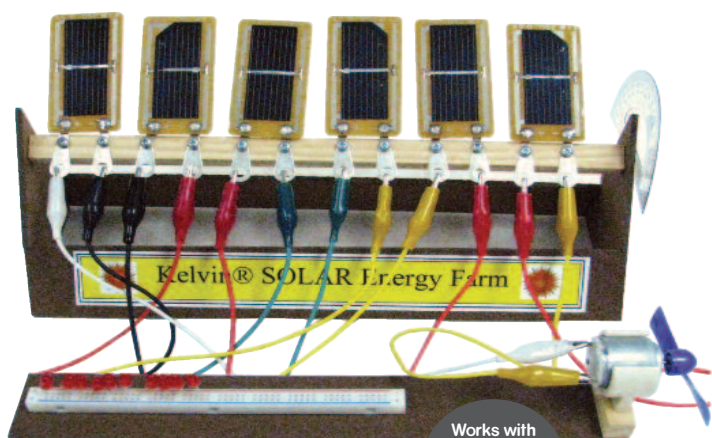
842101 Lab with Laptop & Interface\$1,595

KELVIN® Wind Farm™ Data Collection Interface

Monitors up to 3 motor generators as well as load consumption. Displays voltage AND current.

842099 USB, IBM\$295

Find Wind Turbine Design Parts on pg. 4.



Works with
Power Grid
(842082) and
Wind Farm
(842100)

KELVIN® Solar Farm

Teach the basics of solar voltaic energy!

The kit consists of [5] 0.5 volt encapsulated solar cells mounted to a movable arm. Jumpers are used to connect the cells in series or parallel. Also included are 50LE multimeter, [10] LEDs, breadboard, motor, fan prop, protractor to measure the cell angle and instructions. Requires assembly.

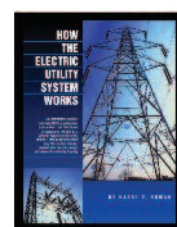
842035 Kit -\$145 or \$125 ea./3+

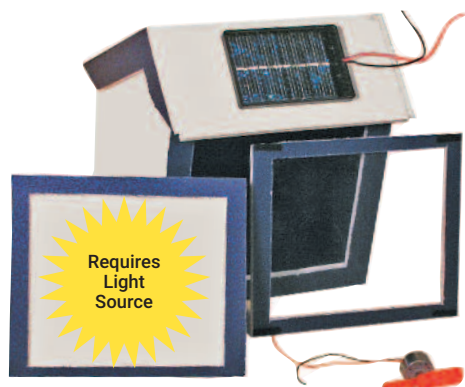


How the Electric Utility System Works

Learn how electricity is generated, transmitted, and distributed. Also covers how the electric industry started, how we use energy, and where the industry is going.

652497 Booklet\$14.95 or \$13.95 ea./6+





Requires
Light
Source

These kits will guide your students through activities focused on the conversion of light into electrical energy as well as heat transfer and storage for the purpose of space and water heating. Requires a light source.

KELVIN® Solar Energy House Lab

Includes: 841635 contents, foam board, liquid thermometer, water pump, foam cutter, knife switch, beaker, battery holder, tubing, LEDs, clothespins, wood, and an additional motor and propeller.

841603 7 x 7 x 8 in. ..\$95 or \$85 ea./3+

Requires
Light
Source

KELVIN® Solar Energy House Kit

Kit includes: 841748 contents, foam board, ceramic tile, and alligator leads.

841635 7 x 7 x 8 in.\$36 or \$29.95 ea./3+

KELVIN® Solar House Template

Template for 7 x 7 x 8 in. house, solar cell, motor, propeller, stick-on thermometer, aluminum sheet, and instructions. Not shown.

841748 Template\$24.95 or \$22.95 ea./3+

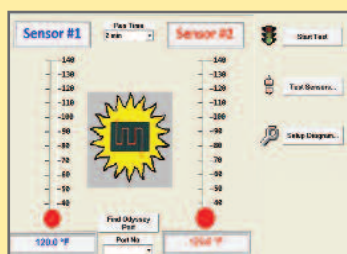


KELVIN® Advanced Solar Energy House Lab

Includes: 841603 contents, two-room house template, foam board, [2] add. solar cells, bulb, lamp socket, 50LE multimeter and car kit.

841602 7 x 14 x 8 in. ..\$175 or \$165 ea./3+

Requires
Light
Source



KELVIN® Active Solar Space Heater (ASSEMBLED) Lab with Data Collection Interface

Students learn how active solar hot water and heat production is used in homes worldwide as a sustainable source of energy. Activities focus on heat transfer and heat absorption, insulation materials, tubing, clamps, digital thermometer, angle finder, measuring containers, assembled data collection interface, software (Win XP-7), USB cable, Active Solar Space Heater Guide, instructions, and design portfolio.

Students then apply this information in the design of a solar hot water and space heater. A data interface and sensors are used to gather data during activities as well as display data in graph and chart form.

Lab includes: Assembled Active Solar Space Heater, adjustable solar collector, pump, lamp (light source), sensors, stand, absorption materials, insulation materials, tubing, clamps, digital thermometer, angle finder, measuring containers, assembled data collection interface, software (Win XP-7), USB cable, Active Solar Space Heater Guide, instructions, and design portfolio.

841611 Assembled Active Solar Space Heater, Data Interface & Software\$995

841630 841611 PLUS Laptop.....\$1,795

Solar Cells with Leads

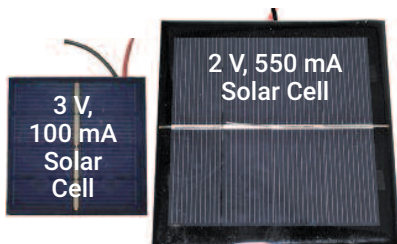
Red and black stranded wires. Leads measure 10 in. long

3 V, 100 mA 2 x 2 in.

220103 ..\$7.95 or \$7.45 ea./10+

2 V, 550 mA 4 x 4 in.

260197 ..\$9.95 or \$8.95 ea./10+



Laminated Solar Cells

Laminated in a high quality resin on a PC board with excellent moisture resistance. Each cell has a solder lug for attaching wire.

260188 0.5 V, 250 mA, 32 x 60 x 4 mm\$7.95 or \$7.45 ea./6+

260189 0.5 V, 500 mA, 62 x 46 x 4 mm\$9.95 or \$8.95 ea./6+

260190 1 V, 250 mA, 62 x 46 x 4 mm.....\$10.95 or \$10.45 ea./6+

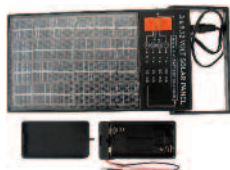
260193 1.5 V, 500 mA, 62 x 120 x 4 mm....\$22.95 or \$20.95 ea./6+



Battery Charger with Solar Panel

For AA and 9V batteries with included adapters or us switch to select different DC voltages (3, 6, 9, or 12). 600 mW. 165 x 89 x 25 mm.

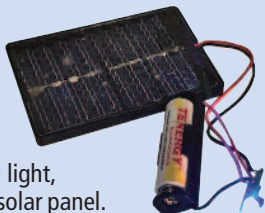
280202\$21.95 or \$20.95 ea./10+



KELVIN® Turn On At Night Light & Battery Charger

Sunlight and a solar cell charges a rechargeable battery during the day. An IC senses voltage change and turns on a LED at dark. Kit includes PC board, LED light, battery holder, rechargeable AA battery and solar panel.

842432 Kit\$12.95 or \$11.95 ea./10+



Find the **KELVIN® Night Light Kit** in **Electronics** on pg. E 5.

Educational Solar Energy Kit

Experiments include making a solar/electrical circuit, how to increase voltage and current, and making a solar panel. Comes with: [8] solar cells, motor, wire, clip, nut, spinner, plastic disc and experiment booklet.

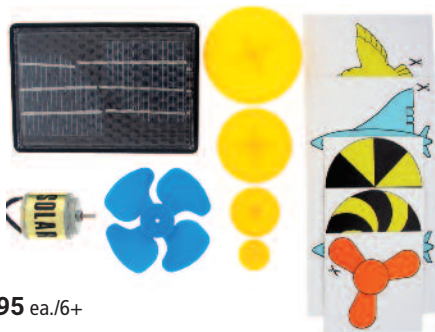
260183 Kit.....\$24.95



Solar Educational Kit

This remarkable kit self-explains solar energy and its applications. Kit includes: solar cell, solar motor, wire, motor clips, nut, propeller, plastic discs, colored paper models and instruction booklet.

260185 Kit ..\$14.95 or \$13.95 ea./6+



KELVIN® Hands-On Science® Alternative Energy Battery Charger w/ Solar Cell

Includes: Solar Cell (2 V, 200 mA, 2 x2 in.), AA battery holder and insulated alligator clips with leads. Requires [1] AA NiCad battery (220025, see below).

220163\$5.95 or \$5.65 ea./10+

KELVIN® Hands-On Science® Alternative Energy Battery Charger w/ Solar Cell and Solar Motor

Includes: Solar Motor (851105) and Solar Cell with Alternative Energy Battery Charger (220163 above). Requires [1] AA NiCad battery (220025).

842411\$6.95 or \$6.75 ea./6+

220025 Ni-Cad Battery, AA, 500 mAh\$1.95 or \$1.75 ea./10+



Solar Motors

0.7-5 V, 18 mA

851105 **A** ..\$3.35 or \$2.95 ea./10+ or \$2.75 ea./100+

1.5 V, 140 mA

851363 **B** ..\$2.45 or \$2.20 ea./10+ or \$2.10 ea./100+

KELVIN® Hands-On Science® Battery Backup Power Kit

Convert your solar racer to battery power for indoor rainy day testing. Includes battery holder, slide switch and wire. Requires AA batteries.

840694 **C**\$3.95 or \$3.65 ea./12+

Rechargeable Light Source

Helps Power Solar Activities Indoors. Provides light power equivalent to 10,000,000 candles. Charger is included.

260204 **D**\$125



Deluxe Solar Educational Kit

A series of do-it-yourself experiments for learning about solar energy. Students will learn how to make electrical and solar circuits, as well as increasing voltage and current. Kit includes a musical unit, plastic lamp, fan unit, motor accessories and plastic adapters. The solar array measures 100 x 125 x 10mm.

260184 Kit\$26.95 or \$24.95 ea./6+





KELVIN® Investigating Electricity Activity

This unique activity has been designed to show students the basic concepts behind DC electricity and circuits. The experiment board and components use hook/loop tape to mount parts for circuits.

Activities include Measuring Voltage, Assembling Simple Electric Circuits, Assembling Circuits Using Schematic Diagrams, Series and Parallel Circuits, Using a Meter to Measure Electricity in a Circuit and The Effects of Voltage, Current and Resistance in a Circuit.

360029\$99.95 or \$94.95 ea./3+



KELVIN® Investigating Generators, Transformers & Turbines

Bring the electrical power to a scale your students can understand. Using this kit students will build their own generator. After testing the generator students are challenged to design, build, install and test a wind turbine to spin the generator shaft. To increase the voltage going to an LED circuit, students will add a step up transformer to their turbine generator design. How many LEDs can your student designed turbine generator light?

842140\$39.95



KELVIN® Making Wet Cells and Batteries Lab

Students create wet cells and batteries using a variety of different electrode and electrolytic solutions while gathering and analyzing output data. This lab is the companion to the *Making Wet Cells and Batteries* booklet below.

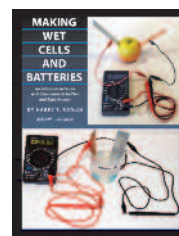
Includes: detailed instructions, electrodes (copper, zinc, tin, aluminum, iron), safe chemicals for electrolytic solutions, measuring containers and tools, cell containers, multimeters and alligator leads.

842300 Enough for 24 Students\$275

Making Wet Cells and Batteries Booklet

Understanding how wet cells work helps us understand rust and corrosion; and why batteries behave the way they do and eventually need replacement. Includes fun information and simple experiments.

652656 Booklet\$14.95 or \$13.95 ea./10+

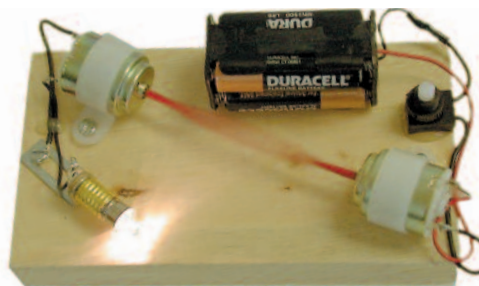


KELVIN® Kre8® DC Motor

Make the motor to spin as fast as possible! This motor consists of an electromagnet (made from a coil of insulated copper wire on a steel rod), two magnets, a reed switch and a battery. Students can decorate the spinning top as they want. Students will learn about assembly, power, friction and the importance electric motors.

Kit includes: tubes, slit rods, collars, clip connectors, [2] magnets, steel rods, copper wire, metal bearing, fuse, reed switch, base, bag and sand paper. Requires battery.

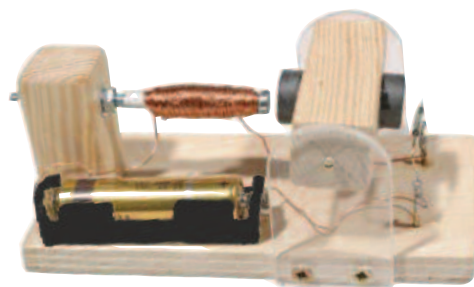
842081 Kit\$15.95 or \$14.95 ea./5+ or \$13.95 ea./10+
283736 Bulk Pack for 20\$12.50 Per Kit \$250



KELVIN® Motor Generator

Convert mechanical energy into electricity. Kit includes: motor, generator, coupling, battery holder, bulb, sockets and base. Requires [4] AA batteries

840031 Kit **\$7.95** or **\$7.45** ea./10+
842430 Bulk Pack for 30 **\$7.00 Per Kit \$210**



KELVIN® Reed Switch Motor

The interaction of electromagnet and permanent magnet produces an incredibly fast revolution of the rotor. Requires a AA battery.

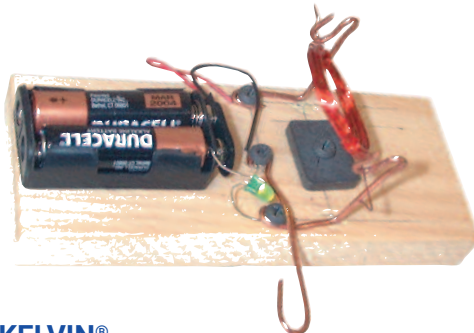
283287 Kit **\$10.95** or **\$9.95** ea./10+



KELVIN® Sturg DC Motor

Simple electric motor provides continuous rotary motion. Kit includes: DC electric motor with wood, magnet and wire.

841967 Kit **\$15.95** or **\$13.95** ea./10+
842441 Bulk Pack of 20 Kits **\$12.95 Per Kit \$259**



KELVIN® Electricity & Magnetism Motor

Kit includes: wood, magnet, [2] AA batteries, AA battery holder and wire.

841147 Kit **\$6.95** or **\$5.95** ea./12+
841816 Bulk Pack for 24 **\$4.95 Per Kit \$118.80**

KELVIN® Hand Crank Flashlight

Turn mechanical energy into light energy; batteries not needed.

Assemble the LED circuit within the pre-scored cardstock body. The crank turns a small DC motor changing the mechanical energy into electrical energy lighting the LED.

842442 Kit **\$14.95** or **\$13.95** ea./10+

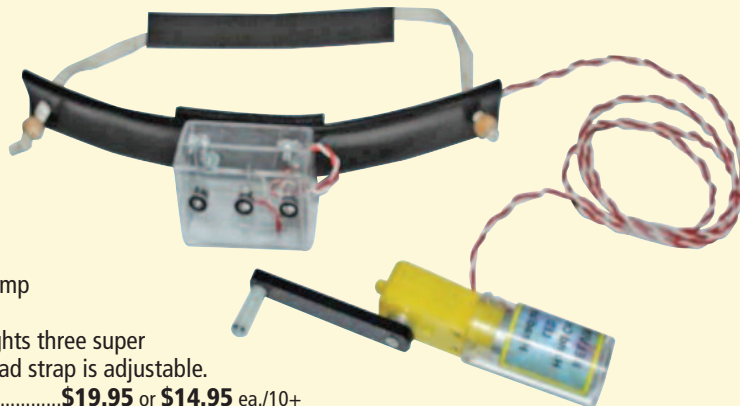


KELVIN® Hand Crank Headlamp

When the lights go out use this headlamp to help get around.

Crank generator lights three super bright LEDs. The head strap is adjustable.

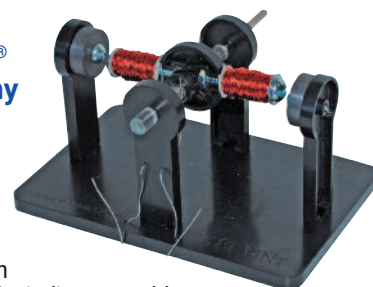
842444 Kit **\$19.95** or **\$14.95** ea./10+



KELVIN® Economy Motor

Features high quality molded plastic with unique coil winding assembly.

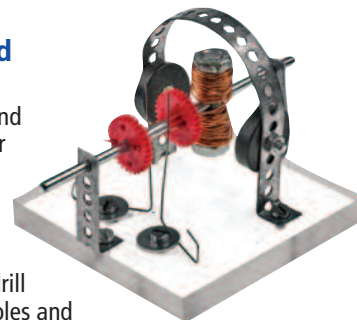
842305 Kit **\$14.95** or **\$12.95** ea./10+
842337 Bulk Pack of 30 **\$9.95 Per Kit \$298.50**
842338 Assembled Model **\$74.95**



KELVIN® Advanced Motor

This metal and acrylic motor challenges older students to precisely layout and drill mounting holes and assemble this elegantly working DC motor. Requires [2] AA batteries.

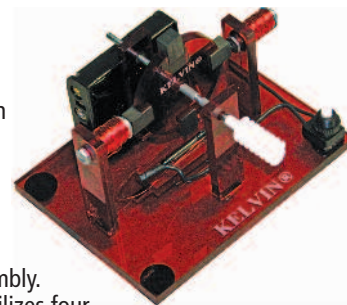
280576 Kit **\$13.95** or **\$13.45** ea./20+



KELVIN® Spinning Motor

Super smooth motor kit includes a precut acrylic base and parts for ease of assembly. The motor utilizes four magnetic contacts and a reed switch to create a fast spinning DC motor. Requires [2] AA batteries.

842083 Kit **\$14.95** or **\$12.95** ea./6+
or **\$11.95** ea./20+



Demonstration AC/DC Generator

Turning the handle to produces AC or DC current which lights a bulb or can be measured with a meter.

710189 Generator **\$89.95**

KELVIN® S.T.E.M. Bin Fillers Each Bin Filler saves you money versus the retail price of buying each item individually.



Valued at
\$196

Mechanical Engineering Bin Filler

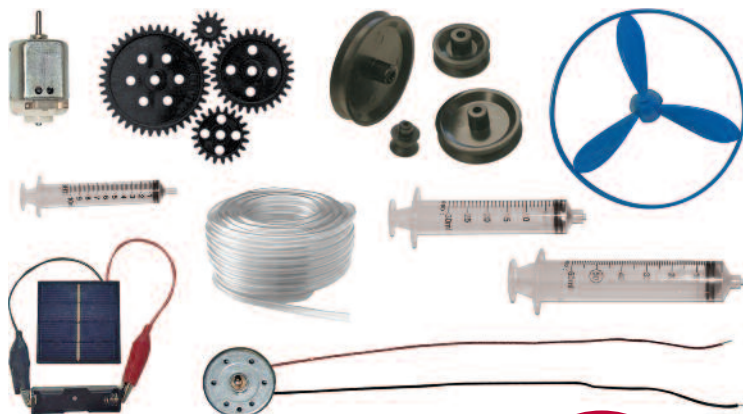
10	Penny Racer Kit w/ 2-pc. Base	250	Plastic Straws, 9/64 in. dia.
10	Balloon Racer Kit	4	Wood Dowels, 1/8 in. dia.
50	Wheel, 1-3/8 in. D	4	Wood Dowels, 1/4 in. dia.
50	Wheel w/ Cap, 1-3/8 in. D	20	Wood Squares, 2-1/2 x 3 in.
50	Wheel w/ Cap, 1-1/2 in. D	10	Wood Bases
10	Big Project Wheel, 4-3/4 in. D	100	Flat Washer, #6
50	CD to Wheel Adapters	10	Foam Blocks, 1 x 3 x 10 in.
20	Wheel Adapters, 1/4 to 1/8 in.	10	Foam Blocks, 2 x 2-1/2 x 8 in.
100	Axles, Steel, 2-1/2 in. L	430510	.....\$185 or \$165 ea./3+



Valued at
\$158

Advanced Mechanical Engineering Bin Filler

20	Super Economy Gear, Set of 4	10	Project Motor, 0.7-5 V
20	Gear/Pulley Combo	10	Project Motor, 1.2 - 3 V
20	Gear Adapter, 3/16 in. D	5	Luer Lock Syringe, 10 cc
20	Gear Adapter, 1/8 in. D	5	Luer Lock Syringe, 30 cc
10	Economy Pulley, Set of 4	5	Luer Lock Syringe, 50 or 60 cc
5	Cam, Set of 4	1	Vinyl Tubing, 1/8 in. D, 25 ft. L
15	Universal Motor Mount	36	Balloons, 9 in. D

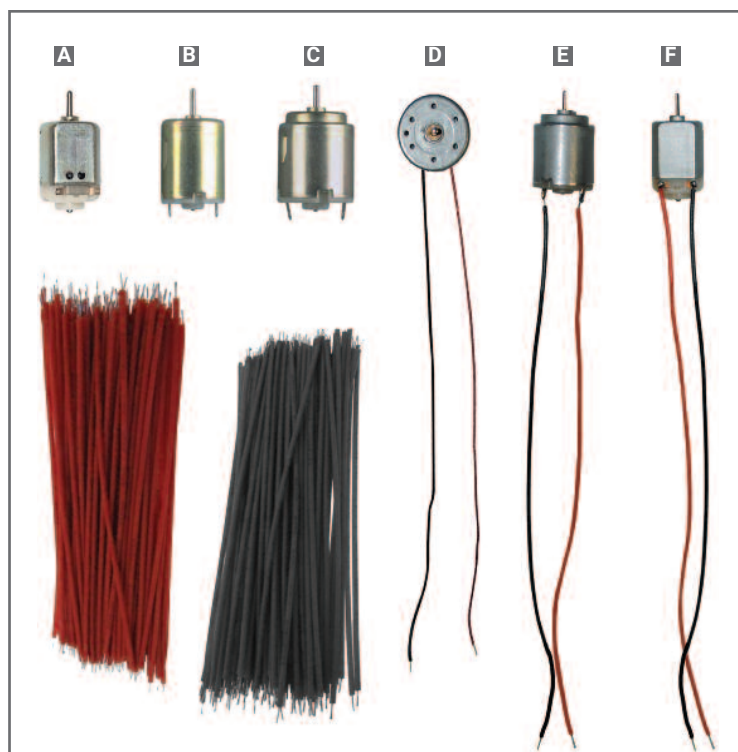


Valued at
\$146

Mechanical Engineering Mini Bin Filler

10	Solar Motor, 0.7-5 V	10	Economy Pulley, Set of 4 Sizes
10	Robotics Motor, 6-12 V	5	Syringe, 10 cc
10	Safety Propeller	5	Syringe, 30 cc
10	Super Economy Gear, Set of 4	5	Syringe, 50 or 60 cc
5	Solar Cell, 2 V, 200 mA	1	Vinyl Tubing, 1/8 in. D, 25 ft. L

430522Valued at \$146 **\$135** or **\$125** ea./3+



Valued at
\$144

KELVIN® Project Motors Bin Filler

10	A Solar Motor, 0.7-5 V	10	E Motor w/ Leads, 1.2-3 V
10	B Adv. Solar Motor, 1.2-3 V	10	F Motor w/ Leads, 3-6 V
10	C Hi-Speed Motor, 3-6 V	50	Pre-Cut Wire, Stranded, Red
10	D Robotics Motor, 6-12 V	50	Pre-Cut Wire, Stranded, Black

430518Valued at \$144 **\$135** or **\$125** ea./3+

PROJECT RESOURCES

KELVIN® ENGINEERING IN SCHOOL



Find Project Parts on pgs. 16-27.

Find KELVIN®
Storage Cabinets
on pg. PR 2.



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Find KELVIN®
Balsa StiKutters™
on
pg.
9.

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Balsa StiKutter™ Pro



Find KELVIN®
S.T.E.M. Bin Fillers
on pgs. 2-7.

Part of Catalog #321,
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**KELVIN® S.T.E.M. Bin Fillers**

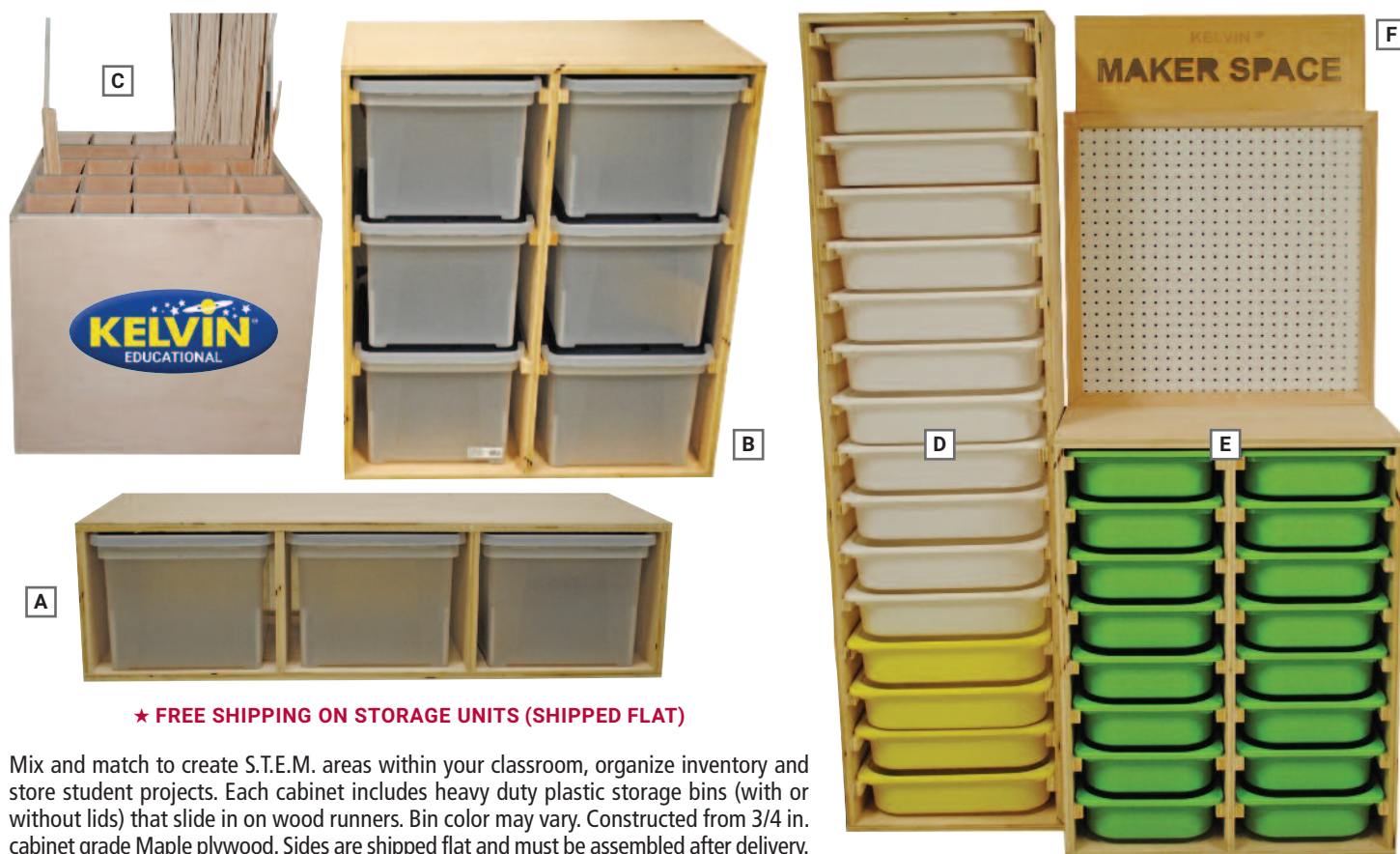
Each Bin Filler saves you money versus the retail price of buying each item individually.

Valued at
\$178

Materials Bin Filler

100	Artstraws®	100	Maglev Magnets
125	Plastic Straws, 9/64 in. dia.	125	Wood Craft Sticks, Jumbo
10	Mousetraps	250	Wood Craft Sticks
12	Clothespins	1	Tacky Glue
10	Felt Sheets	5	Foam, 1 x 2 x 8 in.
500	Rubber Bands, 2-1/2 in. L	5	Foam, 1 x 3 x 10 in.
25	Traction Bands, 1/2 in. W	10	Assorted Sandpaper Sheets
1	Duct Tape, Gray	1	Copper Wire
1	Electrical Tape, 4 Color Set	24	Ping Pong Balls
1	Twine	24	Game Marbles
15	Chipboard, 8-1/2 x 11 in.	2	Wood Glue

430515\$165 or \$155 ea./3+

KELVIN® Storage Units for New Standards® S.T.E.M. Labs and Bin Fillers

★ FREE SHIPPING ON STORAGE UNITS (SHIPPED FLAT)

Mix and match to create S.T.E.M. areas within your classroom, organize inventory and store student projects. Each cabinet includes heavy duty plastic storage bins (with or without lids) that slide in on wood runners. Bin color may vary. Constructed from 3/4 in. cabinet grade Maple plywood. Sides are shipped flat and must be assembled after delivery.

Parts Storage Unit w/ 3 Bins & Lids

430459 **A** 16-3/4 L x 26-1/4 W x 34-3/4 in. H ★\$345

Parts Storage Unit w/ 6 Bins & Lids (Countertop Height)

430460 **B** 17-3/4 L x 31-3/4 W x 35-3/4 in. H ★\$645

Balsa & Wood Storage Unit (Multi-Compartment)

430461 **C** 18 x 18 in. ★\$295

Tall Storage Unit w/ 16 Bins (Anchors to the wall)

430458 **D** 12-1/2 L x 18-1/2 W x 68-1/2 in. H ★\$645

Storage Unit w/ 16 Bins (Countertop Height)

430456 **E** 16-3/4 L x 26-1/4 W x 34-3/4 in. H ★\$645

Tool Panel w/ Hooks & Changeable Sign

430457 **F** Panel is 26 x 26 in. & Sign is 24 x 8-1/2 in. ★\$175

KELVIN® S.T.E.M. Bin Fillers Each Bin Filler saves you money versus the retail price of buying each item individually.

Comes with BONUS
KELVIN® Balsa StiKutter™



THE KELVIN®
ORIGINAL
NOT A COPY!

**KELVIN®
Balsa Mini Bin Filler**

1	KELVIN® Balsa StiKutter™ - Easily Cuts Balsa!	
5	1/16 x 1/8 x 18 in.	25 1/8 x 3/8 x 18 in.
5	3/32 x 3 x 18 in.	10 1/8 x 3 x 18 in.
25	1/8 x 1/8 x 18 in.	5 1/2 x 3 x 18 in.

Valued at **\$98**

**KELVIN®
Balsa Mini Bin Filler**

1	KELVIN® Balsa StiKutter™ - Easily Cuts Balsa!	
5	1/16 x 1/8 x 18 in.	25 1/8 x 3/8 x 18 in.
5	3/32 x 3 x 18 in.	10 1/8 x 3 x 18 in.
25	1/8 x 1/8 x 18 in.	5 1/2 x 3 x 18 in.

430523Valued at \$95 or **\$85** ea./3+

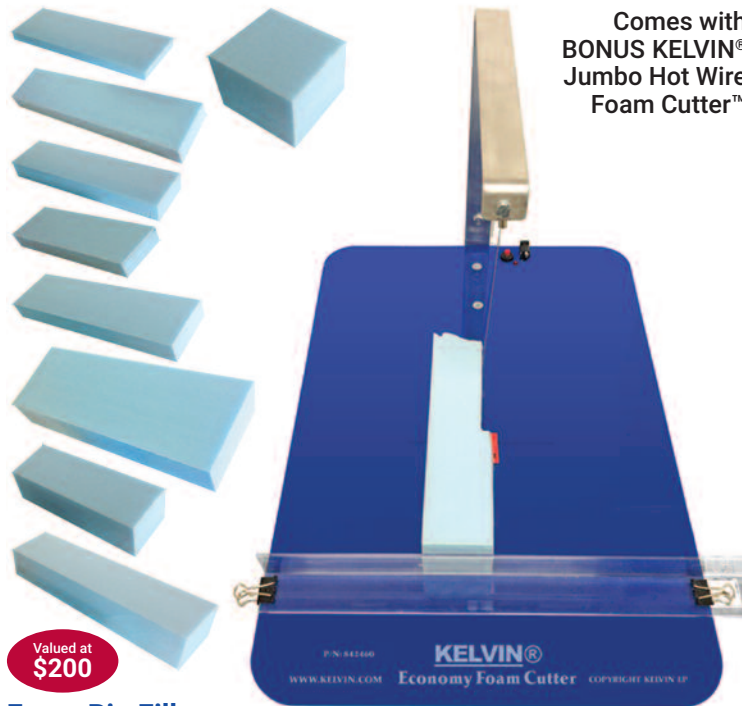


**KELVIN®
Wood Mini Bin Filler** All 24 in. Long

50	3/32 x 3/32 in. Basswood	25	3/4 x 3/16 in. Pine
50	1/8 x 1/8 in. Basswood	25	1/2 x 3/16 in. Pine
25	1/8 x 3/8 in. Basswood	10	Dowel, 1/8 in. dia.
25	1/4 x 1/4 in. Basswood	10	Dowel, 3/16 in. dia.
10	1/2 x 1/2 in. Basswood	10	Dowel, 1/4 in. dia.

430524Valued at \$144 **\$135** or **\$125** ea./3+

Comes with
BONUS KELVIN®
Jumbo Hot Wire
Foam Cutter™



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ORIGINAL
NOT A COPY!

**KELVIN®
Foam Bin Filler**

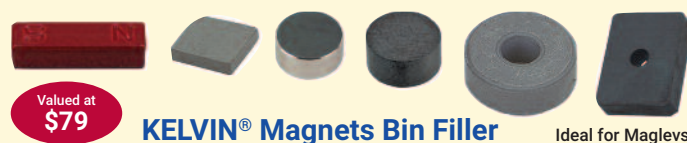
1	Jumbo Hot Wire Foam Cutter	5	1 x 3 x 10 in. Foam
5	1/2 x 3 x 8 in. Foam	5	1 x 3 x 10 in. Foam
5	1 x 2 x 8 in. Foam	5	2 x 3 x 12 in. Foam
5	1 x 2 x 14 in. Foam	5	2 x 4 x 12 in. Foam
5	1 x 3 x 8 in. Foam	5	3 x 4 x 4 in. Foam

Valued at **\$200**

**KELVIN®
Foam Bin Filler**

1	Jumbo Hot Wire Foam Cutter	5	1 x 3 x 10 in. Foam
5	1/2 x 3 x 8 in. Foam	5	1 x 3 x 10 in. Foam
5	1 x 2 x 8 in. Foam	5	2 x 3 x 12 in. Foam
5	1 x 2 x 14 in. Foam	5	2 x 4 x 12 in. Foam
5	1 x 3 x 8 in. Foam	5	3 x 4 x 4 in. Foam

430519Valued at \$200 **\$195** or **\$185** ea./3+



Valued at **\$79**

KELVIN® Magnets Bin Filler Ideal for Maglevs

10	Bar Magnet, N/S, 13/16 in. L	50	Disc Magnet, 1/2 in. D, 1/4 in. T
50	Bar Magnet, 1/4 x 1/4 x 3/32 in.	50	Ring Magnet, 3/4 in. OD, 1/4 in. T
10	Neodymium Magnet, 1/4 in. D	50	Holed Magnet, 1 x 3/4 x 3/16 in.

430520Valued at \$79 **\$75** or **\$65** ea./3+



**KELVIN®
Magnets Bulk Pack**

62 Magnets

170 Magnets

Magnets Set

25	Maglev Magnets
10	Square Magnets
2	Bar Magnets
5	Rectangular Magnets
10	Disc Magnets (1/2 in. dia.)
5	Disc Magnets (3/4 in. dia.)
5	[5] Ring Magnets

90	Disc Magnets (small, medium, large)
40	Ring Magnets (small, large)
40	Bar Magnets (small, medium)

841584**\$15.95** or **\$14.95** ea./6+

640106**\$21.95** or **\$19.95** ea./6+

KELVIN® S.T.E.M. Bin Fillers Each Bin Filler saves you money versus the retail price of buying each item individually.



Valued at
\$196

Mechanical Engineering Bin Filler

10	Penny Racer Kit w/ 2-pc. Base	250	Plastic Straws, 9/64 in. dia.
10	Balloon Racer Kit	4	Wood Dowels, 1/8 in. dia.
50	Wheel, 1-3/8 in. D	4	Wood Dowels, 1/4 in. dia.
50	Wheel w/ Cap, 1-3/8 in. D	20	Wood Squares, 2-1/2 x 3 in.
50	Wheel w/ Cap, 1-1/2 in. D	10	Wood Bases
10	Big Project Wheel, 4-3/4 in. D	100	Flat Washer, #6
50	CD to Wheel Adapters	10	Foam Blocks, 1 x 3 x 10 in.
20	Wheel Adapters, 1/4 to 1/8 in.	10	Foam Blocks, 2 x 2-1/2 x 8 in.
100	Axles, Steel, 2-1/2 in. L	430510	.....\$185 or \$165 ea./3+

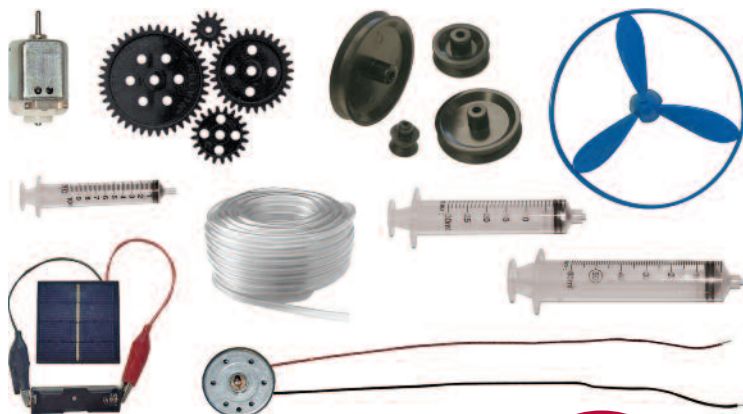


Valued at
\$158

Advanced Mechanical Engineering Bin Filler

20	Super Economy Gear, Set of 4	10	Project Motor, 0.7-5 V
20	Gear/Pulley Combo	10	Project Motor, 1.2 - 3 V
20	Gear Adapter, 3/16 in. D	5	Luer Lock Syringe, 10 cc
20	Gear Adapter, 1/8 in. D	5	Luer Lock Syringe, 30 cc
10	Economy Pulley, Set of 4	5	Luer Lock Syringe, 50 or 60 cc
5	Cam, Set of 4	1	Vinyl Tubing, 1/8 in. D, 25 ft. L
15	Universal Motor Mount	36	Balloons, 9 in. D

430511Valued at \$158 **\$155** or **\$125** ea./3+

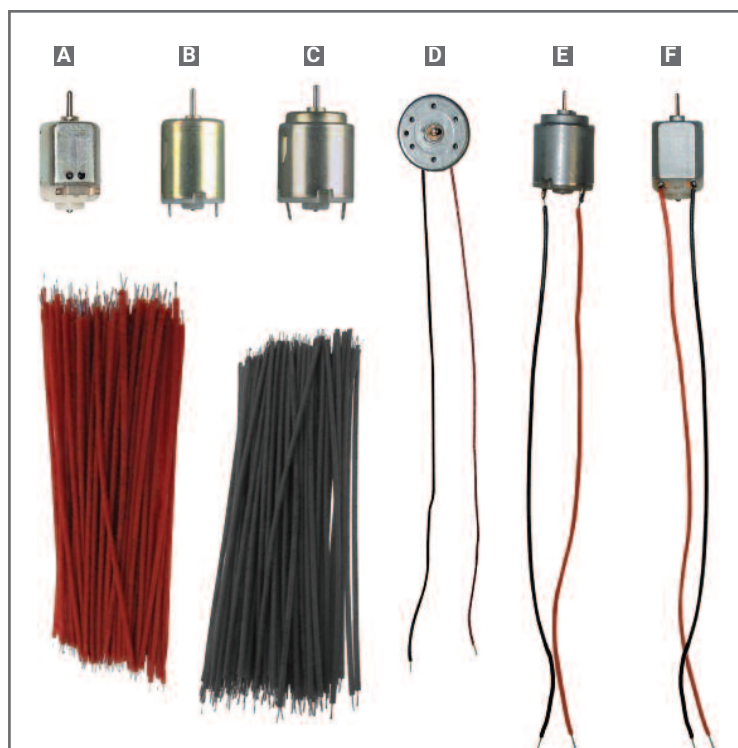


Valued at
\$146

Mechanical Engineering Mini Bin Filler

10	Solar Motor, 0.7-5 V	10	Economy Pulley, Set of 4 Sizes
10	Robotics Motor, 6-12 V	5	Syringe, 10 cc
10	Safety Propeller	5	Syringe, 30 cc
10	Super Economy Gear, Set of 4	5	Syringe, 50 or 60 cc
5	Solar Cell, 2 V, 200 mA	1	Vinyl Tubing, 1/8 in. D, 25 ft. L

430522Valued at \$146 **\$135** or **\$125** ea./3+



Valued at
\$144

KELVIN® Project Motors Bin Filler

10	A Solar Motor, 0.7-5 V	10	E Motor w/ Leads, 1.2-3 V
10	B Adv. Solar Motor, 1.2-3 V	10	F Motor w/ Leads, 3-6 V
10	C Hi-Speed Motor, 3-6 V	50	Pre-Cut Wire, Stranded, Red
10	D Robotics Motor, 6-12 V	50	Pre-Cut Wire, Stranded, Black

430518Valued at \$144 **\$135** or **\$125** ea./3+

KELVIN® S.T.E.M. Bin Fillers Each Bin Filler saves you money versus the retail price of buying each item individually.



Valued at
\$102

Wheels Parts Bin Filler

10	Big Project Whee, 4-3/4 in. D	20	Gear Wheel, Front, 1-3/8 in. D
16	Big Wheel, 3 in. D	100	Racing Wheel, 1-3/8 in. D
20	Super Light. Wheel, 2-1/2 in. D	50	Gear/Pulley Combo
20	Gear Wheel, Rear, 1-5/8 in. D	100	Axle, Steel, 2-1/2 in. L

430509Valued at \$102 **\$95** or **\$85** ea./3+



Rubberized Cloth Apron

Made of a chemical resistant PVC coated cloth which stays flexible. Reinforced. Cloth ties at the neck and waist. 27 x 42 in.

710123 ..**\$12.95** or **\$11.95** ea./5+

Blue Denim Apron

Two pockets. Cloth ties at neck and waist. 36 in. L.

710200 ..**\$12.95** or **\$11.95** ea./3+



Cut
to Size

Valued at
\$166

Propellers Bin Filler

20	Nose Hook Prop, Fits Crft Stk	24	2-Blade Propeller, Yel/Grn
100	Craft Sticks	24	3-Blade Propeller, Yel/Grn
12	Adjustable Pitch Propeller	8	4-Blade Propeller
20	Safety Propeller	1	Rubber Band, 50 ft. L
12	Pusher Propeller	430508	.....\$135 or \$125 ea./3+



Gears & Pulleys Bin Filler

10	Worm Gear	10	Gear/Pulley Combo
10	Super Economy Gear, Set of 4	5	Economy Pulley, Set of 4
10	Advanced Gear, Set of 4	2	Sprocket Chain, 36 in. L
10	Gear/Motor Mounting Bracket	20	Rubber Band, 2-3/4 in. L
5	Bevel Gears	2	Cams, Set of 4

430517Valued at \$68 **\$58** or **\$53** ea./3+

Valued at
\$68

KELVIN® S.T.E.M. Bin Fillers Each Bin Filler saves you money versus the retail price of buying each item individually.



KELVIN® Beams & Triangles™ Bin Filler

Axle Mount Cardstock	Tubing	Sandpaper
Triangle Cardstock	Cardboard Wheels	Glue
Beams	Spoke Wheels	Tech Excellence Medals
Dowels	Pulleys W/ Tire	
Wood Sticks	Grid Paper	840681 ....Valued at \$225 \$195

KELVIN® Beams & Triangles™ Advanced Bin Filler

Axle Mount Cardstock	Tubing	Grid Paper
Triangle Cardstock	Cardboard Wheels	Sandpaper
Beams	Spoke Wheels	Glue
Dowels	Gear Sets	Tech Excellence Medals
Wood Sticks	Pulleys	Rubber Bands
Solar Cells	Pulleys W/ Tire	AA Battery Holders
Solar Motors	Propellers	Storage Box
Motor Mounts	Balloons	840972 ....Valued at \$462 \$345

A collection of various parts including gears, wheels, motors, and a small car kit, arranged in a bin. A red badge indicates 'Valued at \$230'. The bin is labeled 'KELVIN Kre8 Design & Make'.

KELVIN® Kre8® Parts Bin Filler

100	Tube, Blue	30	Bevel Gear
50	Clip Connector	2	Kre8® Cutter
50	Multi-Block	30	Rubber Band, 45 mm
10	Bendy Tube	30	Rubber Band, 60 mm
30	Wheel, 1.10 in.	10	Project Motor, 1.2 - 3 V
20	Wheel, 1.57 in.	10	AA Battery Holder w/ Leads
20	Wheel, 2.75 in.	10	Slide Switch, SPST
30	Grommet	10	Safety Propeller
5	Air-Propelled Racing Car Kit	430514	\$195 or \$185 ea./3+



KELVIN® Project Parts Bin Filler

100	Racing Wheel, 1-3/8 in. D
100	Racing Wheel w/ Cap, 1-3/8 in. D
200	Racing Wheel w/ Cap, 1-1/2 in. D
20	Big Project Wheel, 4-3/4 in. D
40	CD to Wheel Adapter
100	Gear Wheel, Rear, 1-5/8 in. D
100	Gear Wheel, Front, 1-3/8 in. D
100	Axle, Steel, 2-1/2 in. L
25	Super Economy Gear, Set of 4
1	Cam, Set of 4
100	Economy Pulley, Set of 4
1	Sprocket Chain, 36 in. L
10	Worm Gear
10	Bevel Gear
20	Project Motor, 1.2 - 3 V
20	Project Motor, 3 - 6 V
24	Project Motor, 6 - 12 V, 0.14 A
24	3-Blade Propeller, Yellow / Green
10	3-Blade Propeller, 1 in. Dia.
20	Motor/Syringe Mount, 7/8 in. ID
30	Crank Handle
100	Springs
2	Motor & Gearbox Kit
1	Storage Drawer

841328Valued at \$725 **\$545**

KELVIN® S.T.E.M. Bin Fillers Each Bin Filler saves you money versus the retail price of buying each item individually.



Valued at
\$230

Electronics Bin Filler

10	Battery Holder w/ Leads, AA, 2	10	Super Bright LED, Red
10	Battery Holder w/ Leads, AA, 4	10	Diffused LED, Green
50	Pre-Cut Wire, Stranded, Red	100	Resistors, 100 Ohm, 1/4 Watt
50	Pre-Cut Wire, Stranded, Black	10	Wire Lead Buzzer
1	Electrical Tape, Black	10	Pushbutton Switch, 110V, Red
20	Alligator Clips w/ Leads, 9 in.	2	Electronics Tool Set
6	Knife Switch, SPST	10	LED Holder, 5mm
6	Slide Switch, SPST	3	Solder w/ Pocket Pak Dispenser
6	Mini Bulb Socket, Clip-On	5	Project Motor w/ Leads, 3 - 6 V
6	Bulb Socket, Threaded, E10	5	Project Motor w/ Leads, 1.2-3 V
10	Bulb, Threaded Base	2	Multimeter w/ Buzzer, 50LE

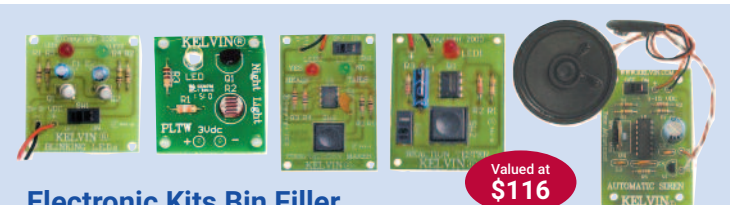
430512Valued at \$230 **\$225** or **\$195** ea./3+



Valued at
\$155

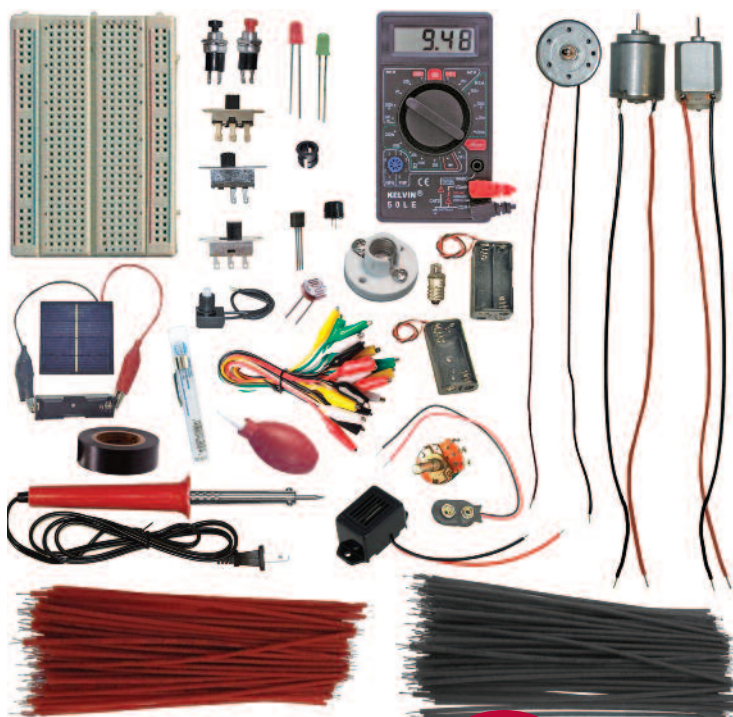
Soldering Bin Filler

5	Soldering Iron, 20 W	5	Desoldering Wick, 0.19 in. W
5	Solder w/ Dispenser	5	Desoldering Wick, 0.10 in. W
5	Soldering Iron Holder	5	Desoldering Bulb
5	Sponge for Holder, Extra	430521	.....\$135 or \$125 ea./3+



Electronic Kits Bin Filler

5	Blinking LEDs Kit	5	Reaction Tester Kit
5	Decision Maker Kit	5	Police Siren Kit
5	Night Light Kit	430516	.. \$105 or \$99.95 ea./3+



Valued at
\$331

Advanced Electronics Bin Filler

10	Battery Holder w/ Leads, AA, 2	3	Project Motor, 0.7 - 5 V
5	Battery Holder w/ Leads, AA, 4	5	Super Bright LED, Red
50	Pre-Cut Wire, Stranded, Red	5	Diffused LED, Green
50	Pre-Cut Wire, Stranded, Black	5	Wire Lead Buzzer
2	Electrical Tape, Black	10	Photo Cell, 450 Ohm
20	Alligator Clips w/ Leads, 9 in. L	10	Battery Snap, 9 V, I-Shape
10	Slide Switch, SPST	10	Pushbutton Switch, 110 V, Black
5	Pushbutton Switch, 14 V, On-Off	5	Slide Switch, SPDT
10	Bulb Socket, Threaded, E10	5	Slide Switch, DPDT
5	Pushbutton Switch, 110 V, Red	5	Piezo Buzzer
10	Bulb, Threaded Base	10	Transistor
10	LED Holder, 5 mm	10	Potentiometer, Vert. PCB Mount
10	Solar Battery Chrg, 2 V, 200 mA	5	Breadboard, 400 Contacts
5	Solder w/ Pocket Pak Dispenser	2	Multimeter w/ Buzzer, 50LE
5	Project Motor w/ Leads, 3 - 6 V	1	Desoldering Bulb
5	Project Motor w/ Leads, 1.2-3 V	1	Soldering Iron, 20 W

430513Valued at \$331 **\$275** or **\$245** ea./3+



Balsa Wood Beams 36 in. Long

H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
1/8	1/8	970277	25	15.95	14.95
	1/8	970091	50	32.95	29.95
	1/8	970278	100	64.95	59.95
	1/8	970300	500	300	280
	1/8	970279	1000	590	585
	3/16	970326	20	14.95	13.95
	1/4	970284	40	33.95	31.95
	1/4	970092	50	39.95	37.95
	1/4	970286	500	395	375
	3/8	970028	20	19.95	18.95
	3/8	970290	40	39.95	37.95
	3/8	970093	50	49.95	47.95
	1/2	970289	25	29.95	27.95
	1/2	970156	50	59.95	55.95
	3/4	970157	50	79.95	76.95
	1	970306	20	34.95	32.95
	2	970317	20	59.95	56.95
	3	970027	20	79.95	76.95
	3	970292	50	195	185
	3	970293	100	370	350
	4	970165	10	54.95	52.95
	4	970294	20	110	99.95
	6	970171	10	84.95	79.95
	H in.	W in.	Stock #	Qty.	\$ ea.	$ ea./5+
1/32	3	970096	10	24.95	22.95
	4	970162	10	39.95	36.95
	6	970168	10	69.95	65.95
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
1/16	1/16	970088	50	22.95	21.95
	1/8	970089	50	24.95	22.95
	1/8	390383	100	49.95	44.95
	1/4	970324	20	13.95	12.95
	3/8	970302	20	15.95	14.95
	1/2	970313	20	19.95	18.95
	3/4	970331	20	24.95	23.95
	1	970332	20	31.95	29.95
	2	970160	50	119	115
	3	970097	10	25.95	23.95
	3	970019	20	49.95	47.95
	4	970163	10	39.95	37.95
	6	970169	10	74.95	72.95

Balsa Wood Beams 36 in. Long

H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
3/32	3/32	970090	50	29.95	27.95
	1/8	970316	20	13.95	12.95
	1/4	970305	20	15.95	14.95
	3	970098	10	29.95	27.95
	3	390384	20	63.95	59.95
	4	970101	5	24.95	22.95
	4	970164	10	49.95	45.95
	6	970170	10	77.95	74.95
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
3/16	3/16	970094	50	39.95	37.95
	1/4	970325	20	19.95	18.95
	1	970303	20	43.95	41.95
	2	970314	20	69.95	65.95
	3	970020	10	44.95	42.95
	3	970299	20	89.95	85.95
	4	970166	10	66.95	62.95
	6	970172	10	95.95	93.95
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
1/4	1/4	970026	20	24.95	22.95
	1/4	970297	25	29.95	27.95
	1/4	970095	50	59.95	56.95
	1/4	970298	500	595	565
	1/2	970307	20	31.95	29.95
	1	970318	20	59.95	55.95
	2	970327	20	79.95	74.95
	3	970295	5	29.95	26.95
	3	970025	10	54.95	52.95
	3	970296	50	280	260
	4	970167	10	99.95	95.95
	6	970173	10	120	110
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
3/8	3/8	970158	50	86.95	84.95
	1/2	970304	20	43.95	40.95
	3/4	970315	20	49.95	47.95
	2	970161	10	45.95	43.95
	3	970100	5	31.95	29.95
	6	970174	10	148	145
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
1/2	1/2	970159	50	118	115
	1	970308	20	76.95	74.95
	2	970319	20	111	108
	3	970102	1	5.50	5.45
	3	970176	10	83.95	81.95
	4	970177	10	155	150
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
1	1	970175	10	55.95	53.95

Comes with BONUS
KELVIN® Balsa StiKutter™

THE KELVIN® ORIGINAL
NOT A COPY!

Valued at
\$98

KELVIN®
Balsa Mini Bin Filler

1	KELVIN® Balsa StiKutter™ - Easily Cuts Balsa!		
5	1/16 x 1/8 x 18 in.	25	1/8 x 3/8 x 18 in.
5	3/32 x 3 x 18 in.	10	1/8 x 3 x 18 in.
25	1/8 x 1/8 x 18 in.	5	1/2 x 3 x 18 in.

430523 **\$95** or **\$85** ea./3+

Balsa Wood Beams 12 in. Long

H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
1	2	970309	10	43.95	41.95
	3	970320	10	61.95	59.95
	4	970329	10	62.95	60.95
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
1-1/2	2	970312	10	61.95	59.95
	3	970323	10	72.95	69.95
	4	970330	10	105	103.95
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
2	3	970310	12	93.95	91.95
	4	970321	12	94.95	92.95
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
3	3	970311	10	135	130
	4	970322	10	159.95	155

Balsa Wood Beams 18 in. Long

H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
1	3	970103	1	9.95	8.95
	5	970106	1	11.95	9.95
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
2	3	970104	18	15.95	13.95
	5	970107	18	20.95	18.95
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
3	3	970105	1	21.95	19.95
	4	970108	1	25.95	23.95

Balsa Wood Beams 24 in. Long

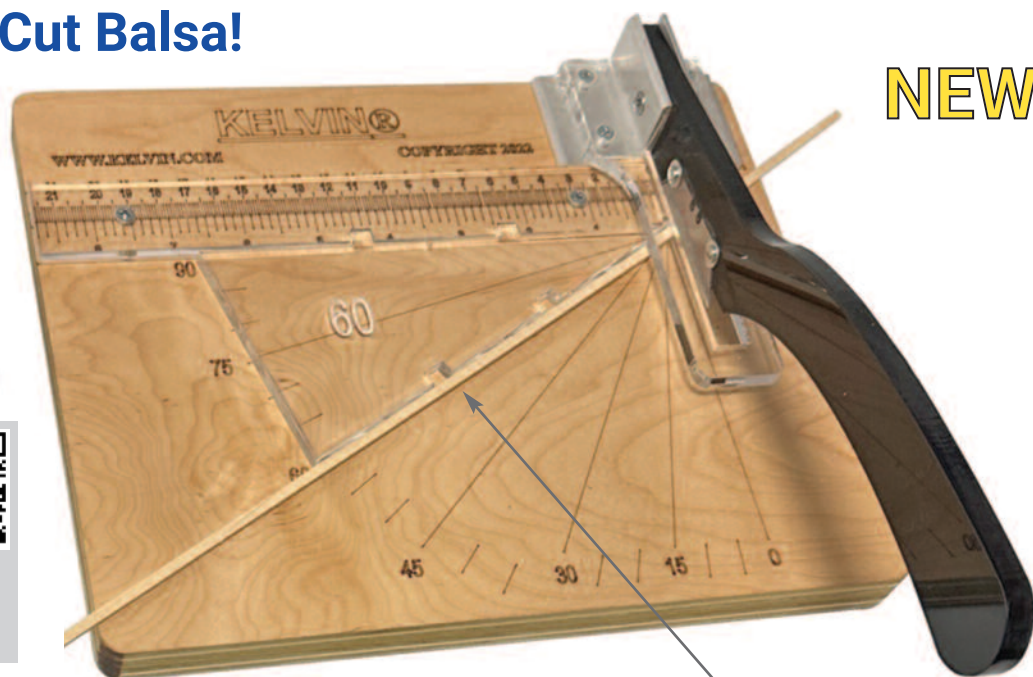
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
3/32	3/32	970178	50	22.95	19.95
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
1/8	1/8	970179	50	29.95	27.95
	1/8	970280	500	195	180

Easily Cut Balsa!

THE KELVIN®
ORIGINAL
NOT A COPY!



Scan The
Code For
Product
Video



NEW

Optional Angle
Guide (842633)

KELVIN® Balsa StiKutter™

- Affordable and easy to use!
- Cuts balsa up to 3/16 in. thick.
- Clear plastic finger protector.
- Built-in protractor for angles.
- Moveable guide.
- No stop on the right side.
- Replaceable blade (by teacher).
- Base holes for mounting.
- Long handle
- Compact 4-1/2 in. sq. base.

990198\$9.95 or \$8.95 ea./10+

Razor Blades (Replacement)

841430 10/pkg.\$3.95
470034 100/pkg.\$29.95



KELVIN® Balsa StiKutter™ Pro

Larger version of the Balsa StiKutter™ with the same clear plastic finger protector, no stop on the right side and a long handle. Built-in protractor for angles and a built-in ruler for lengths. The blade is replaceable blade by the teacher.

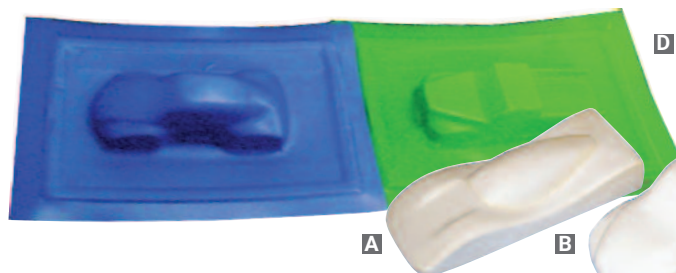
842632\$79.95

KELVIN® Angle Guide for StiKutter™ Pro

Angle guide is easy to use with StiKutter™ Pro.

842633\$9.95

NEW



Find Foam & Foam
Cutters on pgs. 12-13.

KELVIN® EZee™ Plastic Vacuum Former Molds

Form a vehicle body with one of these resin molds and then decorate it. Requires vacuum former and plastic sheets to mold.

570124 A Vehicle Model Mold\$75
570125 B Racer Model Mold.....\$75
570126 C Truck Model Mold.....\$75

Polystyrene Sheets

For use with vacuum former. 0.020 to 0.060 in. thick.

750225 Asstd. Colors, 14 x 10 in., 25 Sheets ..\$39.95
750226 Clear, 14 in. x 20 in., 10 Sheets\$38.95
570108 Asstd. Colors, 14 x 20 in., 65 sheets\$125

Bulk Pack
Per Kit Price
As Low As

\$7.25



KELVIN® Vehicle Parts Bulk Pack

Each kit includes: a wood base, wheels, axles, motor, switches, battery holder, pulley pack, gear pack, and assorted plastic sheets.

Requires vacuum former and car mold. Students can also design body out of foam or cardboard. Requires AA batteries.

842015 Bulk Pack of 20\$7.25 Per Kit \$145

KELVIN® Molding & Casting with Urethane Resins Activity

Expand your plastics and manufacturing program with the introduction of urethane mold making and resin casting. Challenge your students to design and create a model, make a urethane elastomer mold of that model and cast it using urethane resin. Sample designs can include monograms, plaques, jewelry and sculpture.

Lab includes: [2] polystyrene foam boards (1 x 24 x 24 in.), half-gallon quick cast resin, [2] quarts urethane RTV resin, [5] molding waxed containers, a can of mold release parting compound, [2] measuring containers (250 ml), and instructions.

570133 Lab\$395

Teacher Demo Kit

Comes with: quick cast resin (1 qt.), urethane rtv resin (1 qt.), [5] molding waxed containers, a can of mold release parting compound, [2] measuring containers (250 ml) and instructions.

570137\$225

H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
3/64	3	970188	20	33.95	32.95
	4	970189	20	44.95	43.95
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
1/32	1/32	970180	50	10.95	9.95
	1/16	970181	50	11.95	10.95
	1/8	970182	50	11.95	10.95
	1/4	970184	50	15.95	14.95
	1	970185	50	33.95	32.95
	3	970186	50	48.95	46.95
	4	970187	20	41.95	40.95
	6	970197	10	49.95	48.95
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
1/16	1/16	970109	50	10.95	9.95
	1/32	970190	50	11.95	10.95
	1/8	970110	50	13.95	12.95
	3/16	970191	50	17.95	16.95
	1/4	970192	50	19.95	18.95
	3/8	970193	50	26.95	25.95
	1/2	970194	50	32.95	31.95
	2	970195	20	25.95	24.95
	3	970115	1	2.25	1.95
	4	970196	20	33.95	31.95
	6	970198	10	22.95	21.95
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
3/32	3/32	970021	50	13.95	12.95
	1/8	970202	50	13.95	12.95
	3/16	970203	50	18.95	17.95
	1/4	970204	50	19.95	18.95
	3	970116	1	2.25	1.95
	4	970120	1	2.95	2.50
	6	970199	10	57.95	56.95
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
3/16	3/16	970111	50	17.95	16.95
	3	970118	1	1.95	1.75
	4	970210	20	44.95	42.95
	6	970201	10	53.95	51.95
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
1/8	3/16	970205	50	12.95	11.95
	1/8	970022	50	10.95	9.95
	1/4	970206	50	15.95	14.95
	3/8	970055	10	12.95	10.95
	3/8	970131	50	32.95	31.95
	1/2	970208	50	42.95	41.95
	3/4	970209	50	51.95	50.95
	3	970117	1	2.25	1.95
	4	970121	1	2.75	2.45
	6	970200	10	58.95	57.95
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
1/4	1/4	970023	20	13.95	12.95
	1/4	970112	50	32.95	31.95
	1/2	970211	50	52.95	51.95
	3	970119	1	3.25	2.95
	4	970212	20	75.95	74.95

Basswood Beams

24 in. Long

H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
3/8	4	970213	10	53.95	52.95
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
1/2	1/2	970114	50	75	74
	3	970214	10	46.95	45.95
	4	970215	10	61.95	59.95
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
1	1	970333	1	1.95	1.50
	2	970340	1	3.75	3.25
	3	970341	1	4.25	3.95
	4	970343	1	6.95	5.95
	6	970338	1	9.95	9.65
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
2	2	970352	1	6.95	6.75
	3	970355	1	9.95	9.50
	4	970358	1	9.95	9.75
	4	970216	5	62.95	60.95
	6	970362	1	19.25	18.95
H in.	W in.	Stock #	Qty.	\$ ea.	\$ ea./5+
3	3	970373	1	11.95	11.65
	4	970375	1	15.95	15.65
	5	970378	1	19.95	19.65
	6	970380	1	23.95	23.50
	7	970382	1	27.95	27.50
	8	970385	1	31.95	30.95
	9	970369	1	35.95	34.95
	10	970370	1	39.95	38.95



KELVIN®
Wood Mini Bin Filler All 24 in. Long

50	Basswood, 3/32 x 3/32 in. x 24 in. long
50	Basswood, 1/8 x 1/8 in. x 24 in. long
25	Basswood, 1/8 x 3/8 in. x 24 in. long
25	Basswood, 1/4 x 1/4 in. x 24 in. long
10	Basswood, 1/2 x 1/2 in. x 24 in. long
25	Pine, 3/4 x 3/16 in.
25	Pine, 1/2 x 3/16 in.
10	Dowel, 1/8 in. dia. x 24 in. long
10	Dowel, 3/16 in. dia. x 24 in. long
10	Dowel, 1/4 in. dia. x 24 in. long

430524\$135 or \$125 ea./3+

Basswood Beams

6 in. Long, 1/pkg.

H in.	W in.	Stock #	\$ ea.	\$ ea./5+
1	2	970334	2.25	1.95
	4	970336	1.35	1.20
	5	970337	1.95	1.75
H in.	W in.	Stock #	\$ ea.	\$ ea./5+
2	2	970344	1.75	1.50
	3	970345	1.95	1.75
	4	970346	2.95	2.75
	5	970347	5.25	4.95
	5	970348	3.95	3.75
H in.	W in.	Stock #	\$ ea.	\$ ea./5+
3	3	970363	3.25	2.95
	5	970365	5.25	4.95
	8	970368	11.95	11.50

12 in. Long, 1/pkg.

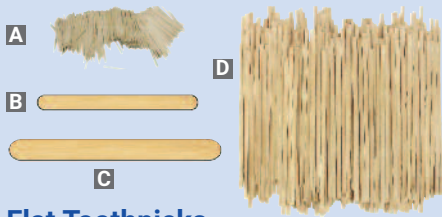
H in.	W in.	Stock #	\$ ea.	\$ ea./5+
1	2	970339	1.35	1.25
	3	970335	1.95	1.75
	4	970342	2.75	2.50
H in.	W in.	Stock #	\$ ea.	\$ ea./5+
2	2	970351	2.75	2.45
	3	970353	3.75	3.45
	4	970356	4.95	4.65
	6	970360	7.25	6.95
	7	970349	8.50	8.25
H in.	W in.	Stock #	\$ ea.	\$ ea./5+
3	3	970371	5.95	5.75
	4	970364	5.95	5.65
	5	970376	9.95	9.65
	6	970366	11.95	11.50
	7	970367	13.95	13.65
	8	970383	15.95	15.45

18 in. Long, 1/pkg.

H in.	W in.	Stock #	\$ ea.	\$ ea./5+
2	3	970354	5.95	5.60
	4	970357	7.50	6.95
	5	970359	8.95	8.75
	6	970361	10.95	10.50
	8	970350	14.25	13.95
H in.	W in.	Stock #	\$ ea.	\$ ea./5+
3	3	970372	8.95	8.75
	4	970374	11.95	11.45
	5	970377	14.75	14.25
	6	970379	17.75	17.35
	7	970381	20.65	20.25
	8	970384	23.75	23.45

Pine Wood Beams

H in.	W in.	L in.	Stock #	Qty.	\$ ea.	\$ ea./5+
1-1/2	2-1/2	7	970217	1	2.95	2.75
3/16	3/8	24	850960	50	92.50	82.50
3/8	3/8	24	970032	50	34.95	32.95
1/2	3/16	24	970048	100	75	73
3/4	3/16	24	970049	100	95	93



Flat Toothpicks

390381 **A** 750/pkg.\$2.95 or \$2.65 ea./10+

Craft Sticks

390372 **B** 3/8 x 4-1/2 in., 1000/pkg.\$18.95

390373 **C** 3/4 x 6 in., 500/pkg.\$19.95

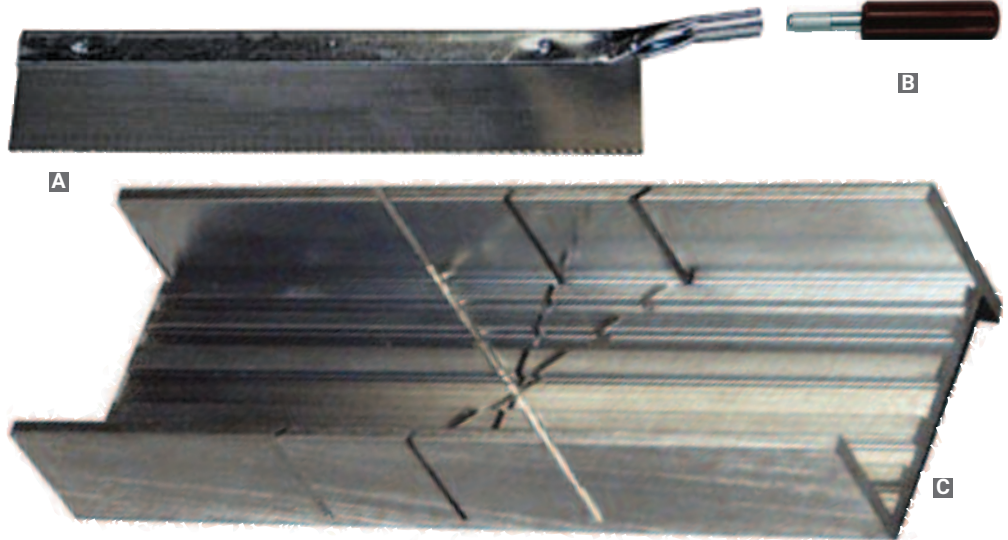
Wood Sticks Bulk Pack

3/16 x 1/16 x 5-1/2 in. 1,000 sticks per pack.

390505 **D**\$14.95 or \$13.95 ea./5+

Wood Dowels

Dia. in.	Stock #	Min. Order	\$ ea./10+	\$ ea./50+
1/8	850628	10	.50	.45
3/16	850629	10	.75	.70
1/4	850630	10	.95	.85
3/8	850621	10	1.40	1.35
1/2	850631	10	2.30	2.25
3/4	850661	10	4.95	4.65
1	850662	10	9.95	9.65



Razor Saw Blades & Handle

470102 **A** 24-Teeth Blade Only 5 in. L.....\$10.95 or \$9.95 ea./12+ or \$9.45 ea./24+

470103 **A** 30-Teeth Blade Only 5 in. L.....\$10.95 or \$9.95 ea./12+ or \$9.45 ea./24+

470104 **B** Handle Only\$6.95 or \$5.95 ea./12+ or \$4.95 ea./24+

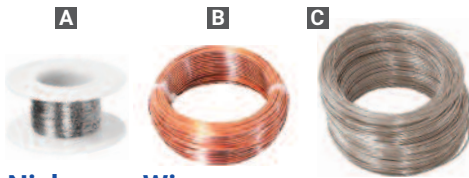
Miter Box

Use the miter box with the Razor Saw above for precise cutting of wood and plastic stock. Cuts 45°, 90° and 180° angles.

470101 **C**\$12.95 or \$12.45 ea./12+ or \$11.95 ea./24+

Find More Saws on pg. 30.

Find Hand Tools on pgs. 28-32.



Nichrome Wire

Can be used as cutter wire for foam cutters (find on pg. 12) and additional projects.

AWG	L ft.	Stock #	Fig.	\$ ea.
24	10	330338	A	9.95
18	10	330340	A	19.95

Copper Wire

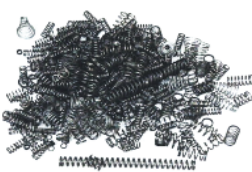
AWG	L ft.	Stock #	Fig.	\$ ea.	\$ ea./5+
18	50	330343	B	24.95	23.95

Steel Wire Galvanized.

AWG	L ft.	Stock #	Fig.	\$ ea.	\$ ea./5+
20	100	330342	C	6.95	6.35

Springs

Assorted springs can be used for hundreds of things such as: robots, student-designed inventions, Rube Goldberg designs, etc.



390377 100/pkg.\$9.95 or \$8.95 ea./3+

Aluminum Tubes

D. in.	L in.	T in.	Stock #	\$ ea.	\$ ea./10+
1/16	12	0.014	390804	3.75	3.45
1/8	12	0.014	390806	4.25	3.95
1/4	12	0.014	390810	4.45	4.25
9/32	12	0.014	390811	2.75	2.55

Brass Rods

Dia. in.	L in.	Stock #	\$ ea.	\$ ea./10+
1/16	12	390815	4.95	4.45
1/8	12	390817	4.75	4.25
5/32	12	390818	5.95	5.75
3/16	12	390819	6.95	6.45

Brass Tubes

Dia. in.	L in.	T in.	Stock #	\$ ea.	\$ ea./10+
1/8	12	0.014	390763	2.95	2.75
5/32	12	0.014	390764	3.95	3.75
3/16	12	0.014	390765	6.95	6.45

Brass Strips

W in.	L in.	T in.	Stock #	\$ ea.	\$ ea./10+
1/4	12	0.016	390823	3.25	2.95
1/2	12	0.016	390824	3.45	3.25
2	12	0.016	390840	7.95	7.75
1/4	12	0.064	390835	6.95	6.45

Copper Tubes

Dia. in.	L in.	T in.	Stock #	\$ ea.	\$ ea./10+
1/8	12	0.014	390781	2.49	2.24

Welding Rods Cut to size.

Dia. in.	L in.	Stock #	Qty.	\$ ea.	\$ ea./10+
1/8	36	391136	80	125	115

Steel Rods

Dia. in.	L in.	Stock #	Qty.	\$ ea.	\$ ea./10+
1/8	2-1/2	390361	100	14.95	13.95
5/32	6	990220	5	3.95	3.75



Tin Sheet

W in.	L in.	T in.	Stock #	\$ ea.	\$ ea./10+
4	10	0.008	390852	4.75	4.55



Metal Sheet

Perforated

W in.	L in.	Stock #	\$ ea.
5	10	391441	3.95



Economy
Foam
Cutter Kit

\$79⁹⁵

Assembled
w/ Starter
Foam

\$89⁹⁵

Assembled
w/ Built-In
Plug

\$99⁹⁵

KELVIN® Economy Foam Cutter

A perfect machine for modeling design ideas and hobbyists at an affordable price! Features economical cutting table with an adjustable wire cutting angle that's simple and quick to set. Cutting area measures 11-1/2 x 11-3/16 in. All versions come with starter set of [5] assorted foam blocks and wall adapter. Uses 26 gauge nichrome wire. 110 V AC. USA plug.

842428	Foam Cutter Kit - Requires Assembly (On/Off Switch Not Included)	\$79.95
841982	Assembled Foam Cutter (On/Off Switch Not Included)	\$89.95
842460	Assembled Foam Cutter w/ Built-In On/Off Plug	\$99.95

CAUTION: Hot Wire! Adult Supervision Required When Using Foam Cutters.

KELVIN® Foam Car

Design, shape, assemble and paint your foam into a car! Each kit includes: [4] wheels, [2] axles, straw, wood base and foam block (2 x 2-1/2 x 8 in.). Shaping and assembly are required.

842386	Kit	\$9.95 or \$8.95 ea./10+
842387	Bulk Pack of 10	\$79



KELVIN® Jumbo Foam Cutter

Extra large cutting area measures 12 x 18 in. Features guide for straight cutting. Arm can be easily tilted for cutting angles. Comes with starter set of [5] assorted foam blocks, on/off switch, power light indicator, plug and DC power supply. Uses 26 gauge nichrome wire. 110 V AC. USA plug.

842546	Jumbo Foam Cutter - Assembled w/ On/Off Switch	\$135
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Nichrome Cutter Wire

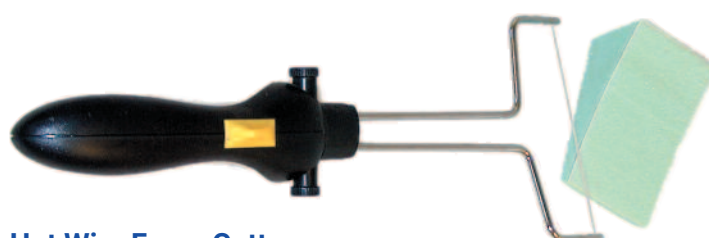
Replacement cutting wire for most foam cutters. 10 ft. long		
330340	18 ga.	\$19.95
330338	24 ga.	\$9.95



KELVIN® Hand Held Foam Cutter

An easy and portable way to cut foam. Includes power supply. Uses 26 gauge nichrome wire. 110 V AC. USA plug.

842117	\$79.95 or \$76.95 ea./3+ or \$74.95 ea./10+
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Hot Wire Foam Cutter

Hand-held cutter includes transformer. 110 V AC. USA plug.

740116	.....	\$69.95
330403	Replacement Wire, 4 in. L	\$9.95

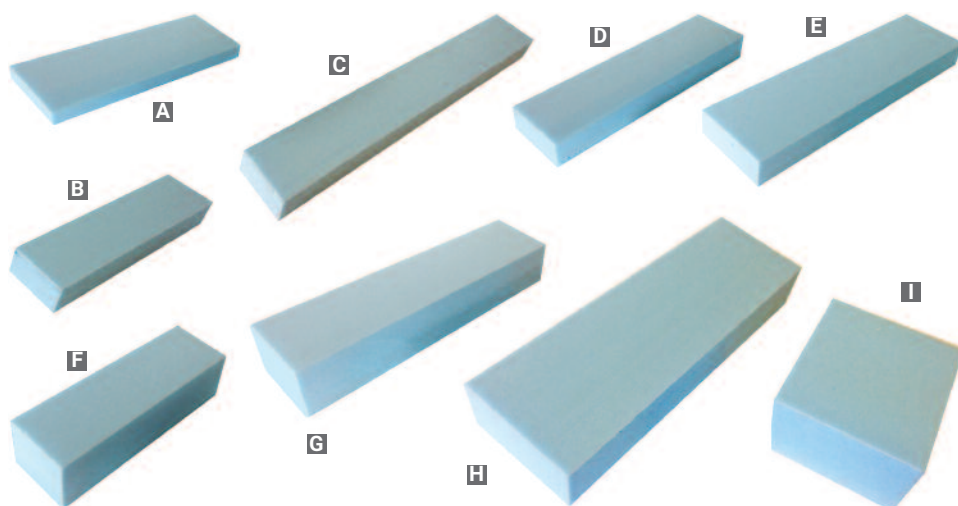
Abrasive Shaping Pads

851197	100/pkg.	\$69
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Polystyrene Foam Blanks

T in.	W in.	L in.	Fig.	Stock #	Qty.	\$ ea.	\$ ea./5+
1/2	3	8	A	391082	10	12.95	10.95
T in.	W in.	L in.	Fig.	Stock #	Qty.	\$ ea.	\$ ea./5+
1	2	8	B	420557	10	13.95	12.95
1	2	14	C	750212	10	14.95	13.95
1	3	8	D	420217	10	13.95	12.95
1	3	10	E	420560	10	14.95	13.95
T in.	W in.	L in.	Fig.	Stock #	Qty.	\$ ea.	\$ ea./5+
2	2.5	8	F	841114	10	14.95	13.95
2	3	12	G	420478	10	15.95	14.95
2	4	12	H	851199	10	17.95	16.95
50T in.	W in.	L in.	Fig.	Stock #	Qty.	\$ ea.	\$ ea./5+
3	4	4	I	750211	10	12.95	10.95



Corrugated Plastic Boards

Build a basic structure with a craft knife, ruler, pencil, felt tip pen, hot glue gun, and rubber bands for holding things together as the glue sets. Quickly create 3D structures, model houses, model bridges, package designs, display pedestals, prototypes, model vehicles and more. 3/8 x 24 x 48 in., Assorted Colors.

750100 8 Sheets.....Oversized Shipping is \$8.95 **\$59.95**

Nylon Hinges

Hinge pin locked in place. 7/16 x 1-1/16 in.

2831022831026/pkg. **\$4.95** or **\$4.45** ea./3+



Acrylic Sheets 12 x 24 x 1/8 in.

Type	Stock #	Color	\$ ea.	\$ ea./8+
Opaque	750014	Red	9.95	9.45
Opaque	750015	Green	9.95	9.45
Opaque	750016	Blue	9.95	9.45
Opaque	750017	Yellow	9.95	9.45
Opaque	750018	Black	9.95	9.45
Opaque	750019	White	9.95	9.45
Type	Stock #	Color	\$ ea.	\$ ea./8+
Clear	750008	Clear	9.95	9.45
Clear	750009	Gray	9.95	9.45
Clear	750010	Red	9.95	9.45



Plastic Cutter

Cuts plastic up to 1/4 in. thick and easily creates beveled edges. 390430, **\$9.95**



High Density Foam

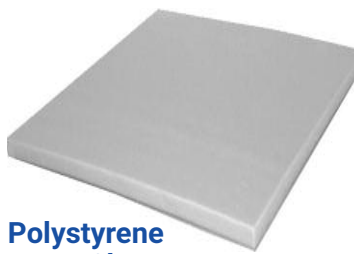
Ideal for model planes and other projects. Price includes oversize shipping.

H in.	W in.	L in.	Stock #	Qty.	\$ ea.
6	24	37	750228	5	79.95



NEW High Density Foam Pack

A value pack of high density foam in a variety of shapes, colors and sizes. Ideal for using to design vehicles like boats, planes, cars and other projects. 990381**\$9.95**



Polystyrene Foam Sheets

Hi-Density polystyrene. Price includes oversize shipping.

H in.	W in.	L in.	Stock #	Qty.	\$ ea.
1	24	24	750166	5	75
2	24	24	750167	5	95
3	24	24	750168	5	120



Foam Trays

High density polystyrene. Ideal for model planes and other projects.

H in.	W in.	L in.	Stock #	Qty.	\$ ea.
5/8	12	16	750053	50	39.95



Architectural Foam Board

Rigid foam board can be used for creating architectural models, boxes, prototypes and much more! Dark gray.

H in.	W in.	L in.	Stock #	Qty.	\$ ea.
1/4	4	24	281605	25	19.95



Foam Blank

Ideal for model cars and other projects.

H in.	W in.	L in.	Stock #	Qty.	\$ ea.
3	3	10	850943	10	8.95



Tempera Paint

Non-toxic paint for posters, cardboard, wood, etc.

All Sizes.....\$6.95 or \$6.45 ea./6+

Color	Size oz.	Stock #
Copper	16	420570
Gold	16	420571
Silver	16	420574
Fluorescent Red	16	420444
Fluorescent Yellow	16	420445
Fluorescent Blue	16	420446
Fluorescent Green	16	420447
Fluorescent Orange	16	420578
Fluorescent Pink	16	420579
Fluor. Chartreuse	16	420580
Fluor. Yel. Orange	16	420581
Red	32	420439
Yellow	32	420440
Blue	32	420441
Green	32	420442
Black	32	420443
Brown	32	420569
Magenta	32	420572
Orange	32	420573
Turquoise	32	420575
Violet	32	420576
White	32	420577



Washable Acrylic Paint

Washable paint with bright colors for the young budding artist.

Any Color.....\$2.95 or \$2.70 ea./6+

Color	Size oz.	Stock #
Black	16	420603
Blue	16	420604
Brown	16	420605
Green	16	420606
Magenta	16	420607
Orange	16	420608
Peach	16	420609
Red	16	420610
Turquoise	16	420611
Violet	16	420612
White	16	420613
Yellow	16	420614

Quality Brush Set

Set of four 7 in. long wood handle brushes: 1/4 in., 1/2 in., 3/4 in. and 1 in. W.

420482 Set of 4\$5.95

Brush

1/4 in. W with 11 in. long handle.

420453 6/pkg.\$4.95



Washable Acrylic Paint

Provides both good coverage and a permanent finish. Non-toxic.

8 oz.\$3.95 or \$3.45 ea./6+

16 oz.\$6.95 or \$6.45 ea./6+

Color	Size oz.	Stock #
Gold	8	420620
Silver	8	420626
Aztec Gold	8	420631
Antique Gold	8	420632
Bronze	8	420617
Copper	8	420619
Black	16	420615
Blue	16	420616
Brown	16	420618
Magenta	16	420622
Peach	16	420624
Red	16	420625
Turquoise	16	420627
Violet	16	420628
White	16	420629
Yellow	16	420630

Economy Brush Set

White bristle brushes with color-coded handles.

420481 Set of 10\$16.95



Construction Paper

Acid-Free. Assorted Colors.

420540 12 x 18 Sheets, 50/pkg.\$14.95

650368 9 x 12 Sheets, 200/pkg.\$29.95

Tissue Paper

20 x 30 in. Sheets

Color	Stock #	Qty.	\$ ea.
White	420519	10	8.95
Blue	420520	10	8.95
Yellow	420521	10	8.95
Red	420522	10	8.95
Black	420523	10	8.95
Green	420524	10	8.95
Asstd	420399	50	29.95

Posterboard

Use for displays, signs and posters. Sheets measure 22 x 28 in. White. Four-ply thickness.

420306 100/pkg.\$75
or \$70 ea./3+



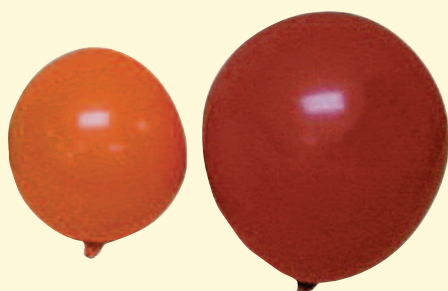
Chipboard

Ideal for use for as models, game boards, etc. Sheets measure 24 x 36 in. Brown.

420309 70/pkg.\$99



BALLOONS



Dia. in.	Stock #	Qty.	\$ ea.	\$ ea./25+
9	870013	144	19.95	17.95
11	870014	100	22.95	19.95



Balloon Pump

Use your hands for blowing up balloons.

870023\$10.95 or \$10.40 ea./3+



Pipe Cleaners

For twisting and shaping into figures, bridges, etc. Assorted colors. 12 in. long.

420511 100/pkg.\$2.95



Modeling Clay

Useful for creating model prototypes and other projects with non-toxic, non-hardening clay. Can be reused when stored airtight.

This assortment contains four 4 oz portions of blue, green, red, and yellow

282009\$7.95



Felt Sheets

Ideal for a variety of arts and crafts. Sheets are 9 x 12 in. Assorted colors. 1 lb.

420550,
\$69.95



Masking Tape 60 yds.

- 340066 1/2 in. W**\$1.85** or **\$1.75** ea./5+
 340070 3/4 in. W**\$1.95** or **\$1.85** ea./5+
 340067 1 in. W**\$3.95** or **\$3.45** ea./5+



Electrical Tape

3/4 in. W x 60 ft. Long.

- 340005 Black.....**\$1.95** or **\$1.75** ea./10+
 340006 Red.....**\$2.25** or **\$1.95** ea./10+
 340157 White.....**\$2.25** or **\$1.95** ea./10+
 340158 Green.....**\$2.25** or **\$1.95** ea./10+
 340139 4 Color Set**\$7.45** or **\$6.95** ea./5+

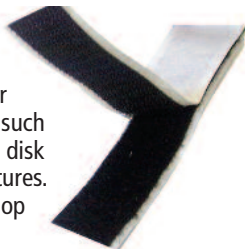


Duct Tape Gray. 60 yds.

- 340152 2 in. W.....**\$9.95** or **\$8.95** ea./5+

Velcro Tape

Self-adhesive velcro strips can be used for a variety of projects, such as: elbow protectors, disk holders, hanging pictures. Includes hook and loop sides. 1 in. wide.



- 340133 3 ft. L**\$5.95**
 340154 32 ft. L**\$28.95**



Cool Melt Mini Glue Gun

Features a trigger feed. Uses 5/16 in. dia. hot/cool glue gun sticks.

- 920041**\$6.95** or **\$5.95** ea./6+

Cool Melt Mini Glue Gun w/ Glue Sticks

- 842552**\$14.95**



Hot/Cool Melt Glue Gun

With 2-temperature switch & trigger feed. Uses 1/2 in. dia. hot/cool or hot melt glue gun sticks.

- 920021**\$19.95** or **\$18.95** ea./6+

Glue Gun Sticks, 1/2 in. dia.

Melt Temp.	L in.	Stock #	Qty.	\$ ea.	\$ ea./10+
Hot/Cool	4	990157	6	1.50	1.25
Hot/Cool	4	930052	100	29.95	24.95

Melt Temp.	L in.	Stock #	Qty.	\$ ea.
Hot/Cool	10	920033	20	14.95
Hot Only	4	930002	30	14.95
Hot Only	4	930032	100	39.95

CAUTION: Hot Wire! Adult Supervision Required When Using Glue & Glue Guns.



All-Purpose Glue Stick

Use to glue photos, paper and fabrics.

- 930011 **A** 0.22 oz.**\$1.65** or **\$1.00** ea./6+

School Glue

Works on a variety of materials. Non-toxic, white glue dries clear.

- 930007 **B** 4 oz.**\$2.45** or **\$1.95** ea./6+

Balsa & Basswood Glue

- 930046 **C** 1 oz.**\$1.95** or **\$1.75** ea./6+

Tacky Glue For paper, wood and crafts.

- 930049 **D** 4 oz.**\$6.95** or **\$6.45** ea./6+

Carpenter's Interior Wood Glue

For furniture repair and general projects.

- 930014 **E** 4 fl oz.**\$6.95**

Krazy Glue

Bonds instantly. Ideal for most surfaces including wood, plastic, metal, rubber, glass, and ceramic.

- 510005 **F****\$2.95** or **\$2.65** ea./6+

Super Glue

Bonds in seconds. Clog resistant tip. One drop application. Works on plastics, porcelain or leather.

- 930019 **G** 2 grams**\$3.25** or **\$2.95** ea./6+

Super Fast Epoxy Cement Two Parts

Sets in 5 minutes! Bonds wood, metal, most hard plastics, glass, marble, concrete, tile and brick.

- 930012 **H** 0.5 oz.**\$9.95** or **\$8.95** ea./6+

Epoxy Adhesive Industrial strength

Binds in 4-6 minutes. Use with ceramic, glass, wood, leather, fiberglass, metals, most plastics, and more.

- 930058 **I****\$9.95** or **\$8.95** ea./6+



Twine

Plied cotton twine for a variety of uses. 300 ft.

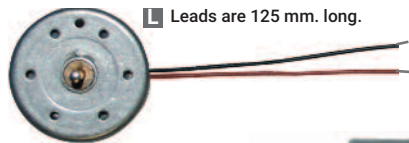
- 330400**\$12.95**



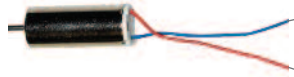
Find Project Wire in Electronics on pg. E 22.

Project Motors with Solder Tabs Always Great Prices & Great Value!

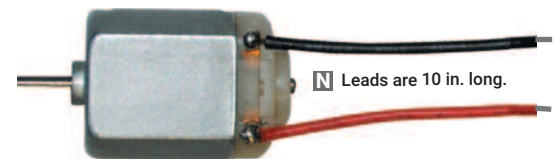
Volt. Range (V)	Nom. Volt. (V)	Current (A)	Speed (rpm)	Torque (g/cm)	Shaft Dia. (mm)	Shaft L. (mm)	Size (mm)	Stock #	Fig.	\$ ea.	\$ ea./10+	\$ ea./100+
0.9 - 1.6	1.5	0.1	6,500	—	10	—	10 x 12.4	851257	A	3.45	3.25	2.95
1 - 6	6	0.041	10,500	4.3	1.5	4	15.5 x 24.1	851255	B	2.65	2.45	2.25
1.2 - 3	1.5	0.34	10,200	6.81	2	8.1	20 x 25	850646	C	1.95	1.75	1.65
1.5 - 3	2.4	0.096	15,800	2.7	1	3.6	12 x 15	851256	D	3.65	3.45	2.95
1.5 - 3	3	0.7	14,400	12.4	2	8.1	20 x 25	851254	E	2.25	1.95	1.75
1.5 - 6	6	0.12	12,000	—	1.5	3.5	18 x 10 x 19	851165	F	1.65	1.55	1.45
3 - 6	6	0.26	17,000	20.72	2	6.5	23.5 x 27	850647	G	2.25	1.95	1.75
6 - 12	12	0.14	12,500	44.2	2	10	24 x 32	850887	H	2.75	2.45	2.25
6 - 12	12	0.7	16,200	236.5	3	8.5	35.7 x 71.5	850941	I	6.95	6.45	5.95
6 - 18	12	0.75	7,205	587	2.2	13.7	37.5 x 27.8	851934	J	5.95	5.75	5.45
12 - 30	30	1.31	12,800	238.4	3	8.5	35.7 x 71.5	850962	K	9.95	8.95	8.45



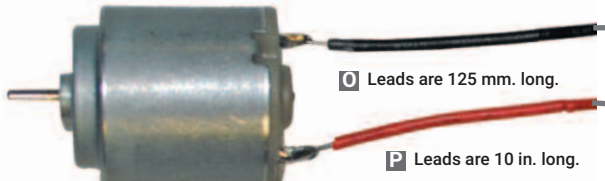
L Leads are 125 mm. long.



M Leads are 30 mm long.



N Leads are 10 in. long.



O Leads are 125 mm. long.



Q Leads are 30 mm long.

Project Motors with Wire Leads

Volt. Range (V)	Nom. Volt. (V)	Current (A)	Speed (rpm)	Torque (g/cm)	Shaft Dia. (mm)	Shaft L. (mm)	Size (mm)	Stock #	Fig.	\$ ea.	\$ ea./10+	\$ ea./100+
0.7 - 5	2	0.018	2,200	2.8	2	6	25 x 13.5	851105	L	3.35	2.95	2.75
1 - 2.4	1.5	0.056	21,300	6.4	1	4.2	7 x 16.6	851259	M	3.35	2.95	2.75
1.2 - 3	1.5	0.34	10,200	6.81	2	8.1	20 x 25	851949	N	2.95	2.75	2.45
1.5 - 3	1.5	0.30	10,000	60	2	8.5	23.5 x 27	851230	O	3.15	2.85	2.55
3 - 6	6	0.26	17,000	20.72	2	6.5	23.5 x 27	851950	P	3.25	2.95	2.65
3.6 - 6	4.5	0.029	28,580	9.4	1	2.8	10 x 12.4	851258	Q	3.95	3.55	3.25



Competition Sprint Motors

Model #	Volt. Range (V)	Current (mA)	Speed (rpm)	Torque (g/cm)	Shaft Dia. (mm)	Shaft L. (mm)	Size (mm)	Stock #	Fig.	\$ ea.	\$ ea./10+
260	1.5 - 3	120	6,500	51	2	6	23 x 31	851342	R	2.25	1.95
280	1.5 - 3	200	8,200	142	2	10	23 x 34	851343	S	2.25	1.95
370	12	16	3,500	119	2	9	24 x 33	851360	T	9.95	8.95

Servo Motor

Lightweight motor outputs 44 to 57 oz. of torque per inch. 4.8-6V DC. Futaba S3003. Works with wheel 391460 on pg. 24.

851878\$14.95 or \$12.45 ea./5+



Micro Servo Motor

9g. Works with SoFast® Arduino Playground (pg. R 2 in Robotics).
283807\$9.95



A



B



C



D



E



F






KELVIN® Project Motors Bin Filler

10 A Solar Motor, 0.7-5 V	10 E Motor w/ Leads, 1.2-3 V
10 B Adv. Solar Motor, 1.2-3 V	10 F Motor w/ Leads, 3-6 V
10 C Hi-Speed Motor, 3-6 V	50 Pre-Cut Wire, Stranded, Red
10 D Robotics Motor, 6-12 V	50 Pre-Cut Wire, Stranded, Black

430518Valued at \$144 **\$135** or **\$125** ea./3+

Valued at **\$144**



Works with small and large motors (sold separately).



KELVIN® Universal Motor Mount

This unique motor mount can be used with the insert for smaller motors (like 850646 or 851949) or it can be used without the insert for bigger motors (like 850647, 850887, 851230, and 851950). Set includes mount and insert.

990364 **A** 10/pkg.**\$7.95** or **\$7.45** ea /10+

Motor & Syringe Mounts

Fits 1/2 in. dia. / 10 cc Straight Syringe

390963 **B****75¢** or **66¢** ea /5+

Fits 3/4 in. dia.* / 30 cc Luer Syringe

*Fits: 850647, 851950, 851230, 850887, and 851105.

390967 **B****\$1.25** or **\$1.05** ea /5+

Fits 1 in. dia. / 60 cc Luer Syringe

390962 **B****\$1.69** or **\$1.60** ea /5+

Fits 3/4 in. dia.

390726 **C****\$2.95** or **\$2.50** ea /5+

Fits 1-1/4 in. dia.

390727 **C****79¢** or **69¢** ea /5+

Fits 3/4 in. dia.* / 20 cc Luer Syringe

*Fits: 850646 and 851949.

390588 **D****\$9.95** or **\$8.95** ea /5+

Fits 7/8 in. dia.* / 30 cc Luer Syringe

*Fits: 850647, 851950, 851230, 850887, and 851105.

390572 **D****\$9.95** or **\$8.95** ea /5+



A Mount



B Insert




C




D


A



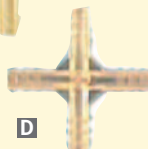
B



C



D



Tubing Connectors Fits 1/8 in. dia. Tube



390398 **A** 2-Way**\$2.75** or **\$2.55** ea./10+

390399 **B** 3-Way 'Y'**\$2.25** or **\$1.95** ea./10+

390400 **C** 3-Way 'T'**\$2.25** or **\$1.95** ea./10+

390401 **D** 4-Way**\$4.95** or **\$4.45** ea./10+

Tubing Control Valves Fits 1/8 in. dia. Tube

3-Way Control Valve

390617**\$3.25** or **\$2.95** ea./10+

Tubing

Cut to length and use what you need.

1/8 in. inside dia.

390450 Plastic, 5 ft.**\$3.95**

842601 Vinyl, 10 ft.**\$9.95** or **\$8.95** ea./3+

390314 Vinyl, 100 ft.**\$24.95**



3/16 in. inside dia.

390696 Vinyl, 100 ft.**\$34.95**

Syringes

Fits 1/8 in. dia. tubing.

Volume	Stock #	Qty.	\$ ea.
3 cc	390975	10	3.95
6 cc	390976	10	4.95
10 cc	390977	10	5.95
20 cc	390978	10	8.95
30 cc	390979	10	14.95
35 cc	390980	10	15.95
60 cc	390981	10	16.95

KELVIN® Hands-On Science® Lab: Experimenting with Syringes

Accessory pack includes a large (60cc) syringe, [3] medium (20cc) syringes and [3] small (6cc) syringes along with 25 ft. of 1/8 in. dia. tubing.

842420**\$23.95** or **\$21.95** ea./3+

**KELVIN®
Gear Box
w/ Wheel
& Mounting
Bracket**

Kit includes:
gear box, wheel
mounting bracket,
wheel assembly, and hardware.

842398 **A** Kit\$19.95 or \$19.45 ea./5+

Gear Box Motor Only

1:48 gear ratio. Double axis. 3-6V DC. Works with
wheel 391458 on pg. 21.

391457 **B**\$7.95 or \$7.45 ea./10+

Economy Gear Box & Inline Motor

1:120 gear ratio, 100 RPM. 3-6V DC. Works with
wheel 391458 on pg. 21.

282396 **C**\$7.95 or \$7.45 ea./10+

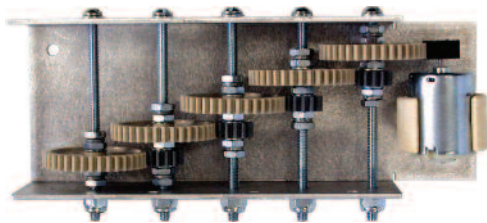
Gear Box

Easier to mash. Ideal for use with transfer of energy
activities, gears, solar cell project designs, battery
car models. 6-12V DC. Output shaft is 3mm dia.

841219 **D**\$4.95 or \$4.45 ea./10+

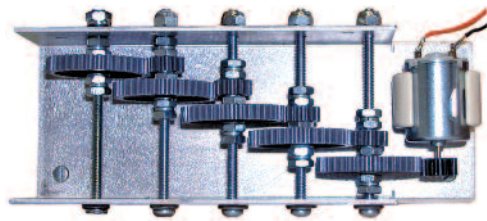
KELVIN® Robotic Gear Box Kits

Build a gear box for robots or where a gear reduction
or gearing change is needed. Kits include: pre-
punched U-shaped bracket, motor, axles, gears,
attachment hardware and instructions. Box measures
2.5 x 6.7 x 1.70 in. Wheels sold separately. Students
must enlarge holes in the gears to fit.

**Gear Box for 1 Wheel**

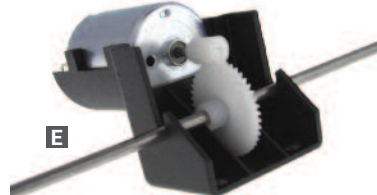
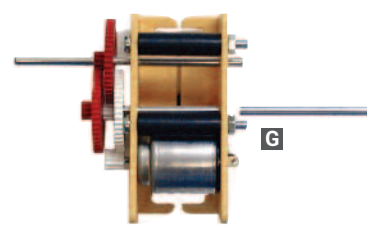
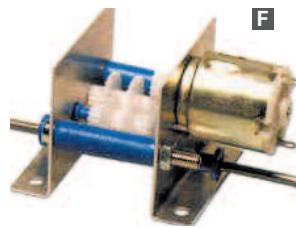
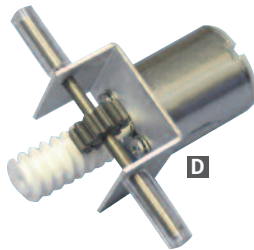
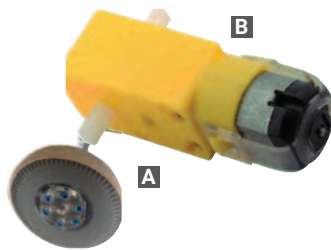
Connects to 1 Wheel. Ideal for multiple directional
changes. Two gear boxes are required to transmit
power to each wheel.

282360 Kit\$29.95 or \$27.95 ea./4+

**Gear Box for 2 Wheels**

Connects to 2 Wheels. Suitable for forward and
backward motion with both wheels being driven by
the same gear box.

283122 Kit\$29.95 or \$27.95 ea./4+

**Clunk-Click Gear Box**

Easy to assemble and take apart. Comes with motor
holder and gears. 1-6V DC, 0.1-1.0 A (load
dependent). 2mm dia. shaft.

281739 **E** Kit\$6.95 or \$5.95 ea./10+

Universal Gear Box

Expand up to 6 gear ratios. It has metal side plate.
1.5-4.5 VDC. Output shaft is 4mm diameter.

281740 **F**\$19.95 or \$18.95 ea./3+

Motor & Gear Box Kit

5:1 up to 1125:1 gear ratios. 3mm dia. shaft. Kit
includes an RC20 motor (1.5-4.5V DC).

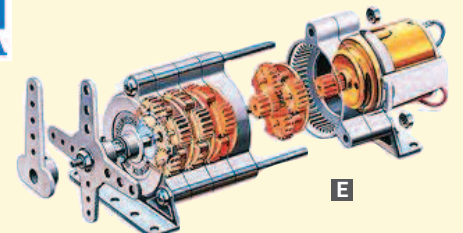
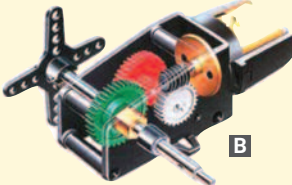
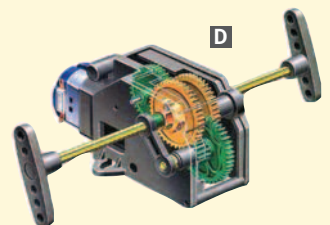
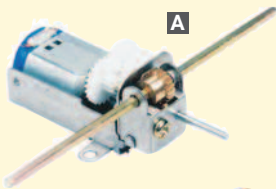
280411 **G** Kit\$12.95 or \$11.95 ea./3+

Heavy Duty Gear Box & DC Motor

Gear box and motor measures 1 in. dia. x 2-7/8 in.
long. Shaft measures 0.15 in. dia. x 3/8 in. long.

851494 **H** 15:1, 1-3V\$13.95 or \$12.95 ea./10+

851100 100:1, 6-12V\$20.95 or \$19.95 ea./10+

**Tamiya Universal Gear Box & Motor**

Power a shaft in a horizontal or vertical position
relative to the motor. Various arrangements of
gears produces ratios of 101:1, 269:1, 719:1.

281651 **A** Kit\$18.95 or \$17.95 ea./3+

**Tamiya High Efficiency Worm
Gear Box & Motor**

Produces extremely low speeds of rotation and
useful for gear reduction. Gear ratios include
216.1:1 and 336.1:1. Includes motor (3-4.5 V).

281649 **B** Kit\$25.95 or \$23.95 ea./3+

Tamiya Twin Motor Gear Box

This ready to assemble gear box uses two electric
motors to independently control each of the
output shafts. Two gear ratios, 207:1 or 58:1 can
be selected. Used for SUMO Car™ and other
robotics projects.

281650 **C** Kit\$26.95 or \$24.95 ea./3+

**Tamiya 4-Speed Crank Axle
Gear Box & Motor**

Alter gear combinations for four gear ratios
(126:1, 441:1, 1543:1, 5402:1). Higher speed is
suitable for car; lower speed for tracked vehicles
and more.

281652 **D** Kit\$25.95 or \$24.95 ea./3+

Tamiya Planetary Gear Box

A highly versatile system for reduction of high
RPM electric motors to high-torque low RPM
applications. Combine gear boxes in various
ways for eight different gear ratios (4:1, 5:1,
16:1, 20:1, 25:1, 80:1, 100:1, and 400:1).

281665 **E** Kit\$32.95 or \$30.95 ea./3+

Solar Cells with Leads

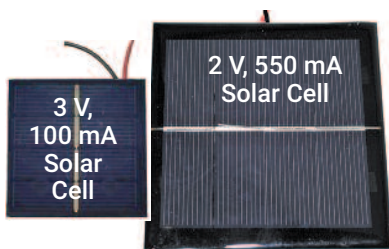
Red and black stranded wires.
Leads measure 10 in. long

3 V, 100 mA 2 x 2 in.

220103 ..\$7.95 or \$7.45 ea./10+

2 V, 550 mA 4 x 4 in.

260197 ..\$9.95 or \$8.95 ea./10+



Laminated Solar Cells

Laminated in a high quality resin on a PC board with excellent moisture resistance. Each cell has a solder lug for attaching wire. All laminated cells are 4 mm thick.

260188 0.5 V, 250 mA, 32 x 60 mm\$7.95 or \$7.45 ea./6+

260189 0.5 V, 500 mA, 62 x 46 mm\$9.95 or \$8.95 ea./6+

260190 1 V, 250 mA, 62 x 46 mm\$10.95 or \$10.45 ea./6+

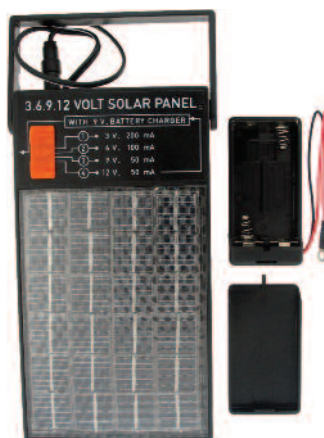
260193 1.5 V, 500 mA, 62 x 120 mm\$22.95 or \$20.95 ea./6+



Battery Charger with Solar Panel

For AA and 9V batteries with included adapters or us switch to select different DC voltages (3, 6, 9, or 12). Solar cell measures 165 x 89 x 25 mm. 600 mW.

280202\$21.95 or \$20.95 ea./10+



Find More Solar Cells and
Solar Activities in
Power & Energy
on pgs. S 5-7.

KELVIN® Hands-On Science® Alternative Energy Battery Charger w/ Solar Cell

Includes: Solar Cell (2 V, 200 mA, 2 x 2 in.), AA battery holder and insulated alligator clips with leads. Requires [1] AA NiCad battery (220025, see below).

220163\$5.95 or \$5.65 ea./10+

KELVIN® Hands-On Science® Alternative Energy Battery Charger w/ Solar Cell and Solar Motor

Includes: Solar Motor (851105) and Solar Cell with Alternative Energy Battery Charger (220163 above). Requires [1] AA NiCad battery (220025).

842411\$6.95 or \$6.75 ea./6+

220025 Ni-Cad Battery, AA, 500 mAh\$1.95 or \$1.75 ea./10+



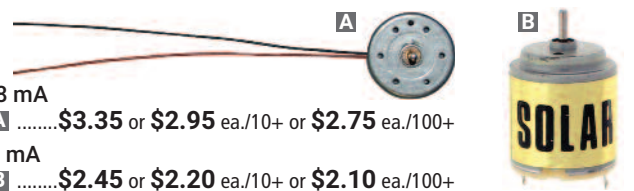
Solar Motors

0.7-5 V, 18 mA

851105 **A**\$3.35 or \$2.95 ea./10+ or \$2.75 ea./100+

1.5 V, 140 mA

851363 **B**\$2.45 or \$2.20 ea./10+ or \$2.10 ea./100+



KELVIN® Hands-On Science® Battery Backup Power Kit

Convert your solar racer to battery power for indoor rainy day testing. Includes battery holder, slide switch and wire. Requires AA batteries.

840694 **C**\$3.95 or \$3.65 ea./12+

Rechargeable Light Source

Helps Power Solar Activities Indoors. Provides light power equivalent to 10,000,000 candles. Charger is included.

260204 **D**\$125



A



B

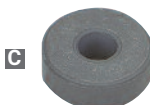
Disc Magnets

Dia. in.	T in.	Stock #	Fig.	\$ ea.	\$ ea./50+	\$ ea./100+
1/2	1/4	640097	A	.19	.17	—
3/4	3/16	640098	A	.19	.17	—
1	5/32	640099	A	.65	.60	.55

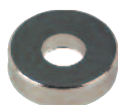
Neodymium Disc Magnets

Dia. in.	T in.	Grade	Stock #	Fig.	\$ ea.
1/4	1/4	N42	640131	B	1.25
3/8	1/8	N42	640127	B	3.25
1/2	1/8	N42	640128	B	1.95
1/2	1/4	N42	640121	B	1.59
1/2	1/2	N42	640129	B	2.95
3/4	1/8	N42	640122	B	2.25
1	3/8	N48	640123	B	9.95

Find Magnet Strips
in Transportation
on pg. T 24.



C



D

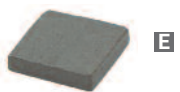
Ring Magnets

Dia. in.	Hole in.	T in.	Stock #	Fig.	\$ ea.	\$ ea./100+
1/2	3/16	1/8	640096	C	.49	.44
3/4	1/4	1/4	640095	C	.35	.30

Neodymium Ring Magnet

3/4 in. dia. with 1/4 in. dia. hole. 1/4 in. thick.

640130 **D**\$4.95



E



F

Bar Magnets

L in.	W in.	T in.	Stock #	Fig.	\$ ea.	\$ ea./100+
1/4	1/4	3/32	640100	E	.59	.49
1/4	1/2	3/16	640091	E	.39	.35

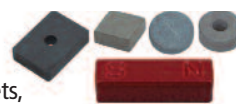
Ceramic Bar Magnet

Red ceramic bar magnet with north and south polarity marked. Measures 1/4 x 5/16 x 13/16 in.

640109 **F**45¢ or 43¢ ea./3+ or 39¢ ea./6+

KELVIN® Magnets Bulk Pack

[25] Maglev Magnets,
[10] Square Magnets,
[2] Bar Magnets,
[5] Rectangular Magnets,
[10] Disc Magnets (1/2 in. dia.),
[5] Disc Magnets (3/4 in. dia.), [5] Ring Magnets.
841584 62 Magnets\$15.95 or \$14.95 ea./6+



Magnet Set

[90] Disc Magnets
(small, medium, large),
[40] Ring Magnets (small, large),
[40] Bar Magnets (small, medium).
640106 170 Magnets\$21.95 or \$19.95 ea./3+



Valued at \$79
Magnets Bin Filler

[10] N/S Magnets, [50] Bar Magnets (2 sizes), [10] Neodymium magnets, [50] Disc Magnets, [50] Ring Magnets, and [50] Holed Magnets.
430520 220 Magnets\$75 or \$65 ea./3+



KELVIN® Super Economy Gear Sets

Set of [4] different-sized gears with holes for attaching to each other with screws. Large gear diameter is 1-5/8 in. Small gear fits 2mm toy motor shafts. The other gears push-fit 3mm (1/8 in.) shaft/axle. Made of 1/4 in. thick durable plastic.

990179 Blk...\$1.25 or \$1.15 ea./10+ or 95¢ ea./50+
990174 Green\$1.45 or \$1.25 ea./10+



Deluxe Gear Set

Set includes: [4] 10-tooth gears, [4] 20-tooth gears, [4] 30-tooth gears, [4] 40-tooth gears, [4] 50-tooth gears, [4] rack & pinion gears (1/4 & 1/2 in.), [2] racks (2 in. L), and [6] axles (1/8 in. dia.).

750112 Set.....\$69.95 or \$67.95 ea./3+

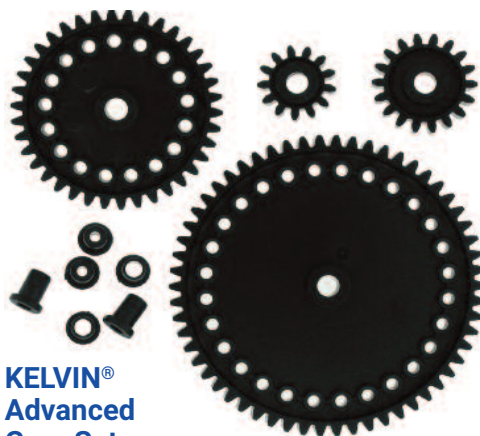
Build Your Own® Gear Combinations!



KELVIN® Hands-On Science® Inertia Welder

Make your own gear combinations. Includes a special KELVIN® jig, class pack of gears to start welding and PowerPoint presentation. Requires drill stand or drill press and teacher supervision.

841310\$145



KELVIN® Advanced Gear Set

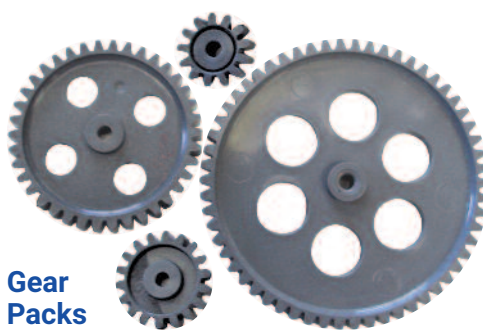
Evenly spaced holes near the edge can be used to attach gear to a wheel, pulley or other objects. Gears measure: 9/16 in. dia. (13 teeth), 3/4 in. dia. (18 teeth), 1-9/16 in. dia. (38 teeth), and 2-11/32 in. dia. (58 teeth). Set includes four center hole inserts to 1/8 in. and one insert to 2mm. Gears are 1/4 in. thick.

391128\$2.45 or \$1.95 ea./10+

Slotted Optocoupler

Use with 391128 to measure velocity, acceleration or distance.

270115 5V DC.....\$3.95



Gear Packs

Fits 1/8 in. (3mm dia.) axle.

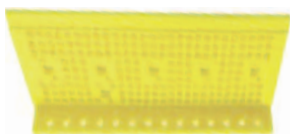
390633 15 mm, 13-tooth, 10/pkg.\$3.95

390634 20 mm, 18-tooth, 10/pkg.\$3.95

390635 40 mm, 38-tooth, 10/pkg.\$4.45

390636 60 mm, 58-tooth, 10/pkg.\$5.95

Mounting Bracket for Motor & Gears



Designed to be used with the Super Economy Gear Set (990179 or 990174) and 3 - 6 V DC motor (851940). Can work with other gears and motors. 5-7/8 x 2-3/8 in.

990204 5/pkg.\$9.95 or \$8.95 ea./10+
or \$7.95 ea./25+

Mounting Bracket for Small Gears



Works with these small gears: 390623, 390629, and 390632. Measures 1.18 x 2.08 in.

390627 2/pkg.\$4.95 or \$4.45 ea./3+

This End
Fits 1/8 in.
Shaft



This End
Fits 2mm
Shaft

KELVIN® Worm Gear

Features two axle hole sizes. One end fits a 2mm motor shaft and the other end fits a 1/8 in. axle.

990377 Black, 10/pkg.....\$9.95

Worm Gear

1-1/4 in. long. Fits 2mm shaft.

390621 White, 10/pkg.\$9.95 or \$9.45 ea./3+



Gear Rack

50mm (2 in.) long with 1/16 in. mounting holes.

390626 10/pkg.\$8.25 or \$7.75 ea./3+

KELVIN® Gear & Pulley Combo

Fits 2mm (project motor) shaft. 20/pkg.

390585was \$3.95 or \$3.45 ea./3+ Now \$1.95



Bevel Gears

20mm diameter gears with beveled edges. Fits a 1/8 in. or 3mm diameter shaft.

390622 10/pkg.\$11.95 or \$10.95 ea./3+



KELVIN® Kre8® Bevel Gears

Measures 0.79 in. dia with 0.16 in. dia. axle holes. 20 teeth per gear.

391361 20/pkg.\$12.95

391383 100/pkg.\$49.95



Motor Pinion Gears

10-tooth gear fits 2 mm shaft.

390623 10/pkg.....\$2.50



Axle Hole Reducers

Adjust the size of the gear or pulley hole to what you need. Fits snugly. 10/pkg.

390632 1/8 in. (3mm) to 2 mm\$2.45

390629 3/16 in. (4mm) to 2 mm\$2.45



Sprocket Chain Cut to Size

Measures 1/4 x 36 in. long. 5 links per inch.

750113\$5.95 or \$5.45 ea./3+



Gears & Pulleys Bin Filler

10	Worm Gear	10	Gear/Pulley Combo
10	Super Economy Gear, Set of 4	5	Economy Pulley, Set of 4
10	Advanced Gear, Set of 4	2	Sprocket Chain, 36 in. L
10	Gear/Motor Mounting Bracket	20	Rubber Band, 2-3/4 in. L
5	Bevel Gears	2	Cams, Set of 4

430517Valued at \$68 **\$58** or **\$53** ea./3+

Valued at
\$68



KELVIN® Project Parts Bulk Pack

Includes: [2] cam sets (4 ea.), [2] pulley sets (4 ea.), [2] gear sets (4 ea.), and [4] propeller sets (2 ea.).

841586**\$9.95** or **\$8.95** ea./6+

Find S.T.E.M. Bin Fillers with Propellers, Wheels, Gears, Pulleys and more on pgs. 2-7.



Cams

A set of four cams: one eccentric, one regular and two pear-shaped.

391189 Set of 4**\$3.95**

390423 Bulk Pack of 20 Sets.....**\$49.95**

Crank Handle

Use this crank handle to turn pulleys, gears, and whatever you can think of. Crank handle fits a 3/16 in. diameter shaft. 30/pkg

390610 ..**\$19.95** or **\$18.95** ea./3+



KELVIN® Economy Pulley Set

An economical set of four pulleys. 10mm. dia. pulley fits 2mm shaft. 20mm dia. pulley fits 1/8 in. shaft. 30mm dia. pulley fits 1/8 in. shaft. 40mm dia. pulley fits 1/8 in. shaft.

841538 Set**\$1.95** or **\$1.75** ea./10+ or **\$1.65** ea./100+

Drive Belts for Pulleys

For precise motion transfer. 5/pkg.

841937 60mm**\$6.95** or **\$5.95** ea./3+

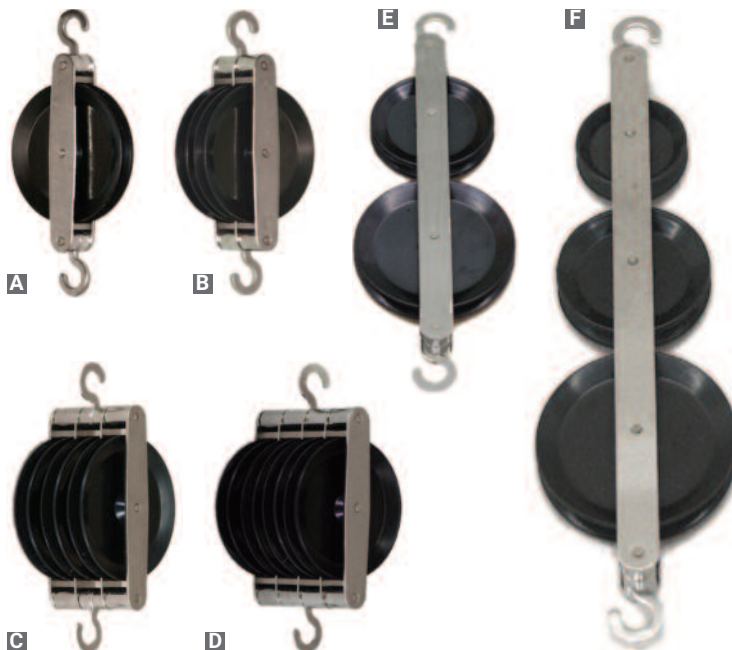


KELVIN® Creative Crane Pulley

Pulley fits a 2mm motor shaft or a 1/8 in. dia. axle. Inside width is 3/8 in. and overall width is 0.94 in. (the inner dia. is 0.28 and the outer dia. is 1-1/2 in.). Has holes in side wall to thread string through.

990212 10/pkg.**\$9.95** or **\$8.95** ea./3+

Find the Creative Crane in Architecture & Design on pg. AD 24.

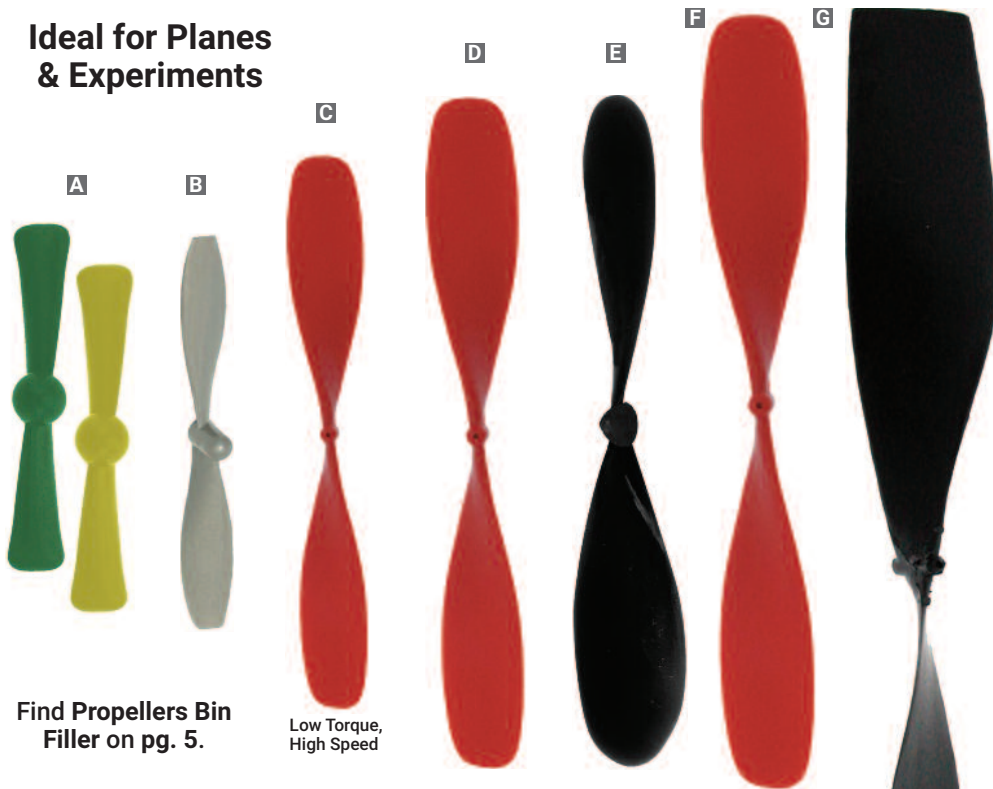


High Quality Pulleys

For all your experiments. Style may vary. Pulleys measure 50 mm in diameter.

Type	Stock #	Fig.	Qty.	\$ ea.	\$ ea./10+
Single	710062	A	1	2.25	1.95
Double	710063	B	1	3.45	3.25
Triple	710064	C	1	4.50	4.25
Quadruple	710068	D	1	6.45	5.95
Double Tandem	710065	E	1	5.95	4.95
Triple Tandem	710075	F	1	4.95	4.45

Ideal for Planes & Experiments



Find Propellers Bin Filler on pg. 5.

Low Torque,
High Speed

Stock #	Dia. in.	Fits Axle Dia.	Color	Fig.	Qty.	\$ ea.	\$ ea./10+	\$ ea./25+	\$ ea./50+	Each As Low As
851314	3	2 mm	Yel., Grn.	A	8	5.95	5.45	5.25	4.95	.62
990332	3.5	2 mm	Gray	B	5	5.95	5.45	5.25	4.95	.99
850632	5	3/64 in.	Red	C	4	1.45	1.35	1.25	1.00	.25
850889	6	3/64 in.	Red	D	1	.75	.69	.65	.63	.63
990334	6	2 mm	Black	E	1	2.95	2.45	2.25	1.95	1.95
850890	7	3/64 in.	Red	F	1	.85	.80	.75	.70	.70
990335	7	2 mm	Black	E	1	3.95	3.45	2.95	2.45	2.45
850926	9	3/64 in.	Black	G	1	.95	.90	.85	.80	.80



Rubber Band Hand Winder

Easily wind rubber bands for nose hook propellers or other uses.

283694 1:10\$36.95



Rubber Bands & Motor Loops

Stock #	Length	W in.	Fig.	Qty.	\$ ea.
391358	1.77 in.	1/16	M	100	7.95
391359	2.36 in.	1/16	M	100	7.95
420436	2-1/2	1/16	M	1 lb.	7.95
420231	3	1/8	M	1/4 lb.	6.95
420230	3	1/8	M	1 lb.	14.95
420235	3-1/2	1/4	M	1/4 lb.	12.95
420236	3-1/2	1/4	M	1 lb.	19.95
420312	Assorted		M	2 oz.	10.95
850695	7 in.	1/8	N	35	9.95
850658	50 ft.	1/8	O	1	12.95
420749	225 ft.	1/8	O	1	39.95



Set of 8 in
Yellow/Green

Stock #	Dia. in.	Fig.	Qty.	\$ ea.	\$ ea./10+	\$ ea./25+	\$ ea./50+	Each As Low As
990175	3	H	8	5.95	5.45	5.25	4.95	.62
851315	3	I	8	5.95	5.45	5.25	4.95	.62
851459	3	J	4	6.95	6.75	5.95	5.60	1.40

Stock #	Dia. in.	Fig.	Qty.	\$ ea.	\$ ea./10+	\$ ea./25+	\$ ea./50+	Each As Low As
851107	4.5	K	1	2.95	2.45	2.25	1.95	1.95
850891	5	L	1	3.45	3.25	2.95	2.65	1.85



KELVIN® Kre8® Safety Propellers

Dual purpose, push-fit propeller. Can be used as a free flier or a normal propeller.

Stock #	Dia. in.	Quantity	\$ ea.
391369	2.95	10	14.95
391384	2.95	20	28.95



KELVIN® Safety Propellers

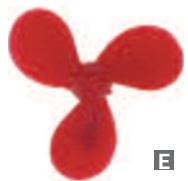
Force fits onto any small electric motor with 2mm dia. shaft but has the advantage of a safety ring preventing contact with spinning blade tips. Blue. 125mm (4.92 in.) dia.

990338 10/pkg.\$19.95 or \$15.95 ea./3+



Nose Hook Propellers

Dia. in.	Fits in.	Stock #	Fig.	Qty.	\$ ea.	\$ ea./10+	\$ ea./25+	\$ ea./50+
5	0.21 x 0.45	851219	A	1	1.95	1.85	1.75	1.65
6	0.135 x 0.35	850654	B	1	1.95	1.85	1.75	1.45
5.9	0.3125 x 0.09375	990337	C	1	9.95	8.95	8.45	7.95
7	0.25 x 0.125	851458	D	4	9.95	8.95	7.95	7.45



E



F



G



H

Boat Propellers

Stock #	Dia. in.	Fits Axle Dia.	Color	Fig.	\$ ea.	\$ ea./10+	\$ ea./25+	\$ ea./50+
851102	1	2 mm	Red	E	1.35	1.25	1.15	1.05
850651	1-1/4	3 mm	White	F	1.75	1.65	1.55	1.45
851166	1-3/4	3 mm	White	G	1.75	1.65	1.55	1.45
990324	2-1/4	2 mm	Blue	H	1.95	1.75	1.65	1.55

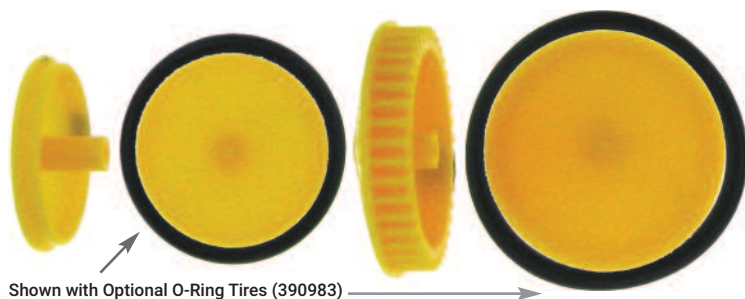
Find Wheels Bin Filler on pg. 5.



KELVIN® Big Wheels

Turn big 3 in. dia. wheels into gear wheels using the center holes to mount gears with screws and nuts. Push fits 1/8 in. axle. Works with 990199 (see left).

990176 Blue and yellow. 4/pkg.\$4.95 or \$3.95 ea./10+

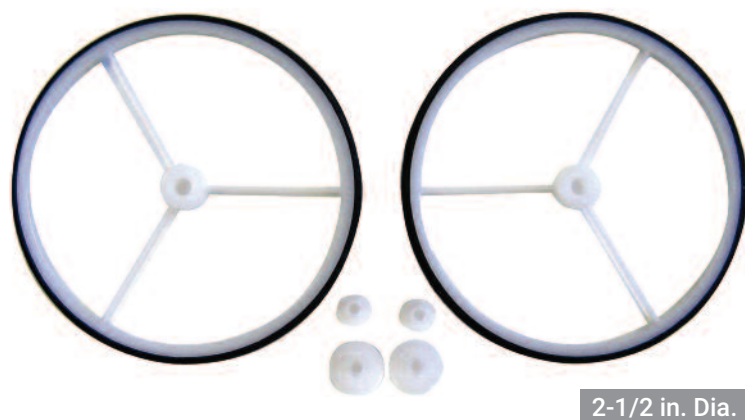


KELVIN® Project Wheels

Includes [2] 1-3/8 in. dia. front wheels with a rim and [2] 1-3/4 in. dia. back wheels with a rim and a built-in gear (2-gear ratio; fits a 2mm shaft and matches the big wheels, 990176). Also includes [3] axles (or works with 1/8 in. axles).

990199 Project Wheels\$3.45 or \$3.25 ea./10+ or \$2.95 ea./50+

390983 O-Ring Tires (Optional), 4/pkg.\$2.50



KELVIN® Super Lightweight Wheels Set

Ideal where reduced weight and friction are important, these wheels weigh 2.9 grams without adapters. Fits 3mm axle or use adapters to fit 2mm or 1/8 in. axle. Includes [2] 2-1/2 in. dia. wheels, [2] 2mm adapters and [2] 1/8 in. adapters.

990323\$2.95 or \$2.45 ea./10+



KELVIN® Big Project Rear Wheels

Ideal wheel for your mousetrap dragster or other projects. This wheel measures 4-3/4 in. dia. (same size as a CD) fits 1/4 in. dia. axle. Includes our 1/8 in. insert.

990181 10/pkg.\$8.95 or \$8.45 ea./10+

KELVIN® CD to Wheel Adapter

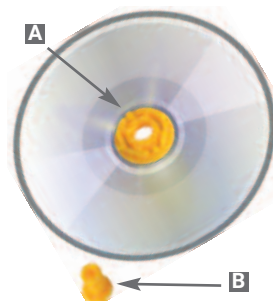
Cleverly convert any CD into a project wheel. Adapter fits a wheel or CD with a 5/8 in. hole with a 1/4 in. diameter axle. Use with the adapter below to fit a 1/8 in. diameter axle. CD not included. 20/pkg.

990182 A\$2.95 or \$2.75 ea./10+

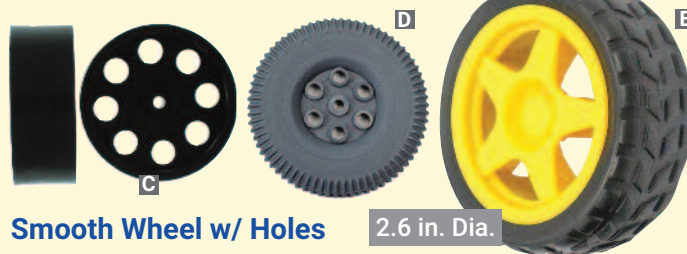
Wheel to 1/8 in. Axle Adapter

Fit a wheel with a 1/4 in. hole onto a 1/8 in. dia. axle. Can be used with adapter above.

990317 B 10/pkg.\$2.45 or \$1.95 ea./10+



Wheels Ideal for Robotics



Smooth Wheel w/ Holes

Ideal for 3-wheeled vehicles. 1-9/16 in. dia., 5/8 in. thick. Fits 1/8 in. axle.

840910 C 100/pkg\$16.95

Robot Wheels Set

Includes: [2] wheels, [2] rubber bands and screws. Fits Servo Motor (851878, pg. 16) with screws.

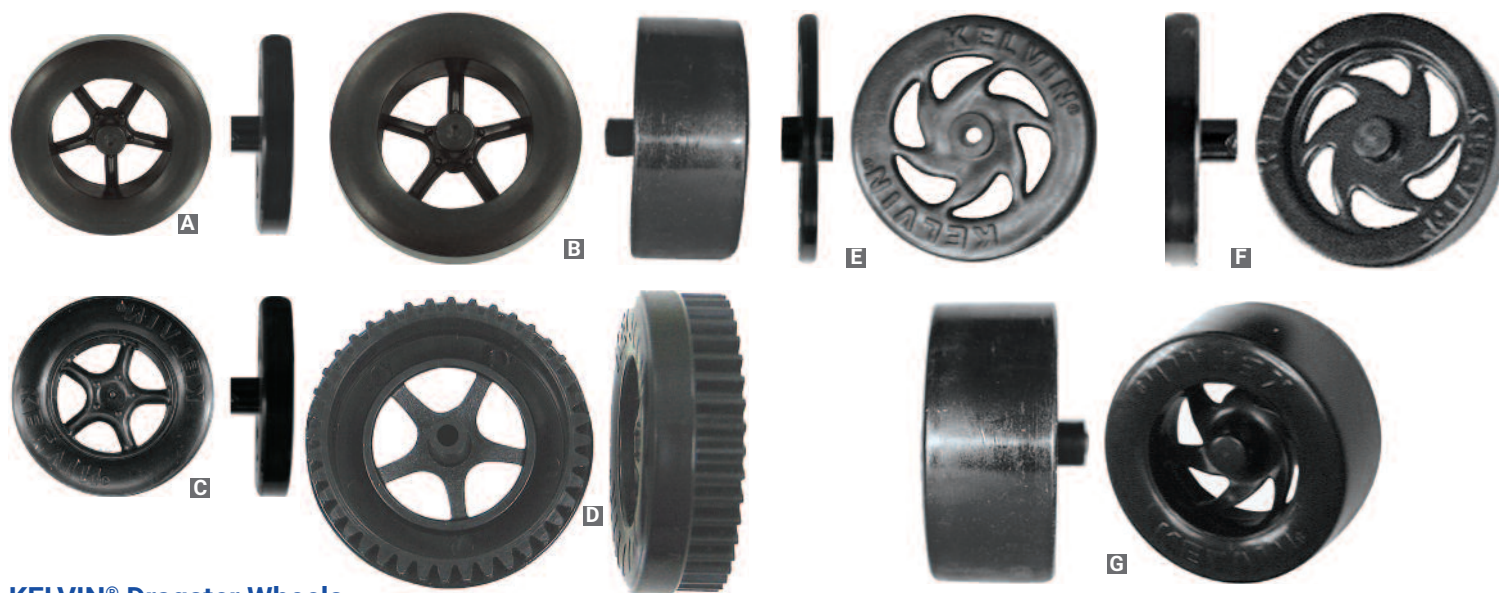
391461 D\$3.95

Robotic Wheel with Tire

Measures 2.6 in. with a rectangular axle hole that fits Gear Box Motors (842398 or 282396, see pg. 18).

391458 E 2/pkg.\$7.95

Find Build Your Own® Robot Parts in Robotics on pg R 8.



KELVIN® Dragster Wheels

Dragster Wheels w/ End Caps - Fits 1/8 in. dia. axle									
Dia. in.	T in.	Type	Color	Stock #	Fig.	Qty.	\$ ea.	\$ ea./5+	
1-3/8	3/16	Front	Black	990319	A	100	10.95	9.95	
1-5/8	5/8	Rear	Black	990320	B	100	14.95	13.95	

Gear Wheels - Fits 1/8 in. dia. axle									
Dia. in.	T in.	Type	Color	Stock #	Fig.	Qty.	\$ ea.	\$ ea./5+	
1-3/8	3/8	Front	Black	990172	C	100	21.95	17.95	
1-5/8	1/2	Rear	Black	990173	D	100	34.95	29.95	

KELVIN® Racing Style Dragster Wheels Fits 1/8 in. dia. axle

Dia. in.	T in.	Type	Color	Stock #	Fig.	Qty.	\$ ea.	\$ ea./5+	
1-3/8	3/32	Front	Black	990168	E	100	10.95	9.95	
1-3/8	3/32	Rear	Grn, Yel	990169		100	11.95	10.95	
1-3/8	3/16	Front	Black	990170	F	100	10.95	9.95	
1-3/8	3/16	Rear	Grn, Yel	990171		100	11.95	10.95	
1-1/2	5/8	Rear	Black	990166	G	100	14.95	13.95	
1-1/2	5/8	Rear	Grn, Yel	990167		100	15.95	14.95	



KELVIN® High Speed Wheels Set

Set includes: [4] 1-1/8 in. dia. wheels with a 3/8 in. wide tread (fits a 3/32 in. dia. axle) and [4] 1 in. long plastic axles.

990211\$1.45 or \$1.35 ea./10+ or \$1.25 ea./50+



High Speed Steel Axles

Zinc-coated steel axles are precision machined. 1 in. long and 0.0870 in. dia. with 0.2 in. dia. hear'

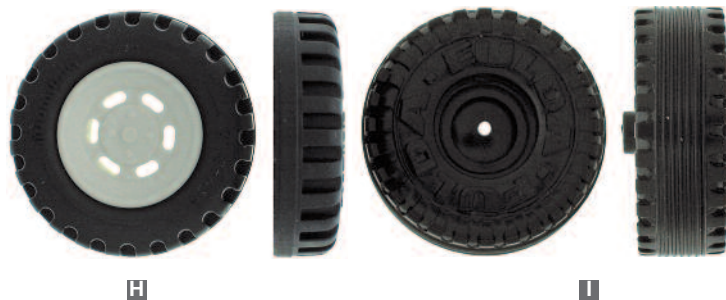
391480 50/pkg.\$13.95

391087 100/pkg.\$24.95 or \$21.95 ea./3+

Ball Bearing Wheel

Low friction wheel is ideal for projects where smooth travel is useful. 1-7/8 in. dia.

390735\$3.95 or \$3.50 ea./10+



2-3/8 in. Dia.



Rubber Traction Wheels

Dia. in.	T in.	Hole in.	Type	Rim Color	Stock #	Fig.	Qty.	\$ ea.	\$ ea./5+	
1-5/8	3/4	3/16	Standard	White	390612	H	10	14.95	13.95	
1-5/8	3/16	1/8	Hi-Traction	Black	390614	I	30	19.95	18.95	
2-3/8	5/8	3/16	Hi-Traction	Black	390615	J	10	13.95	12.95	

Steering Wheel

Use these small steering wheels to add a touch of realism to your model cars and trucks. 1/2 in. dia. x 1/8 in. W. Fits 1/8 in. dia. axle.

390609 50/pkg.\$16.95





Plane Landing Wheels

Create landing gear for model planes or other activities. Fits thin wire (330337).

Red Plastic Wheels

850931 **A** 3/4 in. dia., 1/8 in. T, 100/pkg. ...\$29.95

850930 **A** 1 in. dia., 1/8 in. T, 100/pkg.\$34.95

Plane Landing Wheels Set

1-1/16 in. dia. x 5/16 in. thick wheels..

390459 **A** 2/pkg.\$1.45 or \$1.25 ea./10+

Plane Landing Wheel Halves

Glue plastic wheel halves together to make a 7/16 in. T wheel or use as is. [50] wheel halves.

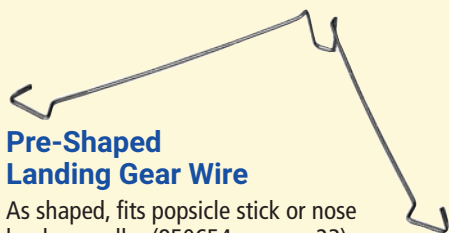


850929 1 in. dia.\$12.95

Landing Gear Wire

0.032 in. dia. x 12 in. long.

330337 30/pkg.\$16.95 or \$14.95 ea./10+



Pre-Shaped Landing Gear Wire

As shaped, fits popsicle stick or nose hook propeller (850654, see pg. 23). Also, body opening can be adjusted by pulling or pushing the wire. 0.032 in. dia. x 12 in. long.

851989 10/pkg.\$15.95 or \$14.95 ea./3+

850932 50/pkg.\$39.95

Find Cardboard Wheels in Architecture & Design on pg. 11.

Find Wheels Bin Filler on pg. 5.



2.95 in. Dia.

6-Spoke Wheels

Useful where weight reduction is important. 2.95 in. dia., 0.21 in. thick. Center hole to push-fit onto a 3mm shaft. Can be drilled to axle size.

990339 2/pkg.\$4.95



Wood Wheels

Dia. in.	Fits Axle Dia. in.	Stock #	Qty.	\$ ea.
3/4	1/8	391033	100	19.95
1	1/4	390393	100	26.95
1-1/2	1/4	390394	100	44.95
2	1/4	390395	100	89.95

2-3/4 in. dia. 1-1/2 in. thick. Fits 11/64 in. axle.

282347 ..\$2.75 or \$2.45 ea./10+ or \$2.25 ea. 100+

3-3/4 in. dia. 1-1/2 in. thick. Fits 11/64 in. axle.

283020 ..\$3.75 or \$3.45 ea./10+ or \$3.25 ea. 100+

Traction Material

Use to provide a tread and traction for wood and smooth wheels. 12 in. wide and 4 ft. long. Cut to fit.

851308\$15.95



Traction Bands

Ideal for basic back wheels of dragsters. Type #82. 1/2 x 2-1/2 in.

841441 100/pkg.\$7.95



Smooth Wheel

Add traction with a rubber band. 1-1/2 in. dia. Fits 3mm axle. Plastic, Assorted colors.

390424 60/pkg.\$21.95 or \$20.95 ea./3+



Hub Wheel

39 mm dia.

Fits onto

3 mm axle.

Assorted

colors. 1/pkg.

391144, \$1.25

AXLES & BUSHINGS

Steel Rods

Dia. in.	L in.	Stock #	Qty.	\$ ea.	\$ ea./10+
1/8	2-1/2	390361	100	14.95	13.95
5/32	6	990220	5	3.95	3.75

Welding Rods

Dia. in.	L in.	Stock #	Qty.	\$ ea.	\$ ea./10+
1/8	36	391136	80	125	115

Delrin Rod

Lightweight, self-lubricating rod. Cut to size.

Dia. in.	L in.	Stock #	\$ ea.	\$ ea./4+
1/8	24	750162	3.95	3.45

Axle Pack

Includes: threaded rod (12 in. L, 8:32), [4] flat washers (#10), and [4] nylon lock nuts (8:32).

842535\$4.95 or \$4.45 ea./10+

Dura-Collars

Holds wheels onto axles and allows them to spin freely. Fits 1/8 in. dia. shaft.

283099 4/pkg.\$3.45 or \$3.25 ea./3+

Straws Use for bushings or friction reducers. Cut to size needed with scissors

Plastic, White. Fits 1/8 in. dia. axle. 500/pkg.

Dia. in.	L in.	Stock #	\$ ea.	\$ ea./4+
9/64	5	330358	9.95	9.54

Paper, White. Fits 1/4 in. dia. axle. 250/pkg.

Dia. in.	L in.	Stock #	\$ ea.	\$ ea./4+
1/4	16	330372	24.95	22.95

Plastic, Red. Fits 1/4 in. dia. axle. 500/pkg.

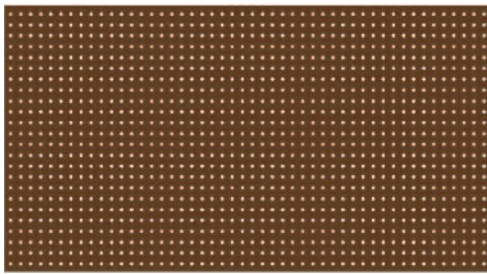
Dia. in.	L in.	Stock #	\$ ea.	\$ ea./4+
1/4	7-3/4	330327	4.95	4.75

Tubing

Use plastic tubing to reduce friction, help axles turn freely, and keep wheels from sliding. Fits 1/8 in. dia. axle.

390450 5 ft. long - Cut to Size\$3.95





Peg Board

2 ft. x 4 ft. with 1/4 in. dia. holes.

970051\$24.95 or \$21.95 ea./3+



Double Pegboard Hooks

Double Loop hooks will fit both 1/8 and 1/4 in. pegboard holes.

390854 **A** 3 in. L, 2/pkg.....\$2.45

390856 **B** 2 in. L, 2/pkg.....\$2.45



870048 **A** Steel, 3 mm, 100/pkg.\$14.95

870049 **B** Steel, 6 mm, 50/pkg.\$12.95

870050 **C** Steel, 11 mm, 10/pkg.\$3.35

870045 **D** Acrylic, 5/8 in., 15/pkg.\$19.95

870047 **E** Acrylic, 1 in., 5/pkg.....\$15.95

870041 **F** Wood, 19 mm, 10/pkg.....\$2.95

870036 **G** Ping Pong, 6pkg.\$2.45
or \$2.25 ea./5+

870039 **H** Golf, 43 mm, 12/pkg.\$7.95

Wood Screws

Round Head
Slotted, Steel/Zinc, 100/Box.

Size	L in.	Stock #	\$ ea.
#2	3/8	390276	2.60
#6	3/8	390282	3.95
#6	1/2	390283	3.95
#10	1-1/4	390293	3.90

Flat Head
Slotted, Steel/Zinc, 100/Box.

Size	L in.	Stock #	\$ ea.
#2	3/8	390257	2.95
#4	1/2	390260	1.85
#4	3/4	390261	2.17
#6	1/2	390265	2.25
#6	1	390267	3.95
#6	1-1/4	390268	3.05
#8	1/2	390269	2.17
#8	3/4	390270	2.82
#8	1-1/4	390272	3.51

Sheet Metal Screws

Pan Head
Slotted, Steel/Zinc, 100/Box.

Size	L in.	Stock #	\$ ea.
#4	1/2	390024	2.25
#6	1/4	390025	2.35
#6	3/8	390026	2.40
#6	1/2	390027	5.95
#6	3/4	390028	2.65
#8	3/8	390030	2.65
#8	1/2	390031	2.75
#8	3/4	390032	4.95

Flat Head
Phillips, Steel/Zinc, 100/Box.

Size	L in.	Stock #	\$ ea.
#4	1/4	390931	2.45
#6	3/4	390539	2.65
#6	1-1/2	390545	3.65
#8	3/4	390540	3.65
#8	1-3/4	390547	5.95

Machine Screws

Round Head
Slotted, Steel/Zinc, 100/Box.

Size	L in.	Stock #	\$ ea.
2:56	1/4	390230	2.85
2:56	3/8	390231	2.85
2:56	1/2	390232	2.95
4:40	1/4	390234	2.45
4:40	3/8	390235	2.50
4:40	1/2	390236	2.65
4:40	3/4	390237	2.75
4:40	1	390238	3.25
6:32	1/2	390241	1.95
6:32	3/4	390242	2.25
6:32	1	390243	2.95
8:32	3/8	390245	2.35
8:32	3/4	390247	2.75
10:32	3/4	390252	3.75
10:32	1	390253	3.95

Binding Head
Slotted, Steel/Zinc, 100/Box.

Size	L in.	Stock #	\$ ea.
2:56	3/8	390002	2.50
4:40	1/4	390005	2.95
4:40	3/8	390006	2.75
4:40	1/2	390007	4.95
4:40	3/4	390009	3.75
4:40	7/8	390010	4.25
4:40	1	390052	5.95
6:32	1/4	390011	3.45
6:32	3/8	390012	3.95
6:32	1/2	390013	2.75
6:32	5/8	390014	2.50
6:32	3/4	390015	2.95
6:32	1	390053	4.95
6:32	1-1/8	390016	2.25
6:32	1-1/2	390054	6.95
8:32	1/2	390019	2.25
8:32	1	390055	4.25
10:32	3/8	390021	2.45
10:32	1/2	390022	2.65
10:32	3/4	390023	2.95

Screweyes

Steel-plated, 100/Box.

Hole Dia. in.	L in.	Stock #	\$ ea.
5/32	1/4	390346	4.95
9/32	1/2	390933	12.95

Nuts

Hex
Steel-Plated, 100/Box.

Size	W in.	Stock #	\$ ea.
2:56	3/16	390049	2.25
4:40	3/16	390033	2.25
6:32	3/32	390034	6.95
6:32	5/16	390035	2.35
8:32	5/16	390036	3.95
10:32	3/8	390037	2.75

Hex Lock
Zinc-Plated, 100/Box.

Size	Stock #	\$ ea.
8:32	391001	4.25
1/4:20	391005	5.25
3/8:16	391016	8.45

Nylon Lock
100/Box.

Size	Stock #	\$ ea.	\$ ea./3+
4:40	390944	4.95	4.45

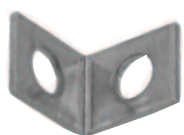
Washers

Flat
Steel-Plated, 100/Box.

Size	Stock #	\$ ea.
#4	390044	2.19
#6	390045	2.50
#8	390046	2.09
#10	390047	3.95
#3/8	390048	3.95

Lock
100/Box.

Size	Stock #	\$ ea.
#4	390039	1.50
#6	390040	1.55
#8	390041	2.25
#10	390042	1.55



Angle Brackets

390124 20/pkg. ..\$16.95



Game Box Hinges

390863 2/pkg.\$3.95



Piano Hinge

1-1/2 in. W x 24 in. L.

390745\$11.95

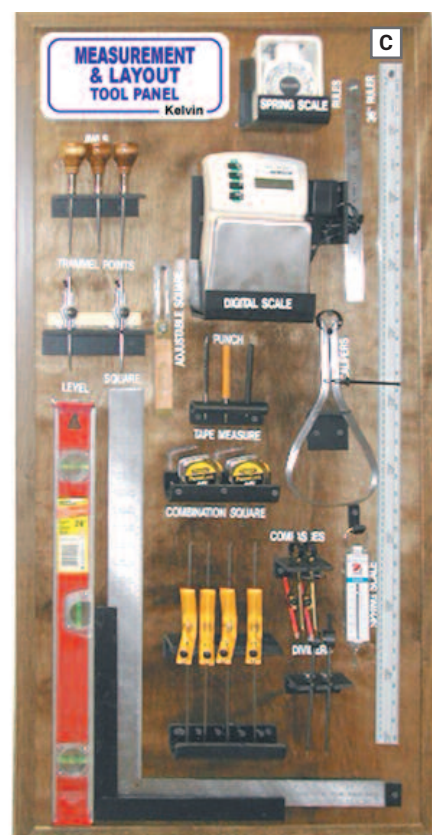
Latch

390707,
\$3.95



Padlock

851157\$4.95



Top-Quality, Name-Brand Tools with Durable Storage Tool Panels

KELVIN® Tool Panels with Quality Tools

Convenient storage panels to display and safely organize the included tools. Manufactures may vary depending on availability. Mounting holes for the panels are not predrilled so they can be custom installed to fit most labs.

Fastening

- [12] Quick Grip Bar Clamps
- [3] C-Clamps
- [4] 2-inch Spring Clamps
- Stapler
- [2] Low Melt Glue Guns
- Hot Melt Glue Gun
- Storage Panel

430086 **A**\$1,395

Basic Lab

- [2] Slip Joint Pliers
- Needle Nose Plier
- Vise Grip
- Wire Cutter
- Diagonal Cutter
- [2] Backsaws
- Hack Saw
- [2] Dovetail Saws
- Block Plane
- Chisel Set
- [3] Claw Hammers
- Lg. Claw Hammer
- Screwdriver Set
- Utility Knife
- Nail Set
- Storage Panel

430087 **B**\$1,250

Measurement & Layout

- Digital Scale
- Sliding T-Bevel
- [6] Rulers (12 in.)
- [2] Yard Sticks
- [2] Tape Measures
- Framing Square
- Level
- Center Punch
- [2] Punches
- [3] Awls
- [2] Compasses
- [4] Combo Squares
- [2] Dividers
- Caliper
- Trammel Point
- Spring Scale
- Scale, Gram/Ounce
- Storage Panel

430085 **C**\$1,595



Electronics

- [4] 50LE Multimeter
- [4] Soldering Irons (2 ea. 40W & 25W)
- Soldering Gun
- Screwdriver Set
- Nut Driver Set
- Wire Stripper, Self-Adjusting
- [2] Wire Strippers
- Precision Screwdriver
- [2] Diagonal Pliers
- Electrician's Pliers
- [2] Needle Nose Pliers
- [2] Solder Spools
- Desoldering Pump
- Storage Panel

430084 **D**\$1,250

Power Tools

- Router (2HP) with Basic Bit Set
- Jig Saw
- Variable Speed Drills (1/2 in.)
- [2] 3/8 in. Variable Speed Drills
- Speed Bore Drill Set
- Twist Drill Set
- Cordless Screw Gun
- [2] Random Orbit Sanders
- Belt Sander with Extra Sanding Belts
- Tool Carrying Cases
- [2] Storage Panels

840728 **E** ★ ..\$2,450



KELVIN® Hand Drill & Drill Press

Includes drill press, hand drill and [3] drill bits (1/16, 3/16 and 1/8 in.).

950301\$295 or \$285 ea./3+

Fiskars Craft Drill

Manual, rotary hand drill with easy-to-turn hand crank ensures smooth operation. Includes four drill bits: 1/8, 3/16, 5/32 and 3/32 inch bits.

950311\$49.95

Drill Bits

Dia. in.	Stock #	\$ ea.	\$ ea./6+
3/64	950021	.35	.32
1/16	950022	.35	.32
5/64	950023	.35	.32
3/32	950024	.35	.32
7/64	950025	.37	.34
1/8	950026	.40	.36
9/64	950027	.40	.36
5/32	950028	.60	.54
11/64	950029	.60	.54
3/16	950030	.65	.59
13/64	950031	.70	.63
7/32	950032	.80	.72
1/4	950034	.95	.86
5/16	950038	2.30	2.07
21/64	950039	2.45	2.25
23/64	950041	2.60	2.34
3/8	950042	2.80	2.52
25/64	950043	3.95	3.56
13/32	950044	3.95	3.56
7/16	950046	4.60	4.14
29/64	950047	4.95	4.45
1/2	950050	6.60	5.94



KELVIN® Tools & Jigs Set

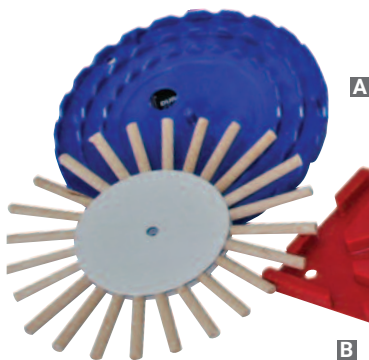
Includes:

- Drill Press
- Hand Drill
- [6] Drill Bits (1/8 & 3/16 in.)
- [4] Jr. Hacksaws
- [10] Hacksaw Blades

- [5] Joint Jigs
- [4] Cutting Jigs
- [2] Gear Jigs
- [2] Phillips Screwdrivers
- [2] Slotted Screwdrivers
- Hammer

- Mallet
- [4] Mini Vises (1-1/2 & 3 in.)
- [6] Scissors
- [4] Safety Goggles
- [4] Steel Rulers (12 in.)
- Storage Box

840680 Set\$445



Find More Saws on pg. 30.

KELVIN® Gear Jig

Build different gear combinations. On one side build: 4-, 8- or 16-teeth gears and on the other side build 6-, 12- or 24-teeth gears.

990197 **C** 5/pkg.\$9.95

Joint Jig

Holds beams or dowels rods (up to 3/8 x 3/8 in.) in place at 45° or 90° angles while they are glued and drying in place.

390444 **D** 5/pkg.\$24.95

Cutting Jig

Cuts 30°, 45° or 90° angles in beams or dowels. Works with 3/8 x 3/8 in. beams.

390447 **E**\$14.95 or \$13.95 ea./3+

Jr. Hacksaw (style may vary)

Use for cutting of beams and rods.

980042 **F**\$7.95 or \$6.95 ea./5+

980044 Blades, 10/pkg.\$2.95

KELVIN® Hand Tools w/ Tool Box

Ideal for younger or beginning students.

Tools include: Hand Drill, Drill Bits, [2] Screwdrivers (Flat & Philips), [2] Rulers (12 in. L), Tape Measure (25 Ft.), [2] Scissors, Slip Joint Pliers, Hole Punch, [2] Clamp-On Vises, [2] C-Clamps, [2] Coping Saws, [2] Basic Saws, Wood File, Combo Square, Low Temp Glue Gun, Glue Slugs, and a Tool Box.

840729\$245



A Great Hand Tools Starter Set!



Utility Hacksaw

980001\$22.95 or \$21.95 ea./3+



Pro Heavy-Duty Hacksaw w/ 12 in. L Blade

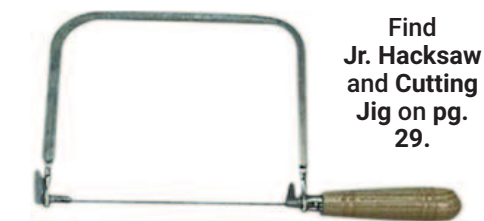
980005\$19.95 or \$18.95 ea./3+



Keyhole Saw

10 in. long blade with 10-teeth.

980035\$5.95 or \$5.45 ea./6+



Coping Saws

6-1/2 in. depth. Uses 6-1/2 in. long blades.

980029\$13.95 or \$13.25 ea./6+

Replacement Coping Saw Blades

6-1/2 in. long, 16-teeth.

980038 12/pkg.\$14.95 or \$13.95 ea./6+



Find Razor Saw Blades on pg. 11.

Miter Box

Use the miter box for precise cutting of wood and plastic stock. Cuts 45°, 90° and 180° angles.

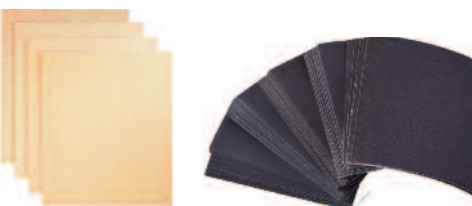
470101\$12.95 or \$12.45 ea./12+ or \$11.95 ea./24+



Wire Brush

Heavy-Duty, 10 in. L

520009\$1.95 or \$1.75 ea./3+



Sandpaper Assortment

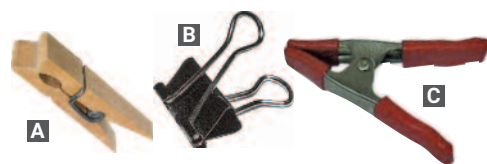
Variety of grits for light sanding. 9 x 11 in. 15/pkg.

850542\$9.95 or \$8.95 ea./3+

Wet/Dry Sandpaper

Includes a sheet (4-1/2 x 5-1/2 in.) each of these grits: 320, 360, 500, 600, 1000.

850013 5/pkg.\$1.95 or \$1.45 ea./3+



Spring Clothespins

Can be used to clamp things together. or use with pulleys and cord to simulate conveyor belts.

280173 A 50/pkg.\$4.95

Binder Clips

390988 B 4/pkg.\$1.50

Spring Clamp

Measures 4 in. long with 1 in. wide jaw opening.

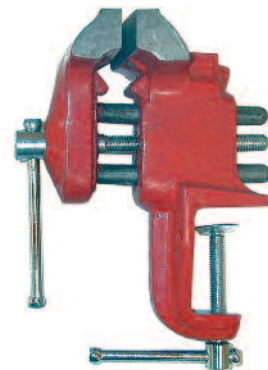
540029 C\$2.45 or \$1.95 ea./3+



C-Clamps

540034 3 in. wide Jaw Opening\$10.95

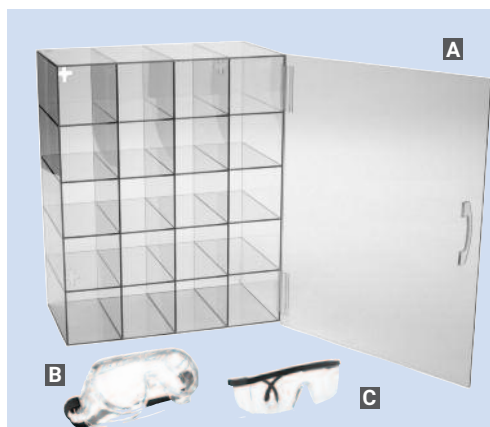
540023 6 in. wide Jaw Opening\$16.95



Clamp-On Work Vise

3 in. wide jaw opening.

540033\$29.95 or \$27.95 ea./5+



Eyeglass Storage Case

Clear, acrylic case holds 20 safety glasses or goggles. Keeps your glasses neat and organized. Dimensions 15 x 12 in., 20 cubbyholes measuring 2-7/8 in. wide. Can be wall-mounted. Door keeps glasses secure and dust-free.

280185 A\$225



Non-Fogging Goggles

240001 B\$4.25 or \$3.95 ea./6+

Visitor's Glasses

240047 C\$4.95 or \$4.45 ea./6+

First Aid Kit

240057 D\$48.95



Wood Vise

Build your own wood bench. With base holes and guide bars. 6 in. wide jaw opening.

540025\$49.95 or \$46.95 ea./3+



Awl

Carbon steel awl with plastic handle.

500019 **A** 5-1/2 in. L\$3.95 or \$2.95 ea./6+

Reamer Tool

Steel reamer tool with a T-handle.

950221 **B**\$7.95 or \$5.95 ea./3+

Warding Files

Six assorted types.

520266 **C** 4 in. L\$14.95 or \$13.95 ea./3+



Swiss Needle Files Set

Set of 12 assorted types.

520209 **D** 5-1/2 in. L\$35.95 or \$31.95 ea./3+

Wood Chisels

3/4 in. w x 2-1/2 in. long

520162 **E**\$8.95 or \$8.45 ea./6+

1 in. w x 2-1/2 in. long

520173 **E**\$8.95 or \$8.45 ea./6+



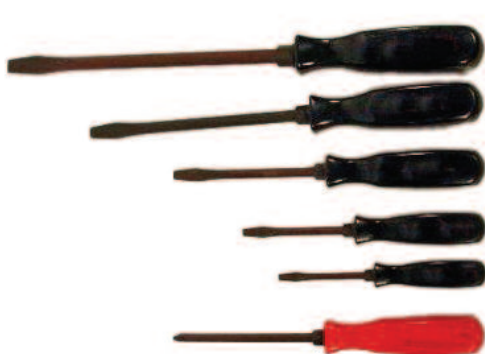
Claw Hammer

520028 8oz.\$9.95 or \$8.95 ea./6+



Rubber Mallet

540267 16 oz.\$10.95 or \$10.95 ea./6+



Screwdriver Set

[5] slotted and [1] Phillips screwdriver.

520029\$7.95 or \$7.45 ea./6+



Precision Screwdrivers

Six screwdrivers with a storage case.

520025\$9.95 or \$8.95 ea./6+



4-In-1 Quick Change Screwdriver

[2] slotted and [2] Phillips screwdrivers.

500016\$7.95 or \$7.75 ea./6+



Screwdrivers

Type	W in.	L in.	Stock #	Fig.	\$ ea.	\$
Slotted	1/8	3	520033	F	3.45	3.25
Slotted	3/16	6	520035	F	3.45	3.25
Phillips	#0	2-1/2	520040	G	3.45	3.25
Phillips	#1	3	520041	G	3.45	3.25
Phillips	#2	4	520042	G	3.45	3.25



Ratchet Nut Drive Socket Set

40 pc. set includes 1/4 in. and 3/8 in. sockets. T

520228\$19.95 or \$16.95 ea./6+



Nut Drive Set

Set of 7 nut drivers with large handles.

520018\$13.29 or \$11.95 ea./6+



Open End Wrench Adjustable

520024 6 in. Long\$6.95 or \$6.45 ea./6+

Power Tape Measure

Measures 1 in. w x 25 ft. Brand may vary.

910047\$14.95



Torpedo Level 9 in. Long

910028\$9.95 or \$9.45 ea./3+



Combination Square

Includes level and ruler.

910008\$12.95
or \$11.95 ea./6+



Snap Blade Craft Knives

Snap blade craft knives contain multiple points so your blade never goes dull. Blade locks into position.

Type	Pts.	Stock #	Fig.	Qty.	\$ ea.	\$
Knife	13	470065	A	1	1.15	.85
Knife	7	470068	B	1	3.50	2.95
Type	Pts.	Stock #	Fig.	Qty.	\$ ea.	\$ ea./6+
Blades	7	470067	C	10	3.95	3.75



X-ACTO #1 Craft Knife w/ #11 Blade

470023	w/ Safety Cap	.....	\$10.95 or \$9.95 ea./6+
470026	#11 Blades, 5/pkg.	.....	\$4.95 or \$4.75 ea./6+
470045	#11 Blades, 100/pkg.	.....	\$39.95 or \$37.95 ea./6+



X-ACTO #2 Craft Knife w/ #2 Blade

470028	w/ Safety Cap	.....	\$16.95 or \$14.95 ea./6+
470031	#2 Blades	\$3.95 or \$3.75 ea./3+



Retractable Utility Knife w/ [2] Blades

970002	6 in. L	\$5.95
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Replacement Blades Heavy Duty

970004	5/pkg.	\$2.25
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Sure Grip Utility Knife Retractable

470090	Use Blades 970004 Above	\$9.95
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Razor Blades

841430	10/pkg.	\$3.95
470034	100/pkg.	\$29.95

Self-Healing Cutting Mat

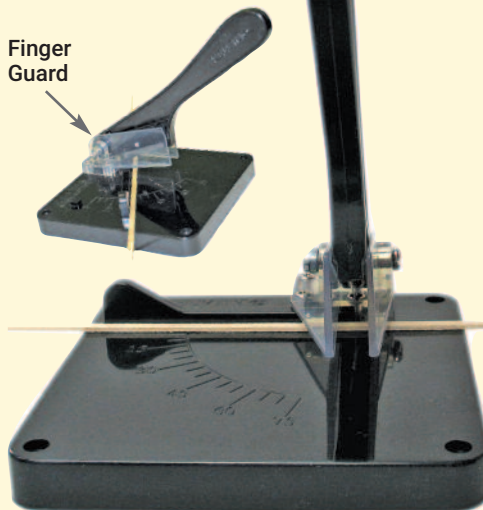
A safe way to cut materials using craft knives, rotary cutters, etc.



470077	9 x 12 in.	.....	\$10.95
470079	12 x 18 in.	.....	\$24.95
470078	18 x 24 in.	.....	\$46.95

THE KELVIN®
ORIGINAL
NOT A COPY!

Easily
Cut
Balsa!



Scan the Code
for Product
Video

KELVIN® Balsa StiKutter™

Affordable enough for every student to own! Easy to use with a long handle and compact size; 4-1/2 x 4-1/2 in. The clear plastic shield acts as a finger protector.

Cut angles easily in one step with a built-in protractor and moveable guide. Cuts up to 3/16 in. thick with a replaceable blade (by teacher). Base has four corner holes for mounting and no stop on the right side.

990198	\$9.95 or \$8.95 ea./10+
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Replacement Blades

841430	10/pkg.	\$3.95
470034	100/pkg.	\$29.95

Find Balsa Wood and Balsa StiKutters™ on pgs. 10-11.

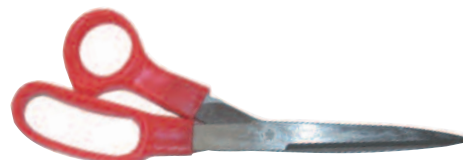
SCISSORS



Safety Point Scissors

For use with paper and fabric. Blunt-ended scissors are recommended for younger children.

480038	5-1/4 in. L	\$7.95 or \$7.65 ea./10+
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Stainless Steel Scissors

480028	8 in. L	\$14.95 or \$13.95 ea./10+
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Utility Snips

All purpose utility scissors cut plastic, cardstock, fabric, quilts and batting.

480009	7-1/2 in. L	\$5.95 or \$5.45 ea./10+
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Quality Stainless Steel Scissors

480039	8 in. L	\$16.95 or \$15.95 ea./10+
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Left or Right Hand Scissors

For use with paper and fabric.

480036	8 in. L	\$8.95 or \$7.95 ea./10+
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Easy Cutters for Wood Strips

Cuts any wood strips up to 1/8 in. or 1/2 in. square. Great for bridge or tower construction.

for 1/8 in. W Wood

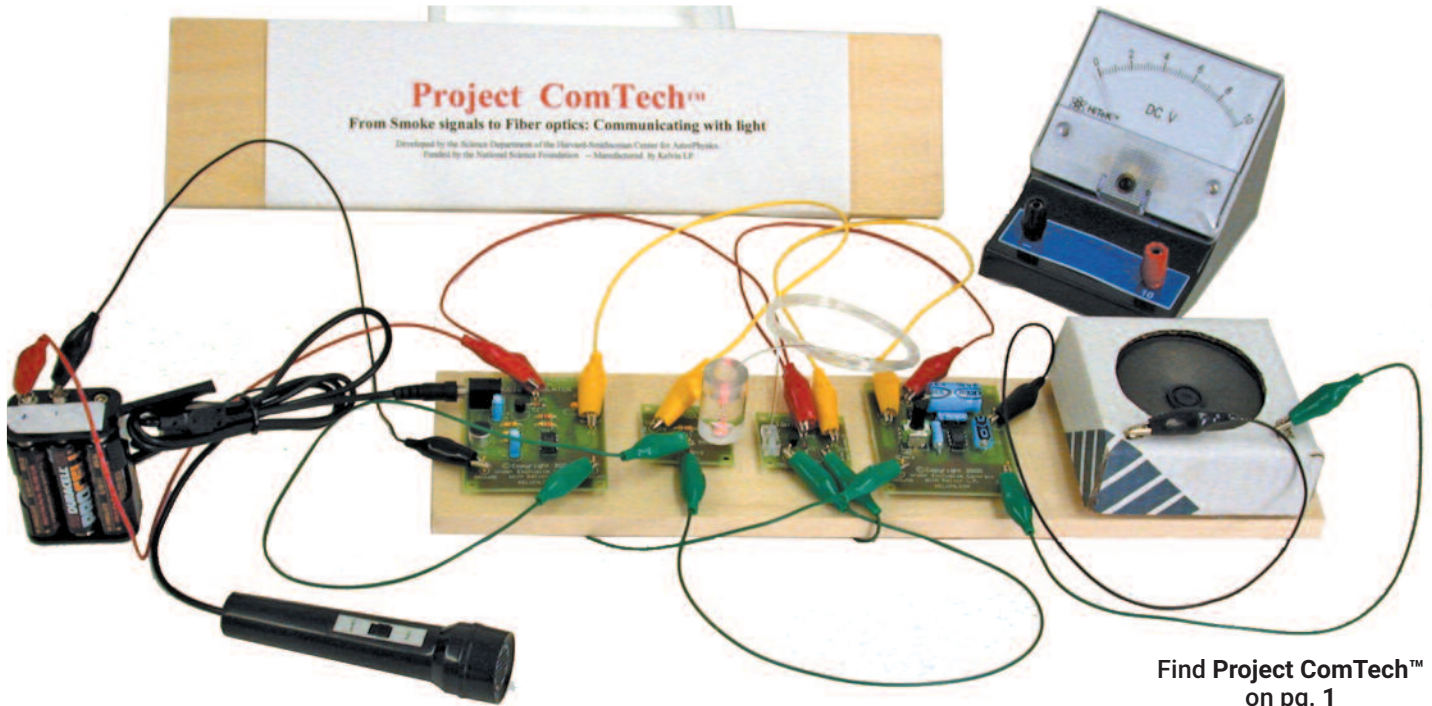
520596	\$25.95 or \$23.95 ea./10+
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for 1/2 in. W Wood

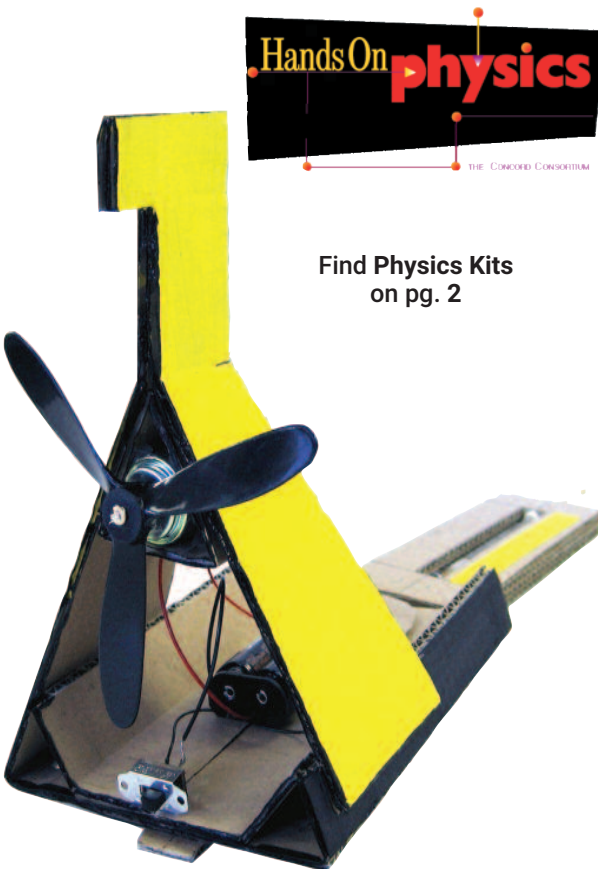
520595	\$33.95 or \$29.95 ea./10+
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SCIENCE

KELVIN® HANDS-ON SCIENCE®



Find Project ComTech™
on pg. 1



Find Physics Kits
on pg. 2



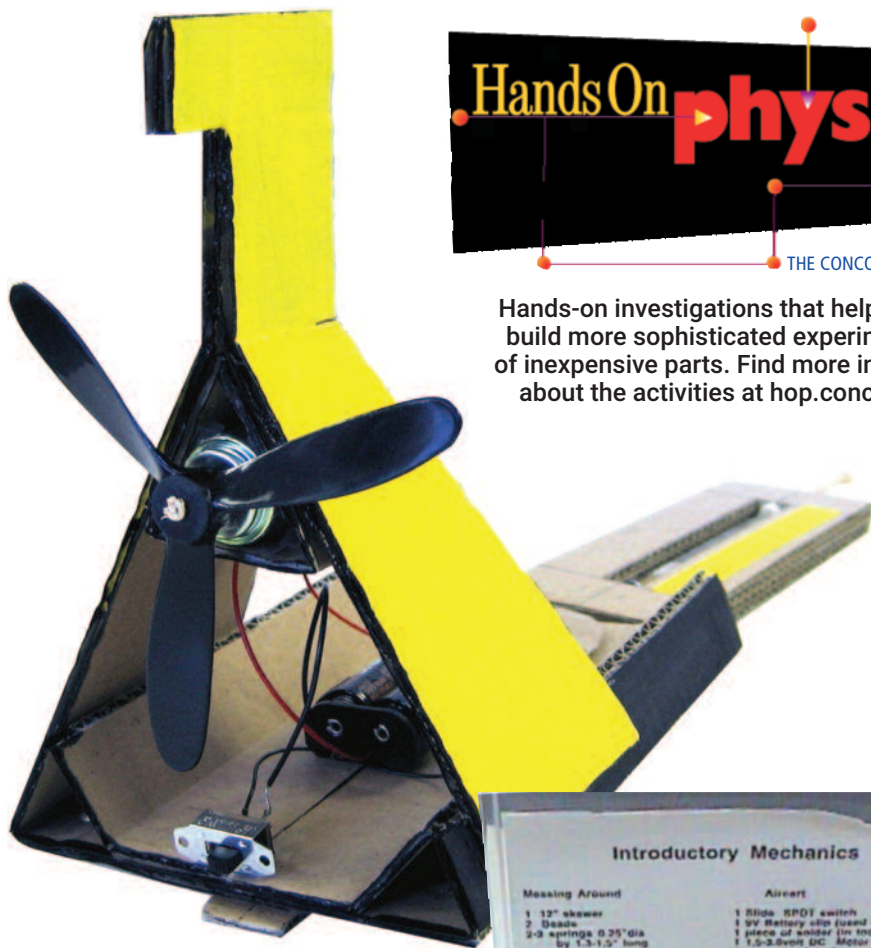
Find Hydroponics
on pg. 5

QUICK INDEX

- Air Tanks, 8
- Environment
Activities, 4
- Equipment, 8
- Hands-On
Physics, 2
- Hydroponics, 5
- Laser Activities
Guide, 48
- Motion
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ComTech™, 3
- Pulley Activities, 8
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- Science Fair
Pack, 5
- Voice Over™
Communications, 3
- Wind Tunnels, 6



Hands-on investigations that help students build more sophisticated experiments out of inexpensive parts. Find more information about the activities at hop.concord.org.



KELVIN® Aircart HOP Kit

The study of motion is motivated in part by the human desire to move things from one place to another. Designing any transportation system requires an understanding of some basic ideas of physics.

In this Intro to Mechanics unit you will build an aircart, decide what attributes of the cart are pertinent, and what variables are important for the description of motion. Determining a set of variables and the relationships between them is the primary work of creating a model. A good model can be generalized and extended. With a good model in hand, design work can proceed. What transportation problems could an aircart solve? What are its drawbacks? This kit includes the parts to build a propeller-driven cart and a force/thrust gauge. Grades 9 through College.

840996 Aircart HOP Kit\$23.95



KELVIN® Sound Level Meter HOP Kit

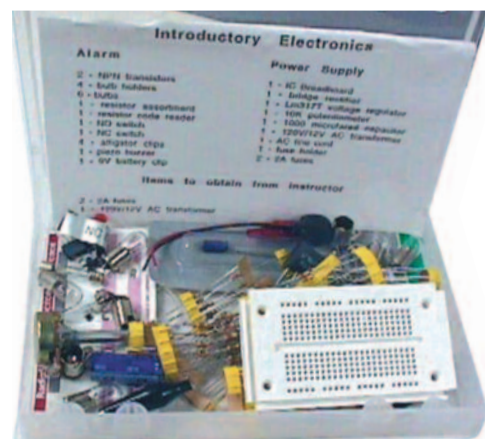
This Intro to Sound Waves unit involves measuring sound intensity with a Sound Level Meter that students build (requires a sound source). All parts needed are included.

841334 Sound Level Meter HOP Kit\$39.95

KELVIN® HOP Tool Box

An assortment of tools and supplies for use with the H.O.P. experiments.

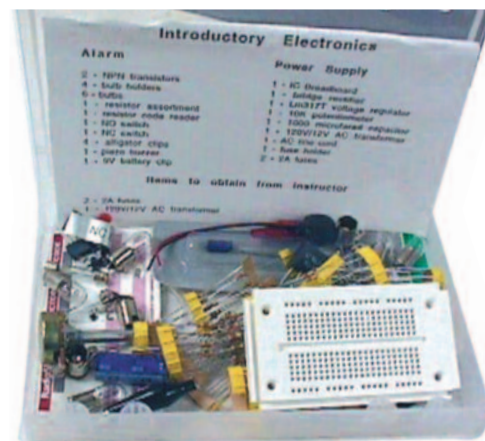
840997\$155



KELVIN® Security Systems HOP Kit

This Intro to Electronics unit has students creating a building security system. The simplest system consists of a variety switches (magnetic, optical and thermal), a power supply, and a buzzer. Students will gain familiarity with schematics, breadboards, meters, and debugging circuits. They will also build a power supply used later. This kit includes the parts needed to build a Low-Voltage Power Supply to use in this and other H.O.P. Units. Grades 9 through College.

840994 Security Systems HOP Kit\$44.95



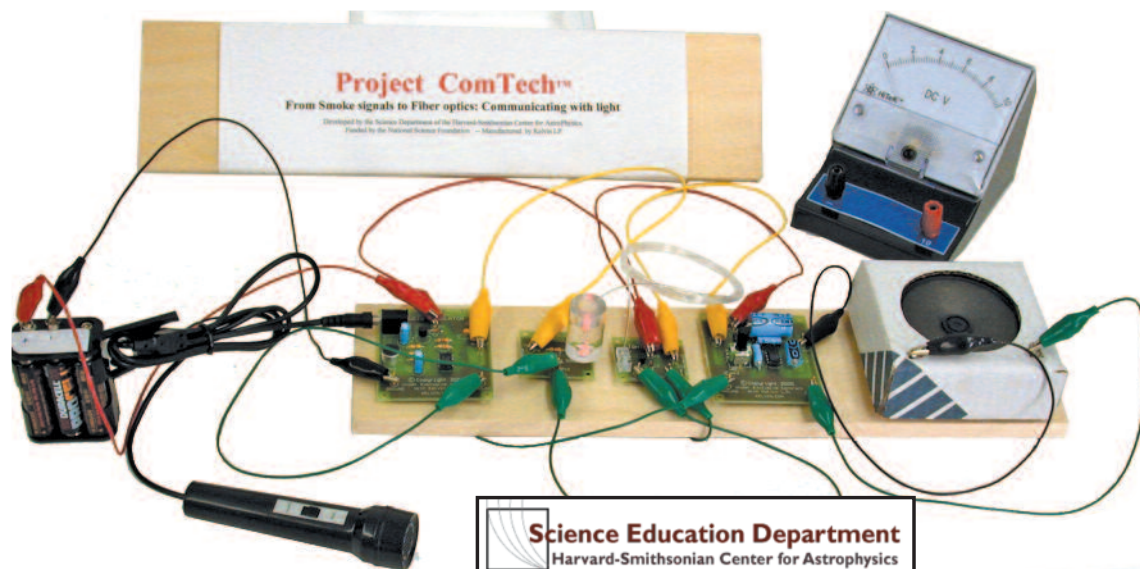
KELVIN® Haze HOP Kit

The amount of haze in the atmosphere is increasing for reasons that are not fully understood. In this unit, you build optical sensors that can be used to infer haze levels and contribute your data to an international haze monitoring network.

This Intro to Optics unit involves understanding the physics of light with an emphasis on wavelengths, absorption, scattering, and photon energy. The unit introduces an amplifier and the concept of amplification. Investigate LEDs as lights. Measure the forward voltage for red, yellow, green, and blue LEDs. Look at the spectrum and polarization of the sun, LEDs, flames, other sources, and of scattered light using different kinds of scattering.

This kit includes all the parts needed to build a Sun Photometer. Grades 9 through College.

840995 Haze HOP Kit\$39.95



Project ComTech™

From Smoke Signals
to Fiber Optics,
Communicating with Light

Project ComTech™ was created by the Science Education Department of the Harvard-Smithsonian Center for Astrophysics, with support from the National Science Foundation.

KELVIN® Project ComTech™

In this module, **Communicating with Light: From Smoke Signals to Fiber Optics**, students become familiar with the elements of communications systems as well as with basic electronics, coding schemes, and the properties of light. Students master a limited number of powerful technology and science concepts, sense the excitement and challenge of technology, and develop critical thinking and reasoning skills that can be transferred to all disciplines. This instructive activity, supplemented with electronic, electro-optical, electrical and mechanical components, is recommended for use in grades 6-10 science and technology classes.

The **key components** are five electronic circuit boards (or modules) which accompany the written material. Modules 1 and 2 are very simple; Modules 3 and 4 are more advanced. The **five Assembled Modules** include: Light Sensor Module, Light-Emitting Diode (LED) Module, Voltage to Frequency Converter Module, Audio Modulator Module and Amplifier Module.

The **written material**, approximately 178 pages in length, describes a number of activities addressing light communication technology. Starting with simple low-technology flashing light communication systems and codes, students progress through voice-modulated signals employing optical fiber.

Technical topics covered include: signal codes, properties of light, transducers and simple circuitry. Sensory feedback is provided throughout the experiments with flashing lights, attractive colors, vibrating transducers, and sounds.



Project ComTech™ includes: [5] Assembled Modules, Manual, Batteries, Fiber Cable, Light Bulbs, Speakers, Hookup Wire, Alligator Clips, and Plastic Parts for Light Devices. Other material will need to be supplied by the teacher in order to conduct activities (such as a c-clamp, milk, water, ruler, etc.). Grades 6-10 science and technology classes.

841284	Project ComTech™	\$295
841306	Class Pack of 4	\$775
651567	Project ComTech™ Manual.....	\$29.95

KELVIN® Hands-On Science® Voice Over Laser Beam™ Trainer

An economical way to study laser beam communication!

Use the trainer to demonstrate voice modulation or transmit voices or music over a laser beam. An input jack allows students to access CD players or tape recorders for additional activities in communications.

Covers: Light Communication, Parts and Operation, Fiber Optics, The Laser Diode, Beam Divergence and Graph, The Transmitter, Beam Intensity, The Receiver and Using the Voice-Over™ Laser.

Also includes: Assembled Voice-Over™ Fiber Optics Trainer, transmitter and receiver, microphone, input jack, laser pointer and manual. Grades 8 +.

840874 Assembled Trainer.....\$195

VOICE OVER™ LASER BEAM





KELVIN® Hands-On Science® Lab: Investigating Groundwater Pollution

In the process of completing five activities, students learn about the water cycle, water quality, ppm and ppb pollutant contamination, porosity of soils, and other related concepts.

Construct mini-ground water simulation models showing the movement of a simulated, colored pollutant. Determine under what conditions contamination occurs from a variety of sources such as spills, farms, and buried tanks and how polluted groundwater eventually reaches the drinking water supply.

Activity includes enough materials and tools for 40 students as well as detailed student resource materials and a teacher's guide. Grades 6-10.

282231\$115



KELVIN® Hands-On Science® Lab: Exploring Water, Soil & Air

Ecology is the study of our natural environments and the interdependency of each of its parts. Air, water, soil, plants, animals and living organisms combine to create the ecosystem we live in. This activity provides information and hands-on activities for students that will help them learn about this fragile relationship.

Divided into five activities, each activity focuses on a different aspect of ecology. Students will explore: Hard and Soft Water, Pollution of Ground Water Systems, Acid Rain and Water PH, Soil Nutrients and Particulate in the Air.

281910\$99.95



KELVIN® Hands-On Science® Lab: Oil Spill Cleanup

A series of activities and design challenges focused on environmental cleanups resulting from oil spillage. Activity includes oil absorbent matting material, biological oil absorbing materials, absorbing powder, dispersants, instructions and much more. Each kit provides enough materials for a class of 20 students.

282232\$99.95

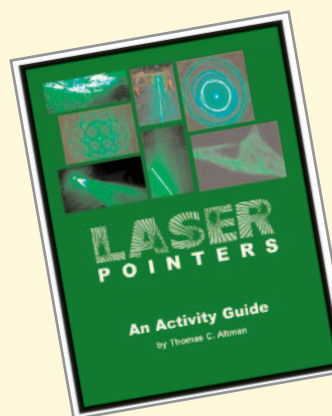


Stream Table Class Pack

Building a stream table gives students the chance to create landforms and follow the changes in the stream as it ages. Great for use in the classroom or as an outdoor activity. Also is used with ESCP program.

Kit includes: plastic tray, drain trough, tray support, siphon tube, and teacher' guide.. Grades 3-12.

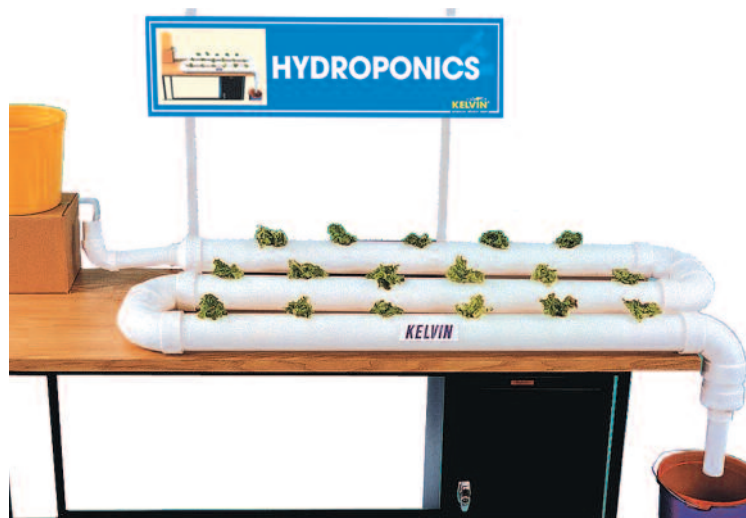
360075 Pack of 4 Kits.....\$229.95



Laser Pointer Activities

By Thomas Altman. Consists of nine laser pointer activities: earthquake detector, music controlled laser patterns, crystal ball laser projector, diffraction and moving diffraction grating, representing a black hole, laser Lissajous patterns and twisting beams. Also explores the issues of safety and use in the classroom.

652291 Guide, 27 pgs.\$9.95 or \$8.95 ea./20+



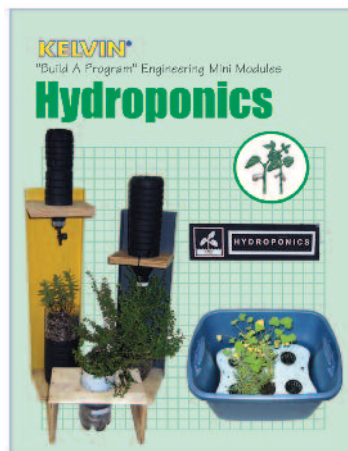
KELVIN® Hands-On Science® Class Hydroponics System

Growing plants without using soil seems impossible but it is becoming necessary to feed a growing world population that has limited land use, limited sunlight and extreme weather conditions (such as the deserts and poles).

Control inputs of light, water and nutrients so that the output is a healthy, fresh crop. Students use problem-solving to determine best conditions for growing plants. Includes pallets, bucket, lettuce seeds, plant food and instructions. Does not include workstation table shown. Some assembly will be required. Grades 4–12.

840691\$495
650688 Hands-On Science® Hydroponics Booklet, 24 pgs\$5.95

Find More Engineering Mini Modules at www.kelvinh.com.



KELVIN® Hands-On Science® Hydroponics Mini Module

Students learn the basics of hydroponics by designing and building their own growing unit as well as maintaining a classroom growing system. This module includes enough materials for three classes to design their own hydroponic system. Also includes materials to build three raft style classroom growing units.

841681\$845

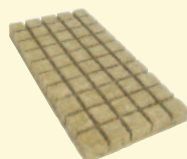
Grow Plants Without Soil!



Rockwool Cubes

Holds large amounts of nutrient solution and air. Does not decompose. Each cube measures 1-1/2 x 1-1/2 in. 98/pkg.

160005\$27.95



Plant Nutrient

Enhance hydroponics plant growth. Mix is 10-5-14, 2.2 Lb. Actual brand may vary.

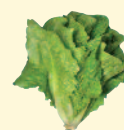
160011\$26.95



Lettuce Seeds

A mix of various types of lettuce seeds. Enough for 1 year. Actual brand may vary.

160012\$12.95



KELVIN® Hands-On Science® Fair Pack for Transportation - 8 Kits to Explore



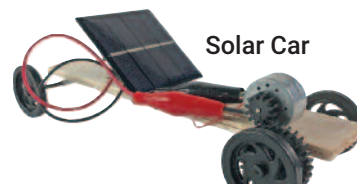
Universal Platform Car



Rubber Band Racer



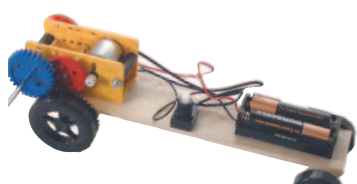
Balloon Racer



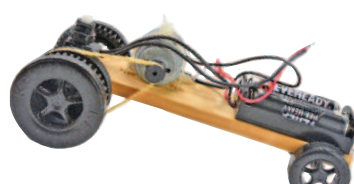
Solar Car



GR Cruiser



Gear Box Car



EV Racer

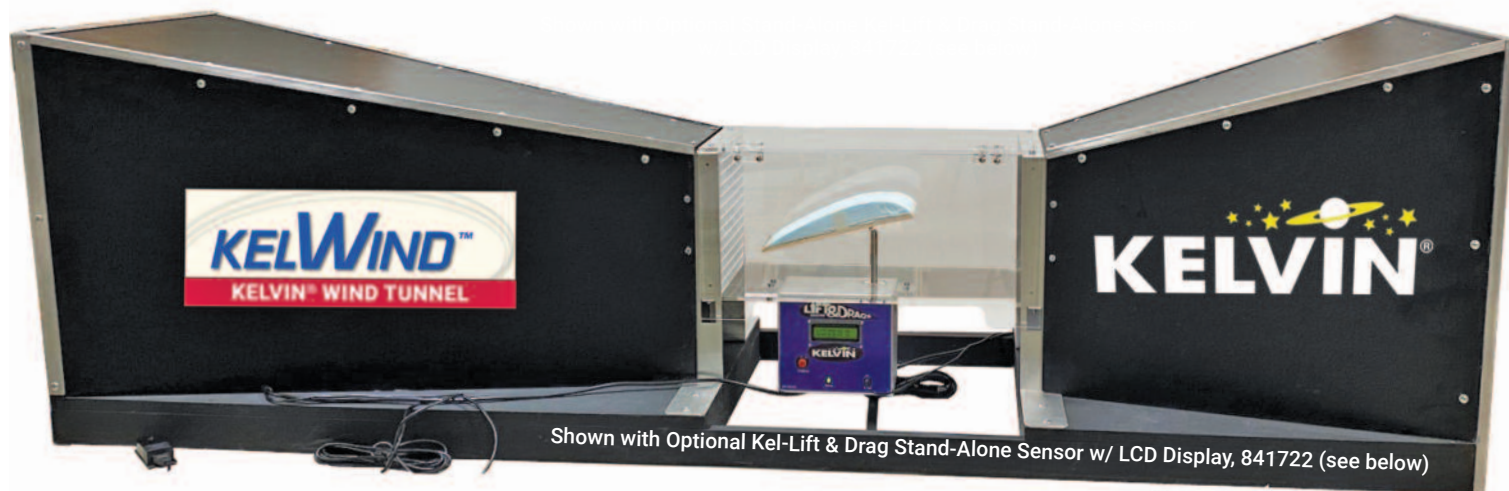


Hovercraft Racer

These selection of kits, with related instructions, are ideal for exploring land transportation at home or school. Single kits include: Universal Platform Car, Solar Car, EV Racer, Balloon Racer, Gear Box Car, GR Cruiser, Rubber Band Racer, and the Hovercraft Racer.

In addition, parts are supplied for more open-ended designs. These parts consist of a Motor Holder, Propeller, Gear, Pulley, Battery Holder, Motor, [2] Foam Pieces, and a Corrugated Board.

842592 KELVIN® Science Fair Pack for Transportation - [8] Kits & Parts\$85



Shown with Optional Kel-Lift & Drag Stand-Alone Sensor w/ LCD Display, 841722 (see below)

KELVIN® Kel-Wind™ Wind Tunnel

The air intake for this wind tunnel provides smooth laminar air flow; allowing students to accurately measure lift and evaluate their airfoil design with 41 knots of wind speed; airflow is 1604 CFM.

Comes with a Wing Design Kit, Airfoil Holding Fixture, Scale Package, Activity Manual, and built-in DC Fan Blower motor with variable speed controller.

Testing chamber measures 19 x 9 x 9 in. and overall size is 77 x 23 x 20 in. Works with optional Lift & Drag Sensors (841410, 841722, and 842617).

840614Shipping is \$1500 or Pickup **\$4,995**

Wind Tunnel w/ Computer Interface Sensor (841410), Laptop & Pre-Loaded Software

841697Shipping is \$1500 or Pickup **\$6,795**

Wind Tunnel w/ Stand-Alone Sensor (841722), Laptop and Pre-Loaded Software

842605Shipping is \$1500 or Pickup **\$6,995**

KELVIN® Lift & Drag Sensors

Measure the lift and drag properties of wings, vehicles, boat hulls using this interface. Attach a test item to the sensor rod and turn on the wind tunnel. Works with most wind tunnels.



Computer Interface Sensor

View, store, graph and compare test data using the USB cable to interface with a computer. Comes with interface, USB cable, software, and digital wind speed meter. Requires computer with Windows. USB connection.

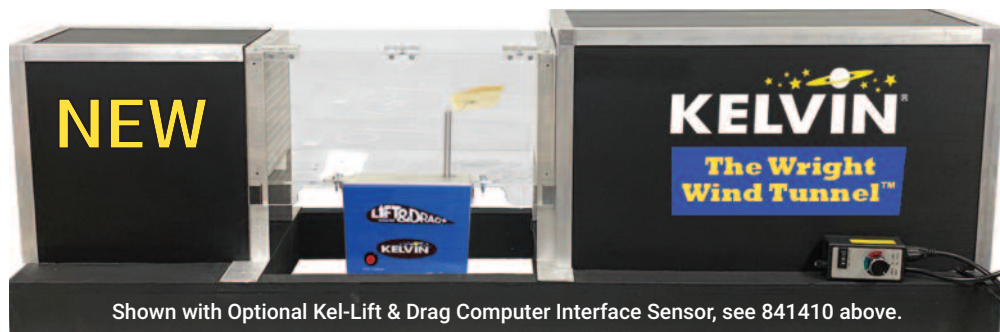
841410 Win, USB**\$995**



Stand-Alone Sensor w/ LCD 2-Line Display

Works with most wind tunnels. Instantly view test data on the 2-line LCD display. This unit does not store data but can be connected to your computer via USB connection. Comes with a power supply.

841722 Win, USB**\$1,250**



Shown with Optional Kel-Lift & Drag Computer Interface Sensor, see 841410 above.

KELVIN® The Wright Wind Tunnel™

This design features a smaller overall size (60 x 16 x 19 in.) than the Kel-Wind™ Tunnel (840614) but has the same size testing area. Airflow is 728 CFM. Includes Plane Wing Design Kit (990380). Works with optional Lift & Drag Sensors (841410, 841722, and 842617).

842625Shipping is \$1000 or Pickup **\$3,500**

Wind Tunnel w/ Lift & Drag Sensor PLUS Laptop & Pre-Loaded Software

842626 Win, USBShipping is \$1000 or Pickup **\$5,995**

KELVIN® Hands-On Science® Mechanical Lift & Drag Tester **NEW**

Use in a wind tunnel (required) to measure the forces of lift and drag on wing sections, vehicles and other shapes. Includes: lift tester, drag indicator, pre-shaped airfoil, [2] airfoil blanks, streamer and hooks.

842617 Requires Wind Tunnel**\$345**



KELVIN® Hands-On Science® Economy Wind Tunnel

Digital scale, magnetic protractor, blower fan, tunnel, airfoil testing fixture and assembly instructions.

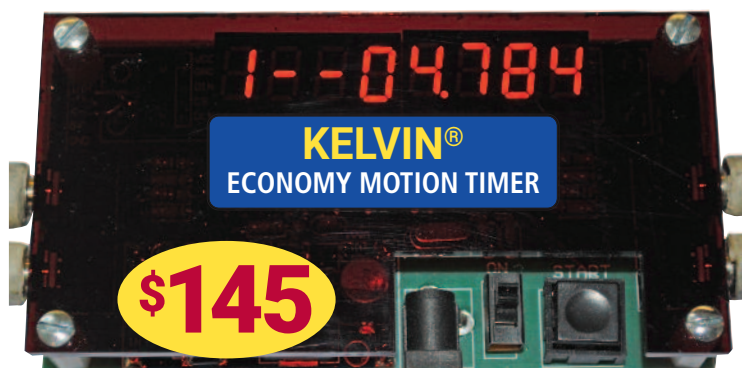
840580 Gr. 5 & Up**\$595**



KELVIN® Plane Wing Design Kit

Design and shape a plane wing from foam. Kit includes [5] foam sheets, wood, hardware and instructions. Requires hand tools for shaping.

990380**\$12.95** or **\$10.95** ea./10+



KELVIN® Economy Motion Timer

How much time did it take for your student's vehicles to travel? Measure time in 1 lane or 2 lane versions. Ideal for stem activities & competitions.

Portable, ideal for field testing—no computer required. Use with dragsters, maglevs, water channel testers, etc. Accurate to 1/1000 of a second. Features 7-segment, very bright red LED display.

- 842467 1-lane Economy Motion Timer w/ Sensor Cable (50 ft. L)\$145
- 842468 1- or 2-lane Economy Motion Timer w/ 2 Cables (50 ft. L)\$275
- 780083 Extra-Long Sensor Cable (1 Per Lane Needed), 75 ft. L\$45



The KELVIN® Elite Kel-Timer™ features redesigned start/finish sensors with LED lights that can be aligned quickly and easily.

KELVIN® Elite Kel-Timer™ Motion Timer

New features include redesigned sensors with LED feedback and 4-line LCD backlit display with selectable units for distance and speed (ft, meters, m/h, km/h). This new Kel-Timer™ makes aligning sensors quick and easy. Each pair of sensors at both the start and finish gates has an LED light that indicates when the sensors are properly aimed. Any settings changes you make can be stored so that you do not need to re-enter them every time.

Ideal for 1 or 2 lane timing with 1/1000 second accuracy. Maximum 99 seconds. Modular RJ45 cable connectors can be chained together from start gate to finish gate for the sensors (one per lane). Uses inexpensive CAT5 cable to any length needed. Mini-USB serial connection to transmit race information to a computer or serial terminal.

Comes with two 20 ft. long cables for 2-lane competitions (see 780086 for longer cables) and 5V power adaptor (110V AC). Optional rechargeable battery pack (charged by any USB charger) and additional longer cables are available. Wood blocks by teachers, optional stand attachment available.

- 842483 Elite Kel-Timer™ Motion Timer\$345
- 780086 CAT5 Network Cable, 75 ft. long, need one per lane)\$29.95
- 780085 High Power Rechargeable Battery, Optional\$39.95



IDEAL FOR STEM ACTIVITIES & COMPETITIONS

NEWLY
UPDATED
DESIGN



NEW KELVIN® KelTimer™ Motion Timer Updated Design!

Portable, ideal for field testing; no computer required. Input distance in feet or meters and results are displayed as Time, Mi/h or Km/h. Features memory; remembers prior competitions.

Includes: 4-line LCD Display, Infrared Start /Finish Gates, [4] 50 ft. L sensor cables (use with a track up to 100 ft. L). Requires DC wall adaptor (or use [4] AA batteries). 110 V AC. USA plug.

- 840978\$395
- 780061 Add. Sensor Cable, Set up to 100 ft., 1-Lane\$70

Spring Scales

Quality scales at affordable prices! Used to measure force and mass. Calibrated in Newtons and grams with a beveled top for use on inclined planes.



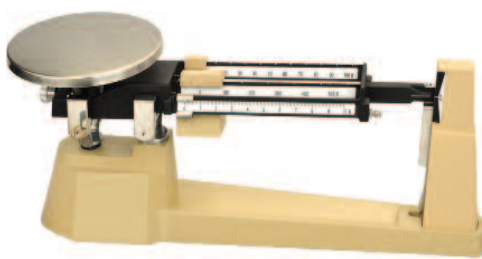
Tubular

Color	G	N	Stock #	\$ ea.	\$ ea./3+
Blue	250	2.5	850634	4.95	4.75
Green	50	5	850635	4.95	4.75
Brown	1000	10	850636	4.95	4.75
Red	2000	20	851220	4.95	4.75
White	3000	30	851221	4.95	4.75
Yellow	5000	50	851222	4.95	4.75



Flat

Color	G	N	Stock #	\$ ea.	\$ ea./3+
Clear	100	1	851224	4.95	4.75
Clear	200	2	851225	4.95	4.75
Clear	500	5	851226	4.95	4.75
Clear	2000	20	851228	6.95	6.45
Clear	5000	50	851229	6.95	6.45



Triple Beam Balance/Scale

Has 610 g x 0.1 g capacity! Durable, mechanical platform balance with tiered beams and magnetic damping. Use with weights for measuring activities, science experiments, etc.

850688 Balance/Scale\$149.95
851423 Balance/Scale w/ Weights\$235

Double Hooked Weight Set

All weights have brass hooks and counter sunk recessed bottoms so that the weight rests flat. Set of 9 weights includes: 1000g, 500g, [2] 200g, 100g, 50g, [2] 20g, and 10g.

710187\$94.95



Digital Scale

4000 gram capacity x 0.5 gram resolution plus ounce and pound weighing modes. Features tare, auto-off and counting functions. Bright, backlit weight display. Comes with AC adapter, batteries and manufacturer's warranty. 110 V AC. USA plug.

851972\$74.95

Slotted Brass Weights Set

Includes: [2] 5g, 10g, [9] 20g, and a 50g weight with hook.

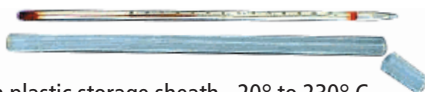
710186\$23.95



Immersion Lab Thermometer

Red dye thermometer with plastic storage sheath. -20° to 230° C. Partial to 3-1/4 in. immersion.

710131\$1.95 or \$1.85 ea./10+



Adjustable Stand w/ Base

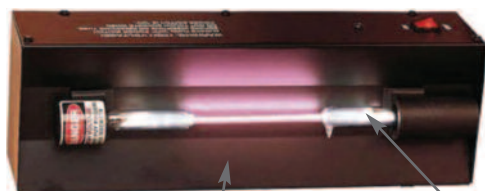
Use for experiments or to hold sensors. Light metal stand with 5 x 8 in. base and 3/8 in. dia. x 20 in. long rod.

550130 ..\$33.95 or \$30.95 ea./5+



Economy Stopwatch

282363,
\$5.95



Power Supply for Spectrum Discharge Tubes

Specially designed power supply to safely run spectrum discharge tubes that are 10-1/4 in. long. Encased in a metal body. Spring loaded with clips to connect the tubes securely. Dual voltage switch for 110V /220V. RoHs and CE certified! Tubes not included – see right.

283799\$199.95

Spectrum Discharge Tubes

\$ each \$21.95

Type	Stock #
Air	283783
Argon	283784
Bromine	283785
Carbon Dioxide	283786
Deuterium	283788
Helium	283789
Hydrogen	283790
Krypton	283792
Mercury	283793
Neon	283794
Nitrogen	283795
Oxygen	283796
Water Vapor	283797
Xenon	283798



KELVIN® Hands-On Science® Pulley Station

Structure for experimenting with multiple pulleys.
841266\$145

Pulley Activity

Set includes: [2] pulleys, double tandem pulley, triple tandem pulley and activity guide.

280341\$22.95



Hand Pump

Quality pump includes gauge and fill valve.

870035 A\$49.95

Portable Air Tank

A portable air source for your projects. Air tank holds 7 gallons of air. Actual brand may vary.

500026 B 7 Gallons\$120

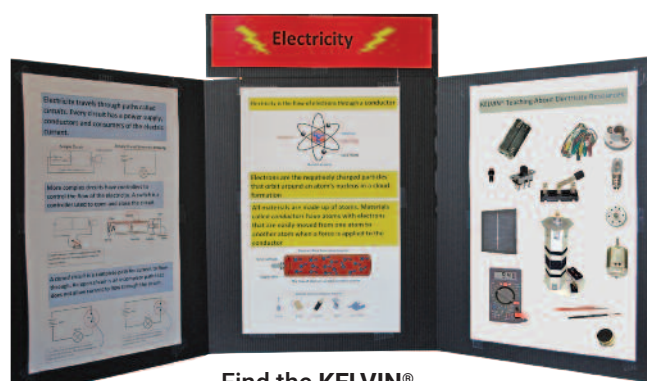
Portable Air Compressor w/ Built-In Air Tank

The compressor has two gauges: one gauge measures the air put in while the other measures the air that goes out. Features a built-in 4 gallon air tank. Actual brand may vary.

500027 C 4 Gallons\$245

ELECTRONICS

KELVIN® ENGINEERING IN SCHOOL



Find the KELVIN®
S.T.E.M. Lab: Electricity on pg. 3.



Find KELVIN® Variable Power
Supply w/ Polarity Box on pg. 20.



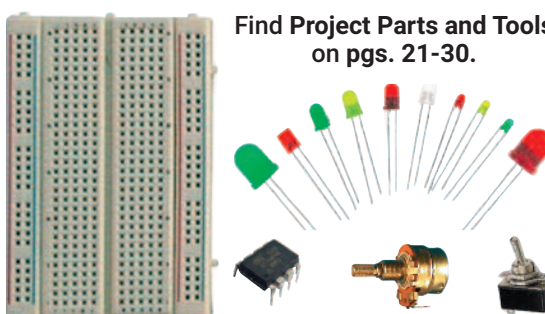
Find KELVIN® LabKit Trainers for Analog
& Digital Electronics on pg. 5.



Find KELVIN® 50LE Multimeter
w/ Buzzer on pg. 20.



Find Project Parts and Tools
on pgs. 21-30.



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Electrical
Invention
Classroom Pack

DESIGNLAB

ELECTRICAL INVENTIONS



DesignLab: Electrical Inventions

Design and build an alarm system for your bedroom, a light-up Frisbee® you can use at night, and a fortune-telling box that is a new electric version of the old Magic 8 Ball® or the fortune tellers you see at carnivals. This is a fun, creative, open-ended challenge that is probably unlike anything you have done before.

Before you can tackle these design challenges, you first need to learn about electricity, learn how to build circuits and switches and how to draw schematics of circuits. You will learn how to wire series and parallel circuits, and you need to understand how these two different types of circuits work. You will also learn how to strip and solder wires, as well as how to use other basic tools to build things.

Electrical Engineers understand how to design and build different types of circuits to make electrical devices, like iPods and TVs, cell phones, kids toys, computers, weather satellites, robotic vacuum cleaners, electric cars, and many other things. This workshop will give you the ability to design and build your own electrical inventions, and give you some idea of what it is like to be an Electrical Engineer.

DesignLab: Electrical Inventions Workshop Kit

- [2] 22 GA. Wire, Black, 100 ft. Roll
- [2] 22 GA. Wire, Red, 100 ft. Roll
- [25] Foam Boards, 20 x 30, White
- [300] Drinking Straws
- [500] Jumbo Craft Sticks
- [50] Clothespins, Spring Type
- [1] Aluminum Foil sheet, 75 ft. Roll
- [200] Brass Paper Fasteners
- [3] Jumbo Paper Clips, 100/box
- [24] Brass Strips, 2 x 12 in.
- [24] Tin Sheets, 4 x 10 in.
- [2] Rubber Bands, Assorted, 2 oz.
- [1] Cotton Twine 300 ft. long Roll
- [1] Velcro, 3/4 in. x 3 ft. long Strip
- [24] Sinkers Egg, Steel, 5 oz.
- [5] 14mm Steel Balls, 5/pkg.
- [200] Flat Washers, 1/2 in. ID
- [1] 8D Common Nails, 5lb. Box
- [1] Perforated Steel Pipe Strap, 3/4 in. W x 50 ft. long Roll

021292 **Now Includes a Workshop Guide!**\$335

DesignLab: Electrical Inventions Workshop Guide

652563 Booklet\$15.95

BEST VALUE!

DesignLab: Electrical Inventions Complete Classroom Pack

Includes: [12] Project Parts Kit (#021291), a Workshop Materials Pack (#021292), and a Spare Parts Kit (#021293).

021294.....\$695

DesignLab: Electrical Inventions Project Parts Kit

- [1] Workshop Guide
- [1] DesignLab Frisbee
- [3] SPST Slide Switch
- [2] SPST Momentary Pushbutton Switch, N.O.
- [1] AA Battery Holder, 2-Cell with Leads
- [2] AA Battery
- [2] 3V Lithium Coin Cell Battery
- [2] Coin Cell Holder
- [4] Ultrabright Red LED, 1-3/4 with Flange
- [1] Alarm Horn, 5-10 V DC
- [1] Extra Large LED, Red
- [1] Extra Large LED, Green
- [1] Extra Large LED, Yellow
- [6] Ceramic Disc Magnets
- [1] Ceramic Block Magnet

021291\$29.95

DesignLab: Electrical Inventions Spare Parts Kit

- [2] DesignLab Frisbee
- [3] SPST Slide Switch
- [3] SPST Momentary Pushbutton Switch, N.O.
- [3] AA Battery Holder, 2-Cell with Leads
- [6] AA Battery
- [3] 3V Lithium Coin Cell Battery
- [3] Coin Cell Holder
- [2] Ultrabright Red LED, 1-3/4 with Flange
- [2] Alarm Horns, 5-10V DC
- [2] Extra Large LEDs, Red
- [2] Extra Large LEDs, Green
- [2] Extra Large LEDs, Yellow
- [12] Ceramic Disc Magnets
- [6] Ceramic Block Magnets

021293\$29.95

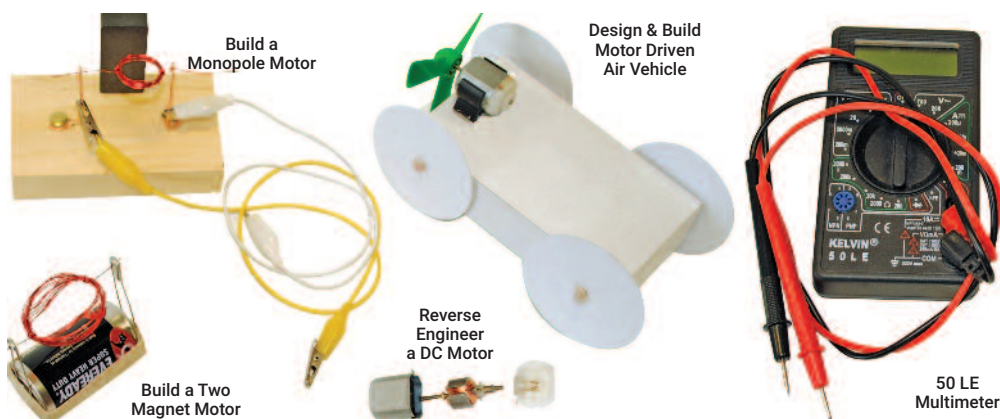
**KELVIN® New Standards®
S.T.E.M. Lab: Electricity Gr. 4-7**

Learn through hands on activities the basics of electricity and electrical circuits. Students will combine electrical components to create simple circuits and solve simple electricity design problems. Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Team Pack

Includes: Reusable Corrugated Plastic Display Board, [20] Light House Kits, [10] Switches, Wires, [10] Bulbs, [10] Sockets, [10] Buzzers, Jumper Cables, [10] Battery Holders and Motors. Requires assembly with hand tools and batteries.

842494 [5] Kits & Extra Parts.....**\$245**


KELVIN® S.T.E.M. Lab: Motors Gr. 7-12

Hands-on activities (for teams of two) cover: single magnet motors, electromagnets, reverse engineering DC motors, motor driven air powered carts and more. Students can design their own display board for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Team Pack

Includes Reusable Corrugated Plastic Display Board, [5] Monopole Magnet Motor Kits, [5] Two-Magnet Motor Kits, [5] Air Car Kits, [8] DC Motors, Battery Holders, Magnets, Cardstock Wheels, Wood, Axles, Pliers, Cardstock (Pre-Cut & Scored), Motor Mounts, 50LE Multimeter, Alligator Jumper Cables, Propellers, Copper Wire, Magnet Wire, Solid Wire, [2] Compasses, Abrasive Paper, Nails, Rubber Bands, Wood Blocks and Instructions. Requires assembly with hand tools and batteries (AA & D).

842486 Team Pack - [15] Kits, 50LE Multimeter & Extra Parts**\$135**

Advanced Team Pack

Includes Team Pack (842486) **PLUS** [1] Reusable Corrugated Plastic Display Board, [10] Kre8® Motor Kits and **★ BONUS** [3] Kre8® Motor Kits (see above).

842368 Team Pack + [10] Kits & **★ BONUS** [3] Kre8® Motor Kits**\$295**

KELVIN® S.T.E.M. Lab: Advanced Motors

Explore additional motor types like generators and sturg motors. Students can design their own display board for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board (included).

Enough materials for a class include: Corrugated Plastic Display Board, [30] Motor Generator Kits, [15] Sturg Motor Kits and [5] 50LE multimeters.

842376 Class Pack - [45] Kits & [5] 50LE Multimeters**\$295**

★ BONUS PRODUCT included with
KELVIN® S.T.E.M. Lab: Motors
Advanced Team Pack (842368)


KELVIN® Kre8® DC Motor

Build an electromagnet and make the motor spin as fast as possible!

Kit includes: tubes, slit rods, steel rods, copper wire, [2] magnets, collars, clip connectors, metal bearing, fuse, reed switch, red base, bag and sand paper. Requires a battery.

Kit

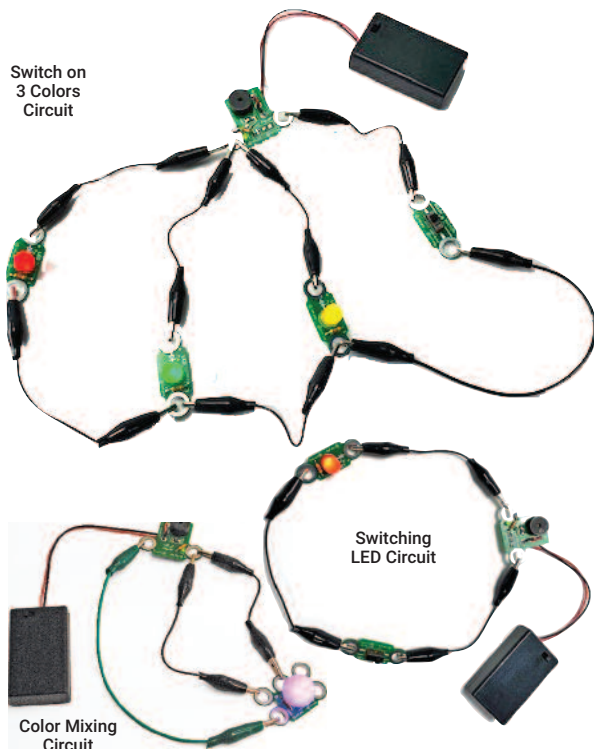
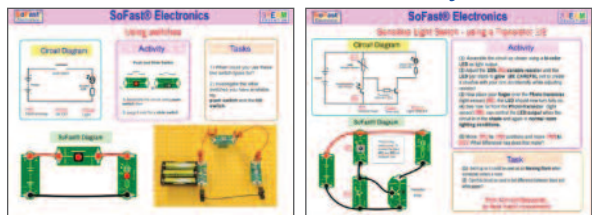
842081**\$15.95** or **\$14.95** ea./5+
or **\$13.95** ea./10+

Bulk Pack for 20

283736**\$12.50 Per Kit \$250**



Circuits in Seconds with Activity Sheets



KELVIN® SOFAST® ELECTRONICS MINI LAB 1 Gr. 3-6



Boards & Parts in Mini Lab 1 include:

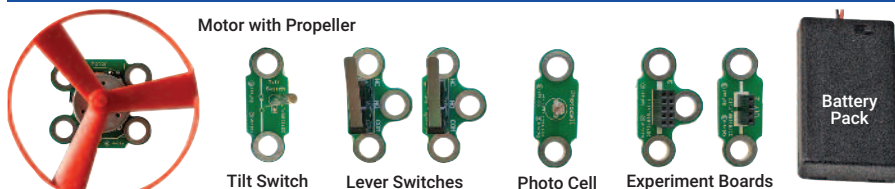
- Push Switch
- Momentary Switch
- [3] LED Boards
- Buzzer
- Variable Resistor
- Electronic Parts
- Battery Pack
- [10] Alligator Clip Leads
- Case

Activities in Mini Lab 1 include:

- Power Supplies
- Fuses
- LEDs
- Series / Parallel Connections
- Resistors
- Switches
- Digital Logic

842568 KELVIN® SoFast® Electronics Mini Lab 1\$69.95 or \$59.95 ea./5+

KELVIN® SOFAST® ELECTRONICS MINI LAB 2 Gr. 6-8



Boards & Parts in Mini Lab 2 include:

- Tilt Switch
- [2] Lever Switches
- Motor
- Propeller
- Photo Cell
- [2] Experiment Boards
- Electronic Parts
- Battery Pack
- [10] Alligator Clip Leads
- Case

Activities in Mini Lab 2 include:

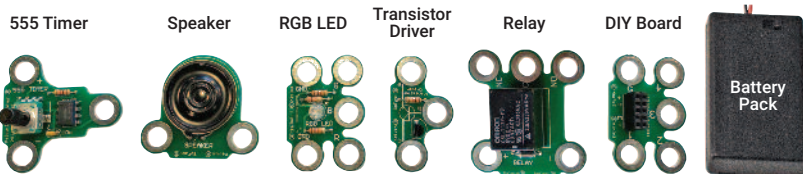
- Photocells
- Transistors
- Motors
- Building a Simple Car that moves with propeller power

842580 KELVIN® SoFast® Electronics Mini Lab 2\$69.95 or \$59.95 ea./5+

KELVIN® SOFAST® ELECTRONICS MINI LAB 1+2+3 Gr. 7-12



KELVIN® Kre8® Car Kit (above) with added electronic parts from Mini Lab 1+2+3



Board & Parts include, in addition to those provided with Mini Labs 1 & 2:

- Kre8® Car Kit
- DIY Mini Breadboard for 5 Connections
- 555 Timer
- Speaker
- RGB LED
- Transistor Driver
- Relay
- Electronic Parts
- Battery Pack
- [20] Alligator Clip Leads
- Case

Activities cover, in addition to Mini Labs 1 & 2:

- Multimeters
- Phototransistors
- Tilt Switches
- Relays
- 555 Timer
- Capacitors

842581 KELVIN® SoFast® Electronics Mini Lab 1+2+3\$195 or \$175 ea./5+

KELVIN® ELECTRONICS LABKIT TRAINER: ANALOG

Economical, hands-on trainer features clearly labeled sections of common electronic parts already added to a circuit board. Students use jumper wires and breadboard connection points in each section. No need for special cables or alligator clips.

Experiments in the manual cover:

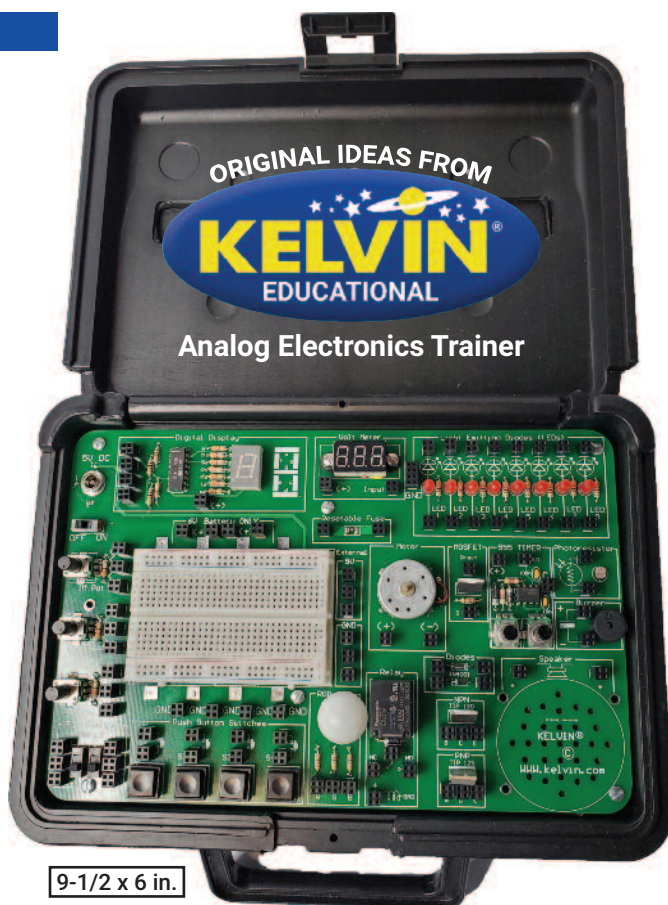
- Lighting the LED
- LED based Digital Logic Probe
- Counting in Binary with Switches
- Making Colors with RGB LED
- Relay Experiment
- Making Sounds with 555
- Controlling the LED Brightness with Photoresistor
- Morse Code
- Using the NPN Transistor
- Night Light Experiment
- Using the PNP Transistor as a Relay
- Using the Resettable fuse
- Using the Voltmeter
- Controlling the speed of the motor with PWM Control
- Student/teacher can make up their own or look online for more.

Analog LabKit includes:

- Power Input (5V DC Wall Adapter)
- Power Switch
- [3] Potentiometers (1M, 100k, 10k)
- [2] SPDT Switches
- [4] Pushbutton Switches
- Digital Display
- 7-segment w/ BCD driver (CD4511, Breadboard - 400 contacts)
- Volt Meter (3-digit, Digital)
- Resettable Fuse (0.75A)
- RGB LED
- Relay
- Transistors (NPN and PNP)
- [8] LEDs
- Motor
- MOSFET (N-Channel)
- 555 Timer (w/ Freq. & PWM Control)
- Photoresistor (Photocell)
- Buzzer
- Speaker (2 in., 8 Ohm, 0.2W)

Assembled trainer with storage case and 6V adapter. Ideal for HS and trade schools. Powered by the provided 5V DC wall adapter or [4] AAA batteries (not included) for standalone operation. Each section has its own power connection and does not drain the batteries when not in use. 110 V AC. USA plug.

842462 Assembled - Call for Additional Pricing**\$295 or \$275** ea./10+



9-1/2 x 6 in.

KELVIN® ELECTRONICS LABKIT TRAINER: DIGITAL

NEW Economical, hands-on trainer features clearly labeled sections of common electronic parts already added to a circuit board. Students use jumper wires and breadboard connection points in each section.

In addition to descriptions of all basic parts, experiments in the manual cover:

- Lighting LEDs
- Using different types of switches
- Display numbers on 7 segment displays
- Using a simple digital probe
- Generating sounds
- Generating colors with an RGB LED
- Demonstrating the operation of AND, OR and NOT gates
- Build 4-bit and 8-bit binary counters and display the data
- Build decade counters
- Use and demonstrate debouncing circuits
- Serial to parallel data transfer
- Parallel to serial data transfer
- Generating PWM signals

Digital LabKit includes:

- [2] Displays, 7-segment w/ BCD driver (CD4511)
- [8] LEDs w/ Drivers (ULN2803)
- [2] Binary Counters, 4-Bit (7493)
- Shift Register, Parallel In/Serial Out (74165)
- Shift Register, Parallel Out/Serial In (74164)
- [6] Digital Inputs/Outputs, Debounced
- 555 Timer w/ Freq. & PWM Adjust.
- RGB LED (Common Cathode)
- Digital Probe w/ Light & Sound Outputs
- [4] AND Gates (7408)
- [4] OR Gates (7432)
- [6] Inverters (7404)
- 10K Potentiometer
- [4] Push Button Switches
- [8] SPDT Switches w/ Protecting Resistors
- 400 Contact Breadboard

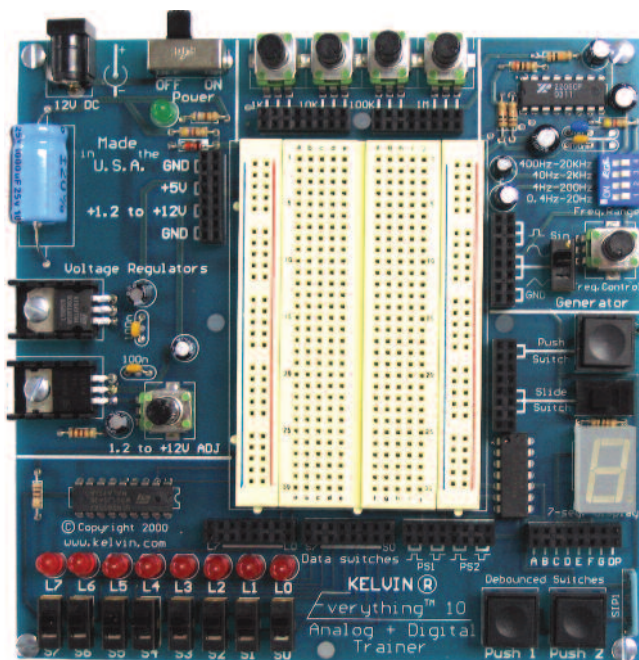
Assembled trainer with storage case and 5V adapter. Ideal for HS and trade schools. Powered by the provided 5V DC wall adapter or for standalone operation, use [4] AAA batteries (not included). Each section has its own power connection and does not drain the batteries when not in use. 110 V AC. USA plug.

842602 Assembled - Call for Additional Pricing**\$295 or \$275** ea./10+



9-1/2 x 6 in.

KELVIN® Everything™ Electronics Trainers



The MOST Economical Trainer!

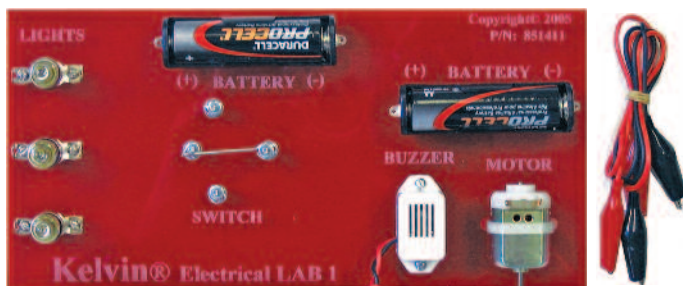
Actual Size is 5-5/8 x 5-5/8 in.

KELVIN® Everything 10™ Trainer

Intended for use with your textbook; does not include curriculum. Board measures 5-5/8 x 5-5/8 in. In addition to a Wire Jumper Kit and 12 V Power Supply, the trainer also includes these on-board parts:

- [1] Breadboard: 500 Contacts
- [2] Power Supplies: Fixed Power Supply (5 V) and Variable Power Supply (1.2-12 V)
- [1] Function Generator: 0.3Hz-20KHz with 3 Outputs (Square, Sinusoidal, Triangular)
- [4] Potentiometers: 1K, 10K, 100K, and 1M
- [14] Switches: SPDT Switch, Pushbutton Switch, [4] Fully Debounced Pushbutton Switches with +/- Signal Outputs, and, [8] Signal Switches
- [9] LEDs / Displays: [8] Fully Buffered LEDs and, a Large 7-Segment Display (3/4 in. High)

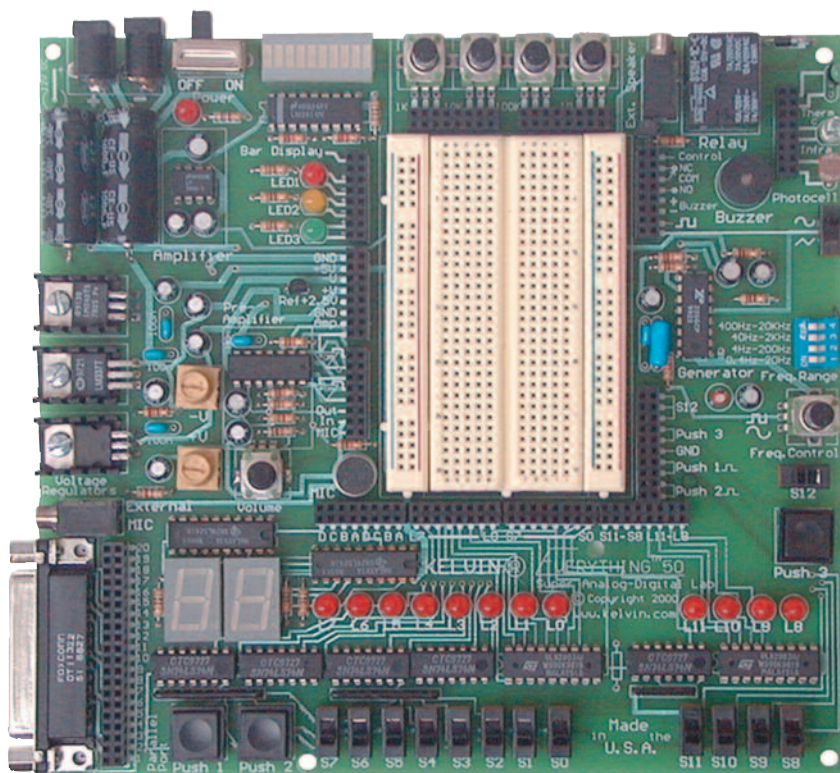
841121 Kit\$175 or \$155 ea./3+
841122 Assembled Trainer\$195 or \$185 ea./3+



KELVIN® Learn About Electronics Activity

No soldering is required! Students experiment with series and parallel circuits, switches, batteries, lights, continuity and more. Includes board, banana plugs and instructions.

841749 Kit.....\$34.95



SUPER ANALOG & DIGITAL TRAINER

Actual Size is 7-1/4 x 6-3/4 in.

KELVIN® Everything 50™ Trainer

Intended for use with your textbook; does not include curriculum. Board measures 7-1/4 x 6-3/4 in. In addition to a Wire Jumper Kit and 12 V Power Supply, the trainer also includes these on-board parts:

- [1] Breadboard: 400 Contacts
- [4] Power Supplies: Fixed (5 V), [2] Variable (1.2-12 V & -1.2 to -12 V, req. DC Wall Adapter, 220121), High Accuracy Voltage Reference Source (2.5 V)
- [1] Function Generator: 0.4 Hz-20 KHz with 3 Outputs (Square, Sinusoidal, Triangular)
- [3] Inputs: Condenser Microphone, External Microphone Jack, Parallel Port with DB25 Socket Connector
- [3] Outputs: Buzzer, 10A/125V Relay, External Speaker Jack
- [4] Amplifiers: Power Amp with Volume Control, Pre-Amplifier, [2] Independent Op/Amps
- [16] Switches: SPDT, Pushbutton, [2] Fully Debounced Pushbutton with TTL Outputs, [4] with TTL Outputs, [8] Fully Debounced with TTL Outputs
- [4] Potentiometers: 1K, 10K, 100K, 1M
- [3] Sensors: Photocell, Thermistor, Phototransistor
- [27] LEDs/Displays: [3] LEDs with Current Limiting Resistors, [10] LED Bar Graph Display with IC Driver, [12] Fully Buffered LEDs with Dedicated Drivers, [2] 7-Segment LED Display (3/4 in. H) with Hexadecimal Drivers

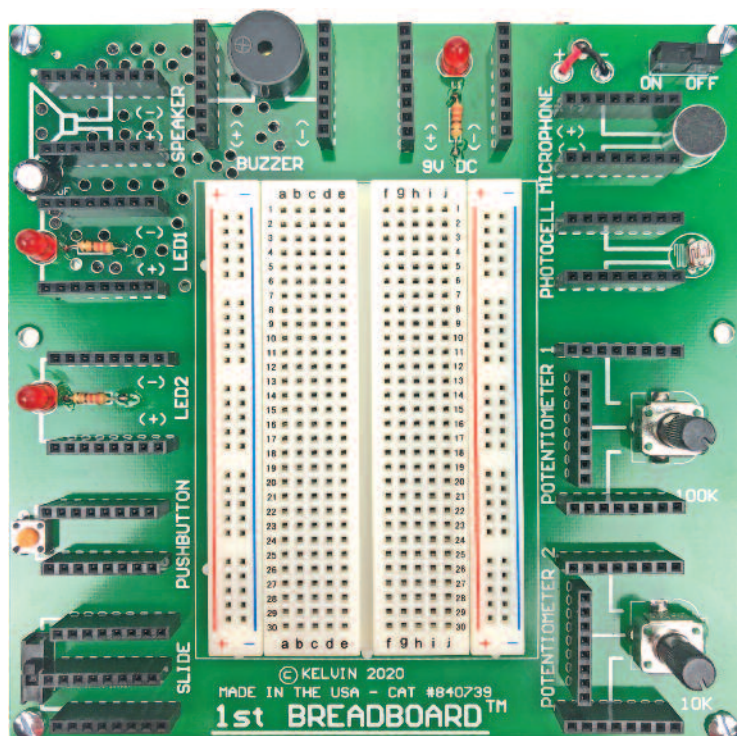
841143 Assembled\$295 or \$275 ea./9+ or \$255 ea./10+

DC Wall Adapter

Use as an optional power supply for negative voltage. 12 V DC, 800 mA. 110 V AC. USA plug.
220121\$19.95 or \$18.95 ea./3+

Find More Wall Adapters on pg. 21.





EASY CIRCUIT DESIGN

Actual Size is 6-1/4 x 6-1/2 in.

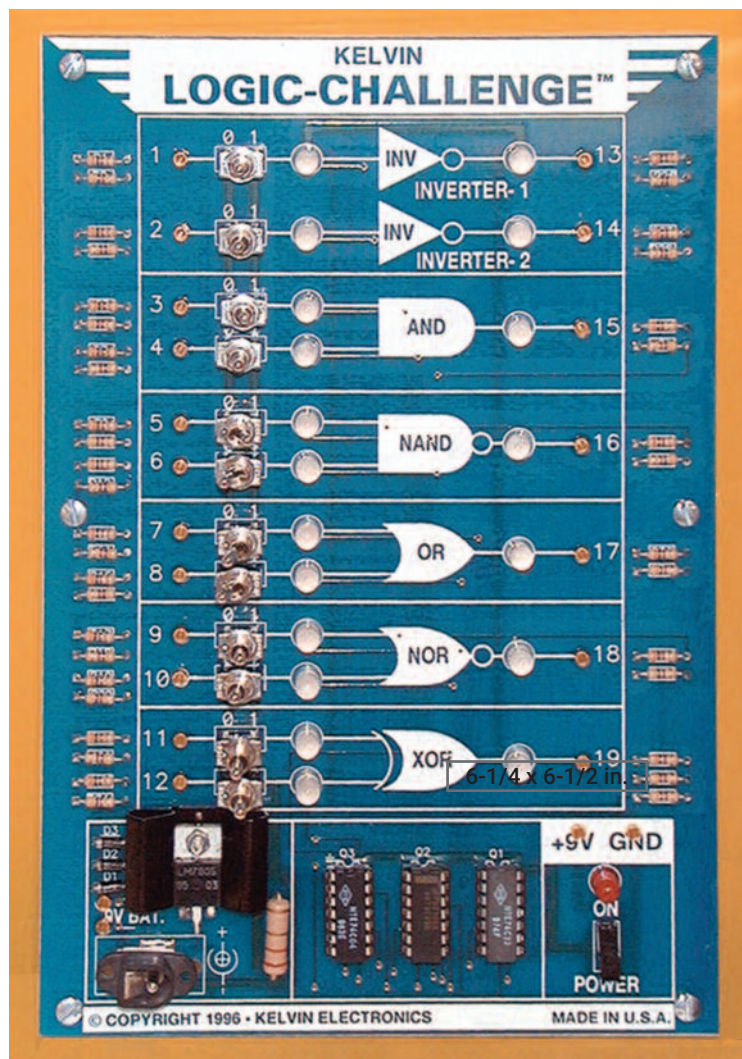
KELVIN® 1st Breadboard Lab™ Manual in Spanish or English

This easy to use trainer lets students build circuits that are far from simple in function. Breadboards make it easy to design, experiment with, and test circuitry without etching and soldering PC boards. This trainer not only contains a small breadboard for students to assemble circuits on, but includes basic components that most circuits use—right on the board, ready for easy wiring.

Experiments cover: Resistor Color Code, Resistor measurement, Ohm's Law, Measuring Voltage, Measuring Current, Series Circuits, Photocells, LED Current Limiting, Variable Time Constants, Capacitors, Using Switches, Using Buzzers, CMOS OR Gate, CMOS AND Gate, SPDT Toggle Switch with LEDs, Diode Operation, Transistor as Switch, Transistor as Amp, Crystal Radio with Amplifier, Kirchhoff's Law, 555 Timer IC with LED Flasher, 555 Timer IC with Buzzer, 555 Timer Delay Circuit, Basic PA System, Audio Power Amp with Speaker, Photocell Switch, Alarm Buzzer, Logic Inverter, Microphone, LED with Buzzer, Sound Generation Circuits, Parallel Circuits, Binary Numbers, and Lights & Switches.

The completely assembled trainer includes a 6-1/4 x 6-1/2 in. breadboard, an assortment of loose parts and a detailed lab manual.

840739	Assembled Trainer	\$175 or \$145 ea./6+
650801	Additional Manual, English	\$19.95 or \$17.65 ea./6+
651240	Additional Manual, Spanish	\$19.95 or \$17.65 ea./6+



DIGITAL LOGIC CIRCUITS

Actual Size is 5-3/8 x 8-1/4 in.

KELVIN® Logic Challenge Trainer™

A fresh and exciting way for students to learn about the digital logic circuits that are used in computers and almost all electronics equipment.

Pre-wired logic circuits are connected with banana plug leads. Easily monitor input and output states. Teachers can also use pre-wired logic circuits to demonstrate inverters and basic logic gates. After using this trainer, students will be more prepared for work in advance computer operations.

The easy to use and read Student Workbook contains: six demonstration projects, real world examples, self-tests, explanation of experiment results and classes or self-paced learning.

Table of Contents:

- Basic Digital Logic
- Binary Numbers and Codes
- Making Binary Numbers with Electronic Circuits
- How to Use the Logic Challenge Trainer
- Project 1 - Logic Inverter
- Project 2 - AND Gate
- Project 3 - NAND Gate
- Project 4 - OR Gate
- Project 5 - NOR Gate
- Project 6 - XOR Gate

Power is provided by a plug-in wall outlet transformer, built-in DC voltage regulator and separate on/off switch. The assembled trainer comes with a student workbook written by Lou Frenzel. Board measures 5-3/8 x 8-1/4 in. Ideal for Grades 9 to 12.

840870	\$135 or \$125 ea./3+
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Snap Circuits™

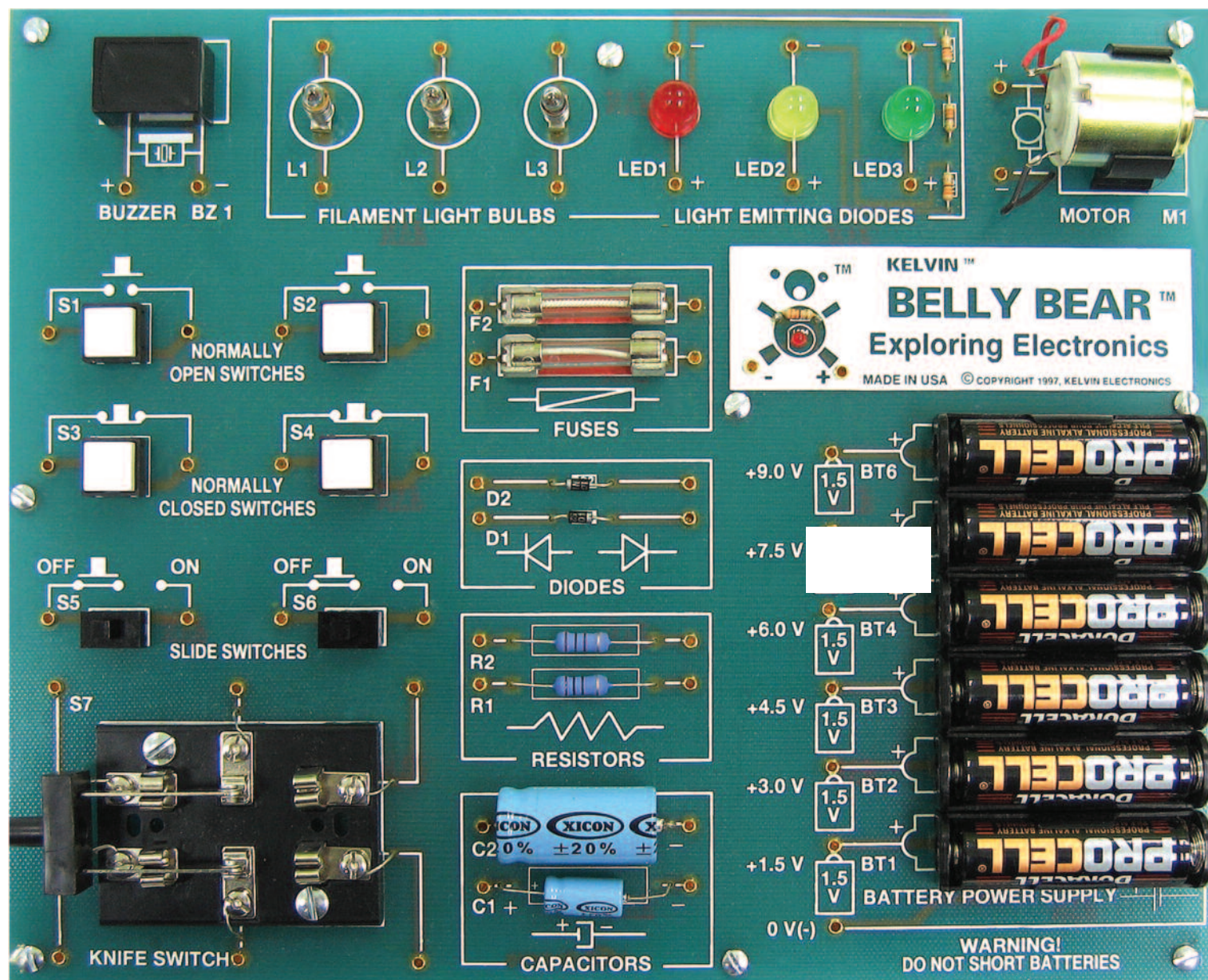
Make learning electronics a snap. Just follow the colorful pictures in the manual and build over 300 projects, such as AM radios, burglar alarms, flashlights, doorbells, and more. No tools required. Requires AA batteries.

Snap Circuits Jr.

282378 Over 30 Parts.....**\$49.95**

Snap Circuits

282379 Over 60 Parts**\$89.95**



IDEAL FOR YOUNGER STUDENTS

Actual Size is 8-1/2 x 10-1/2 in.

KELVIN® Belly Bear Electronics Trainers

An economical way for students, grades 1 and up, to learn about electronics. No prior electronics knowledge, on the part of the teacher or student, is needed. Quick disconnect makes it easy to create and test circuitry while learning about discrete components.

Teacher Guide includes Lesson Plans, Teacher Aids for each Lab, Suggested Discussions, Assessment Tests with Answer Keys, and a Glossary. The Student Manual contains numerous labs and projects.

Self-contained trainer includes built-in: Buzzer for sound, [2] Motor for motion and power generation, Capacitors to demonstrate hi/low capacitance, Resistors to demonstrate hi/low resistance, [2] Fuses (a good one and a bad one for testing), [2] Diodes, [3] Light Bulbs, [3] LEDs, Switches, [6] Batteries to wire in series or parallel, Student Manual and a Teacher's Guide. Assembled boards measures 8-1/2 x 10-1/2 in.

Belly Bear I™ Trainer

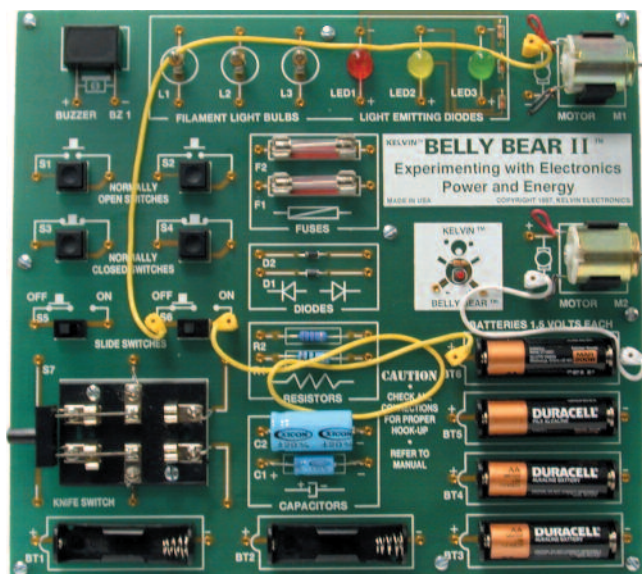
840985 w/ English Manual\$145 or \$125 ea./5+

Belly Bear II™ Trainer

840993 w/ English Manual\$165 or \$145 ea./5+

841235 w/ Spanish Manual\$165 or \$145 ea./5+

Actual Size
is 8-1/2
x 10-1/2 in.



KELVIN® BASIC 3™ External Sensors

Use to build a Smart House, explore controls, etc. External sensors reach up to 3 feet away from the motherboard.

- 840653 – LDR
- 840654 – Thermistor
- 840655 – Micro Lever
- 840656 – On/Off
- 840657 – Liquid
- 840658 – Magnetic
- 840684 – Microphone

Individual Sensors,

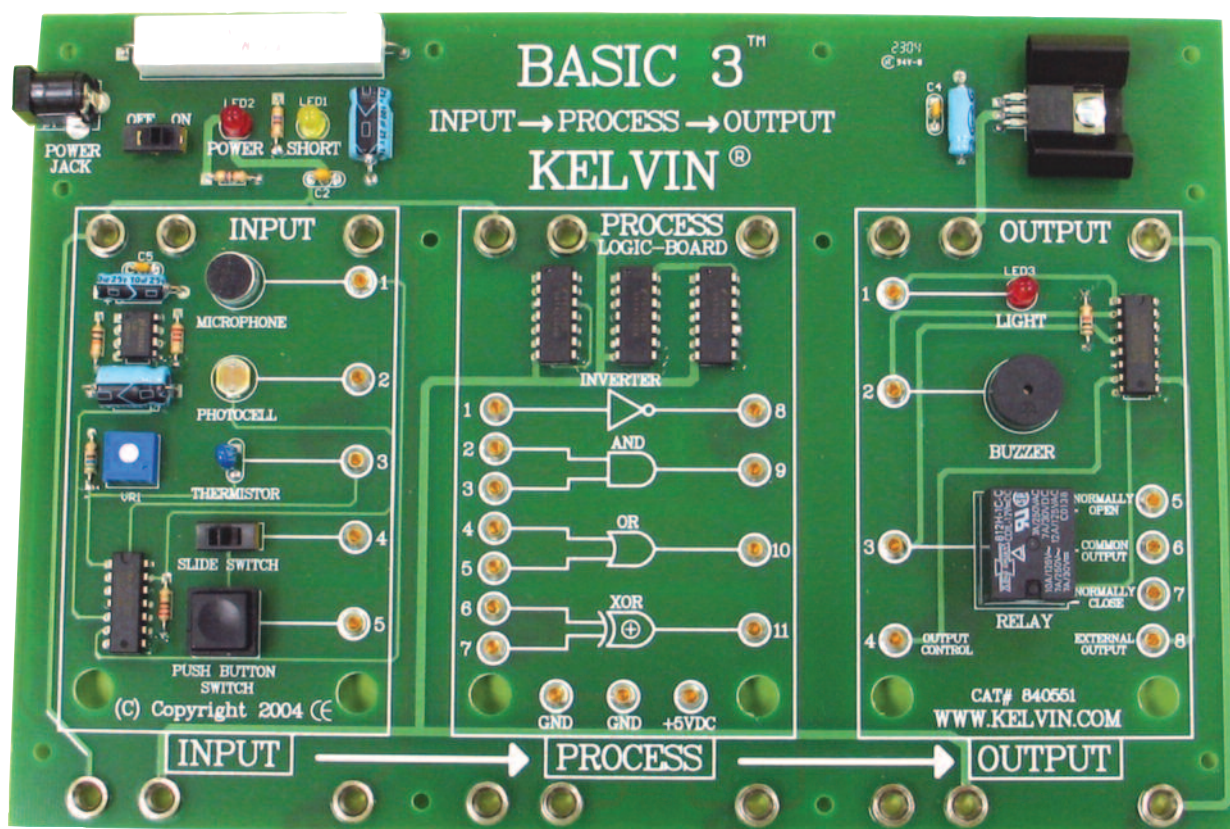
\$12.95

or **\$11.95 ea./3+**

Set of all 7,

840894, **\$135**

or **\$125 ea./3+**



INPUT → PROCESS → OUTPUT

Actual Size is 9-1/4 x 6-1/4 in.

KELVIN® Basic 3™ Trainer

Electronic circuits and schematic diagrams can be difficult to understand when learning about them. Even simple concepts can be difficult to grasp! What's needed are simple, hands-on activities that explore the concepts as students learn about them.

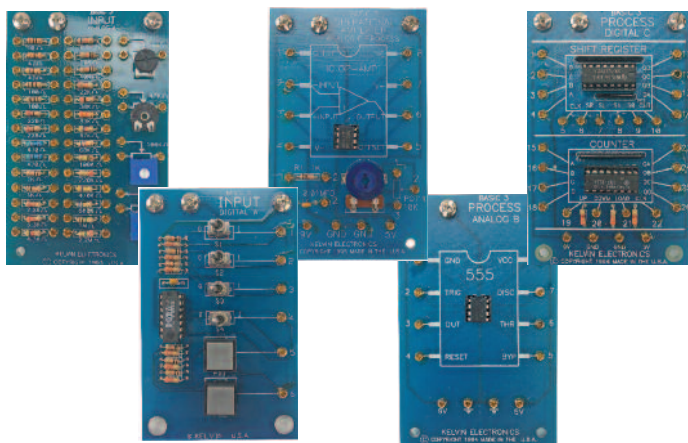
The BASIC 3™ Trainer introduces students to electronics in a non-threatening, thematic way. Hands-on activities help students (Grades 5 and up) explore electronics at their own pace. Stackable banana plug leads are used for quick circuitry design and hands-on experiments. The original BASIC 3™ concept and activities were designed and written by Earl D. Gates, the author of *Introduction to Electronics: A Practical Approach*.

The compact, assembled trainer includes: Expandable Motherboard, 9V DC Wall Transformer, Stackable Banana Plug Leads, [10] Activity Cards, Design Portfolio, Detailed Teacher's Guide, and Plug-In Module Ready (additional plug-in modules for digital and analog are in the left column). 110 V AC. USA plug.

840551 Basic 3™ Trainer **\$185 or \$175 ea./6+**
990136 Stackable Banana Cables **\$29.95 or \$26.95 ea./10+**

BEST VALUE! Basic 3™ Complete Set with Plug-In Boards

Includes: BASIC 3™ Trainer, [10] Activity Cards, Design Portfolio, All Digital Plug-In Boards, All Analog Plug-In Boards and Teacher's Guide. 110 V AC. USA plug.
840796 **\$1,250**



KELVIN® Basic 3™ Plug-In Boards

An excellent way to plug-in to the potential of the Basic 3™ Trainer!

ANALOG Plug-In Boards

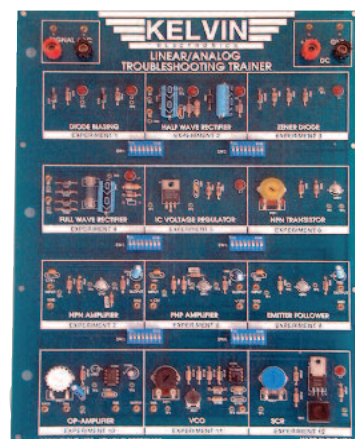
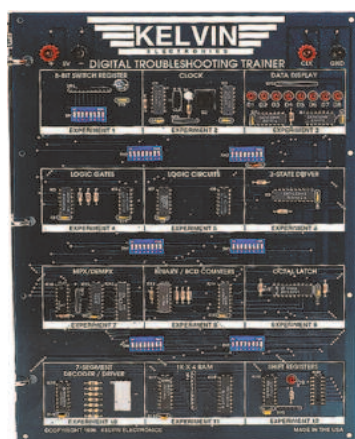
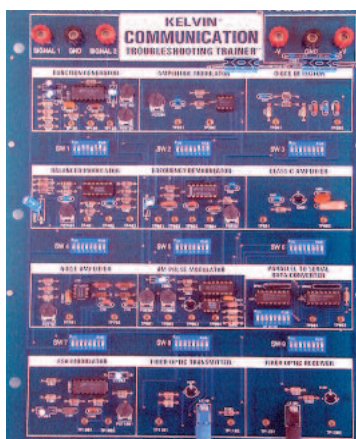
840553 Analog Outputs, Resistors & Pots., 3 Boards **\$195 or \$185 ea./3+**
840650 Circuits & 555 Timers, 2 Boards/Circuitry **\$145 or \$135 ea./3+**
840625 Wire, Fiber Optics & Infrared Comm., 2 Boards **\$145 or \$135 ea./3+**
840836 Op-Amp, 1 Board **\$95**

DIGITAL Plug-In Boards

840552 Logic Gates, Input & Output Devices, 3 Boards **\$195 or \$185 ea./3+**
840554 Digital Input & Output Devices, 3 Boards **\$195 or \$185 ea./3+**
840648 Counters & Shift Registers, 1 Board **\$95**
840649 Binary Adders & Subtractors, 2 Boards/Circuitry .. **\$145 or \$135 ea./3+**

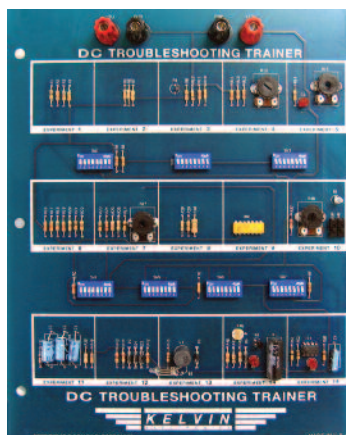
Mounting Bases for Plug-In Boards

840797 Analog Mounting Base **\$95**
840798 Digital Mounting Base **\$95**



PRE-WIRED NOTEBOOK TRAINERS

Actual Size is 8-1/2 x 11 in.



KELVIN® Troubleshooting Trainers

Each assembled trainer includes: pre-wired printed circuit boards (8-1/2 x 11 in.), wall adapter power supply, 3-ring storage binder, working electronic circuits with DIP switches, student lab manuals with experiments and tests, and a teacher's guide with detailed and documented faults.

AC Troubleshooting Trainer

Covers: Circuits, Resonance, Low & High Pass Filters, Band Pass & Reject Filters, Phase Shift Circuits and Transformers.

840627 Assembled Trainer\$325 or \$295 ea./3+

DC Troubleshooting Trainer

Covers: Circuits, Voltage Dividers, Resistors, Traces, Bridge Circuits, Voltage Source Circuits, Resistance Circuits, Switch Circuits, Capacitors, DC Diodes, DC Inductors, Transistor Switch Relay, Photoresistive Input Control and 555 IC Timers.

840626 Assembled Trainer\$325 or \$295 ea./3+

Communications Troubleshooting Trainer

Covers: Amplitude Modulator, Diode Detection, Balanced Modulator, Frequency Demodulation, Class C Amplifier, FSK Modulation, Fiber Optics, Function Generator, Parallel & Series Data Converter, AM Pulse Mode, and Noise Amplifier.

840951 Assembled Trainer\$325 or \$295 ea./3+

Linear/Analog Troubleshooting Trainer

Covers: Diodes, Complementary Symmetry, Emitter Follower, Amplifier Circuits, Audio Amplifiers, Power Amplifiers, Operational Amplifiers, Instrumentation Amplifiers, Speakers, Mixers, Audio Oscillator, Linear & Switching SCR Light Dimmer and Power Supply Regulator.

840857 Assembled Trainer\$325 or \$295 ea./3+

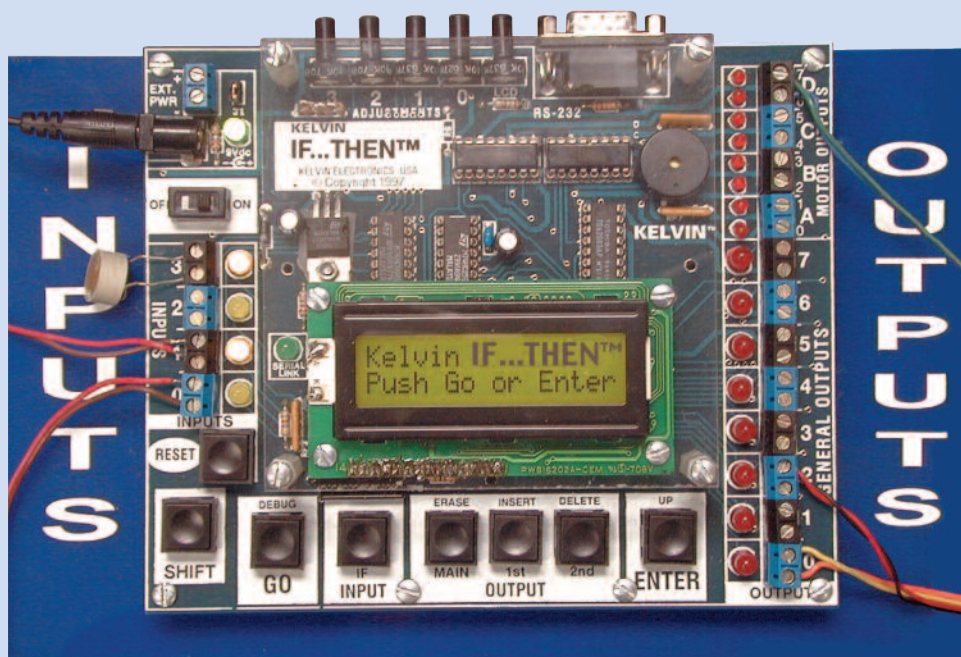
Digital Troubleshooting Trainer

Covers: Logic Gates, Decoders & Encoders, Flip Flops, Binary Comparators & Adders, Logic Circuits, XOR Gate and Applications, BCD Counters, Shift Registers, Multiplexer & Demultiplexer, Binary Up / Down Counters, 7-Segment Display, 3-State Bus and Static RAM.

840856 Assembled Trainer\$325 or \$295 ea./3+

KELVIN® Troubleshooting Trainers Set

841402 Set of 5 Assembled Trainers\$1,425



KELVIN® If...Then™ Trainer

Learn about conditional programming with this programmable logic controller. Programming is written in simple logic for quick learning and exploring input, process and output. Use it for controlling a model such as a greenhouse, light show, house alarm, doll house automation, etc.

Trainer includes:

- Alphanumeric Display (backlit, 2-line)
- Microprocessor (built-in) with Keyboard
- [4] Input Sensors (switch, photocell, etc.)
- [8] Outputs (buzzers, lights, etc. or [4] motor outputs)

Assembled controller includes: light sensor, switch sensor, buzzer, light bulb, motor, wall adapter and a RS232 cable. 110 V AC. USA plug. Grades 6 and up.

840990\$199.95 or \$189.95 ea./3+



KELVIN® Home Electrical Wiring Trainer

Students get valuable experience with home wiring tools and supplies. This comprehensive trainer includes all the supplies needed for students to complete a number of hands-on activities like creating and testing common AC/DC circuits. Subsequent activities challenge students as they wire progressively harder circuits. For Grade 9 through College.

840642\$795



KELVIN® Binary Quartz Clock

24-hour binary quartz accurate clock features built-in alarm and bi-color LEDs. Includes built-in alarm, DC wall transformer and instructions.

840589 Kit - 110 V AC, USA plug\$99.95 or \$94.95 ea./10+

KELVIN® Low Voltage Electric System

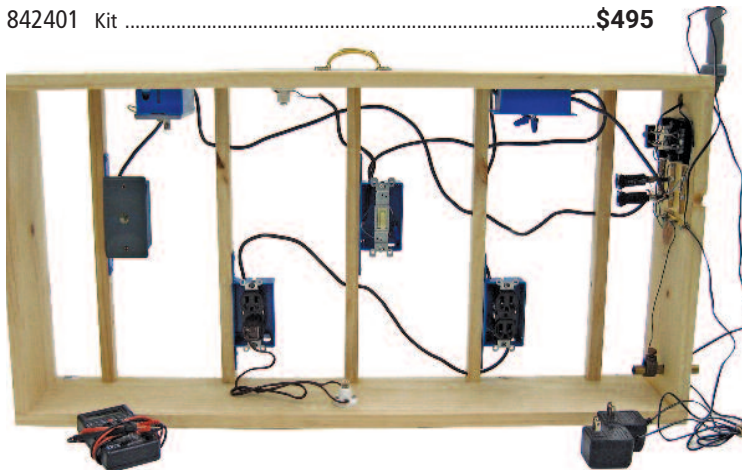
Using low voltage, safely wire AC components (such as outlets, switches, breakers, a dimmer switch, light fixture and a ceiling fan) for practice with DC voltage.

Low Voltage Electric Trainer Kit

Teachers construct this economical version of the trainer from a kit. It requires wire stripping, frame assembly, and circuitry assembly.

Kit includes: precut and drilled plywood (to simulate wall framing) frame), circuit breaker panel box, [2] electrical breakers (15 A), [6] electrical boxes, toggle switch, [2] outlet receptacles, Romex wire (14/2, 50 ft. long), ground wire pipe connector, brass pipe (for ground wire), [2] mini bulbs and sockets (to simulate overhead lighting), propeller (to simulate ceiling fan), wire nuts, multimeter (Volt-Ohm-Milliammeter), student instruction booklet, teacher's guide, and kit assembly instructions. Teachers will need to construct it.

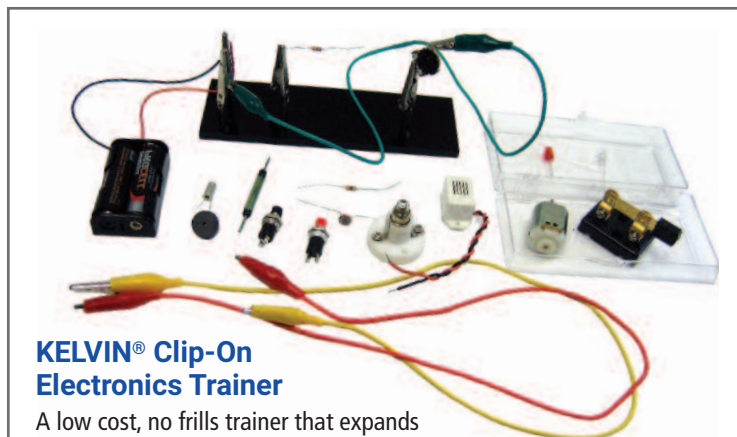
842401 Kit\$495



Assembled Low Voltage Electric Trainer

Each assembled trainer comes with a portable table top work station, step by step instructions, explanations, theory and assessments. The supplied curriculum is geared for general education not vocational study.

841890 Assembled\$795

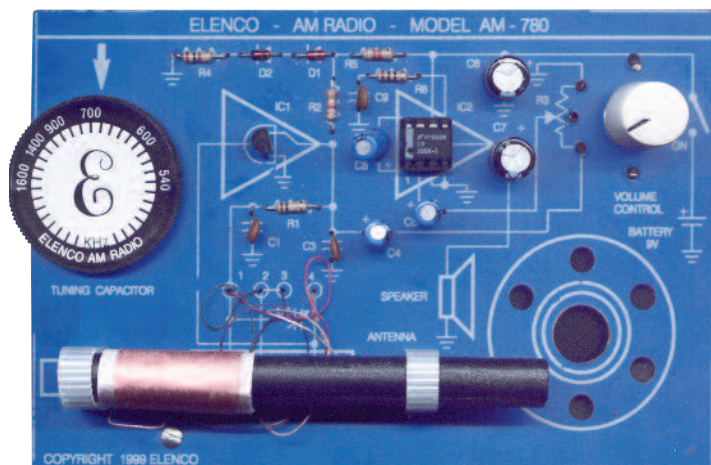
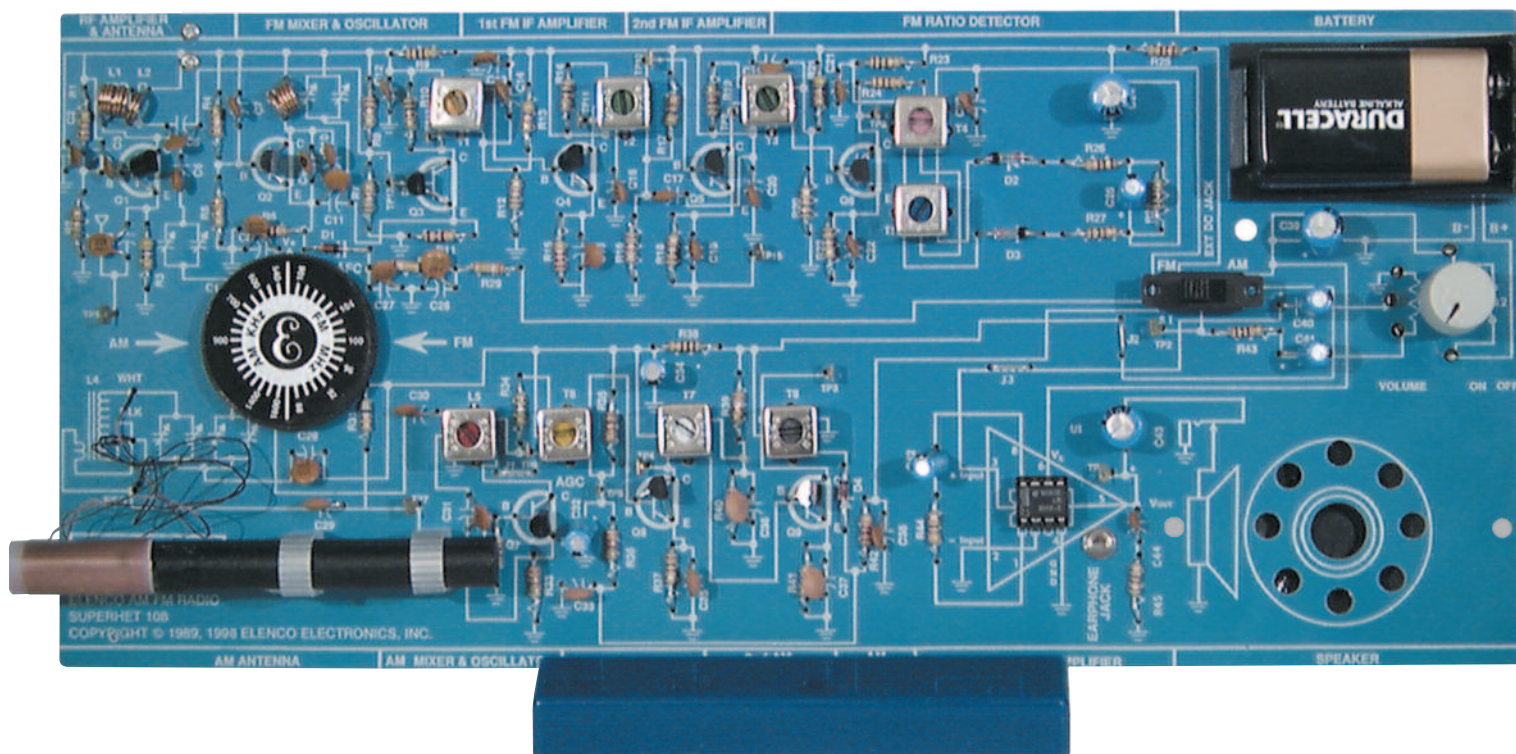


KELVIN® Clip-On Electronics Trainer

A low cost, no frills trainer that expands as your student's knowledge builds. Covers basic electronic components found in everyday use. Parts are connected together into circuits using jumper leads and a special holder.

Parts include: a variety of switches, lamp, LED, buzzer, piezo buzzer, motor, fixed resistor, photoresistor, variable resistor, power pack (batteries not included), jumpers and instructions. No soldering is required.

841980\$39.95 or \$34.95 ea./10+ or \$32.95 ea./20+



AM/FM Radio Kit with Transistor & IC

Construct an FCC-approved radio. Superheterodyne receiver of AM/FM frequencies. Learn about audio amplifiers, AM detectors, AM IFs, AM amplifiers, AM mixers, oscillators, FM detectors, FM IFs, and FM RF stages.

Kit includes AM/FM superheterodyne receiver, [7] transistors, [2] diodes, IC, PC board, earphones, magic wand and 52 pg. workbook. Requires a 9 V battery, soldering, and assembly.

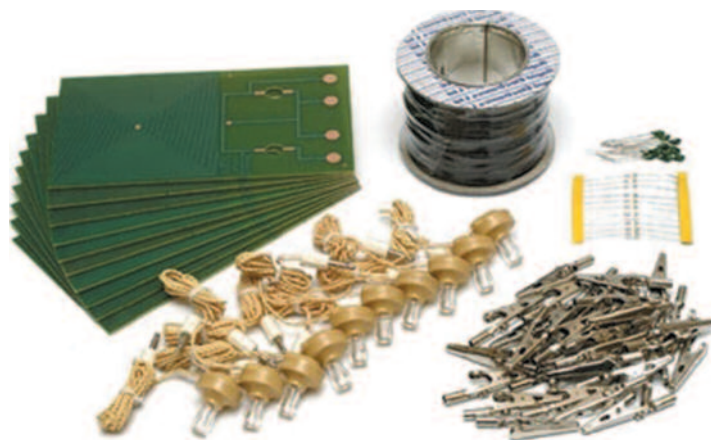
842313 Kit.....\$65.95 or \$60.95 ea./6+

AM Radio Kits with 2 ICs

Easy-to-build, complete radio on a single printed circuit board. Unique design allows you to place parts over its corresponding symbol on the PC board. Teaches the basic theory of AM radio operation. Detailed instructions and illustrations make it an educationally sound project.

Kit includes [2] ICs. Requires 9V DC battery, soldering, and assembly.

280642\$27.95 or \$26.95 ea./6+



Crystal Radio Bulk Pack

Each kit includes: crystal earpiece, aerial wire, and self-adhesive postcard.

283701 Bulk Pack of 10\$250



Stereo Headphones

Lightweight. 100 dB. 4-32 Ohms. 3.5mm stereo plug.

350043 ..\$4.95 or \$4.45 ea./10+

Project Speaker

8 Ohms, 0.1 W, PM, 2 in. Dia.

35000985¢ or 75¢ ea./4+



Project Microphone

10V DC. 1K.

350041 ..\$2.25 or \$1.95 ea./10+

Inductive Coil

Make an antenna with magnet wire. PCM. 100 mH.

290014\$4.94 or \$3.95 ea./3+

Circuit Wizard CONTROL & PCB DESIGN Software



By integrating the entire design process, Circuit Wizard provides you the tools necessary to produce an electronics project from start to finish – including on-screen testing of the PCB prior to construction! Designing is easy with Circuit Wizard. Just grab the components you need from the library, connect them together using the intelligent wiring tool and then press the 'Play' button to begin simulation.

Features SPICE, a new circuit simulation engine based on Berkeley SPICE. This industry-standard technology is the most advanced in the world, so you can be confident that results will be very fast and accurate.



A revolutionary system that combines circuit design, PCB design, simulation and CAD/CAM in one complete package. Easy to teach and easy to learn!

HOBBYIST Circuit Wizard
121747 v1.7, Single User\$175

PROFESSIONAL Circuit Wizard
has these extra features:

- 1,000 extra components.
- More virtual instruments including logic analyzer, DC power supply, function & word generator.
- Double-sided and Interactive PCB routing.
- DXF export for CAD/CAM.

121748 v1.7, Single User\$275

EDUCATIONAL Circuit Wizard
has Professional features plus:

- Component fault simulation for teaching students fault-finding.
- Educational support material and courseware authoring tools.
- Network support for Educational Versions.

121743 v3, Single User ★\$275

121744 v3, 5-Users ★\$695

121745 v3, Add. 5-Users ★\$245

121818 v3, 25-Users ★\$1,495

Livewire CIRCUIT DESIGN Software



Livewire is a simulated electronics lab that uses animation and sound to demonstrate principles of electronic circuits. 100's of components can be connected to investigate behavior of circuits. Simple interface helps to build circuits quickly. Livewire integrates with PCB Wizard 3, so when you've simulated a circuit, transfer it with the click of a button. PCB Wizard 3 automatically places all components & routes the circuit.

HOBBYIST Livewire
121442 Single User\$79.95

PROFESSIONAL Livewire
has these additional features:

- 1000 extra components to choose from.
- More virtual instruments, including logic analyzer, function generator and word generator.

121443 Single User\$175

EDUCATIONAL Livewire
has Professional features plus:

- Component fault simulation for teaching fault-finding.
- Educational support material and courseware authoring tools.
- Network support (Standard/Pro editions don't run on networks).

121764 Single User ★\$175

121444 5-Users ★\$495

121445 Additional 5-Users ★\$195

Bright Spark THEORY TEACHING Software



Bright Spark combines on-screen animation with realistic simulation to bring circuits to life. It assumes no prior knowledge and includes built-in courseware to learn key electronics principles. Experiment with over 40 components as well as a voltmeter, ammeter and oscilloscope to record circuit measurements. Interactive worksheets teach principles behind electricity and electronics. Activities include Ohm's law, Series and parallel circuits, AC and DC circuits, Kirchhoff's laws, Resistance, Capacitance, Logic and Transistors.

HOBBYIST Bright Spark
121438 Single User\$79.95

PROFESSIONAL Bright Spark
has these additional features:

- Large component library.
- Electronics theory teaching courseware.

121439 Single User\$175

EDUCATIONAL Bright Spark
has Professional features plus:

- Courseware authoring tools.
- Network support (Standard and Pro editions won't run on networks).

121766 Single User ★\$175

121440 5-Users ★\$495

121441 Additional 5-Users ★\$195

Control Studio 2 SYSTEMS MODELING Software



Control Studio 2 provides a rapid method of developing circuit ideas, allowing you to consider different scenarios before a final design solution. Compatible with Circuit Wizard, Livewire & PCB Wizard 3, it is easy to turn your ideas into a schematic or PCB. Creating circuits could not be easier. Drag and drop subsystem blocks from the parts gallery onto your document, link them with connectors and press "play". Edit with built-in tools such as panning, clipboard and grid.

HOBBYIST Control Studio 2
121446 Single User\$79.95

PROFESSIONAL Control Studio 2
has these additional features:

- Larger component library.
- Electronics-systems theory teaching courseware.

121447 Single User\$175

EDUCATIONAL Control Studio 2
has Professional features plus:

- Courseware authoring tools.
- Network support (Standard and Pro editions won't run on networks).

121765 Single User ★\$175

121448 5-Users ★\$495

121449 Additional 5-Users ★\$195

121831 Site License ★\$1,495

PCB Wizard 3 PCB DESIGN Software



PCB Wizard 3 is great for designing single- and double-sided PCBs. It provides a range of tools for all traditional steps in PCB production and eliminates steep learning curves. Drag and drop components to a document and connect them with the intelligent wiring tool. Select "Convert to PCB" and PCB Wizard 3 does the rest.

Hobbyist PCB Wizard 3
121450 Single User\$79.95

PROFESSIONAL PCB Wizard 3
has these additional features:

- 1000 extra components to choose from.
- Double-sided and Interactive PCB routing.
- DXF export for CAD/CAM

121451 Single User\$175

★ Educational versions sold to schools only

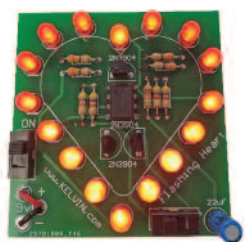
EDUCATIONAL PCB Wizard 3
has Professional features plus:

- More virtual instruments, incl. logic analyzer & word generator
- Component fault simulation for teaching students fault-finding.
- Educational support material and courseware authoring tools.
- Network support (Standard/Pro editions won't run on networks)

121763 Single User ★\$175

121452 5-Users ★\$495

121453 Additional 5-Users ★\$195

**KELVIN® Flashing LED Heart**

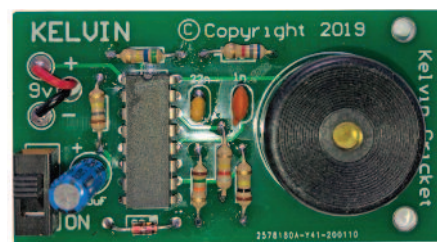
Kit includes 16 LEDs that can either blink the whole heart or half the heart then the other. Requires a 9V DC battery.

842519 Kit.....**\$11.95** or **\$10.95** ea./10+

KELVIN® Christmas Tree

Kit includes: [16] LEDs that can either blink in pattern or all at once with two switches. Requires 9V battery.

842520,
\$10.95 or
\$9.95 ea./10+

**KELVIN® Electronic Chirp**

Makes repeating cricket sound (time between two crickets) using piezo electric buzzer and a switch. Requires a 9V battery.

842507 Kit.....**\$9.95** or **\$8.95** ea./10+

KELVIN® Stroboscope

The powerful flash effect created by the finished kit can be used for warning signs, eye-catcher, etc. Auto on at dark with adjustable sensitivity. Requires 9V battery or 12V DC.

842529 Kit.....**\$15.95** or **\$12.95** ea./10+

**KELVIN® 3D Christmas Tree**

Kit includes 32 LEDs that can either blink in pattern or all at once with two switches. Requires 9V battery. Kit.

842521, **\$15.95**
or **\$12.95** ea./10+

**KELVIN® Sound to Light**

7 super bright LEDs flash in time with sound fed through the onboard microphone. Sensitivity can be adjusted through the volume control.

842032 Kit.....**\$12.95** or **\$10.95** ea./10+

Bulk Pack
Per Kit Price
As Low As

\$6

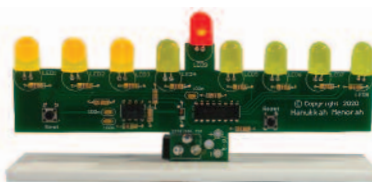
KELVIN® Police Siren

Mimics a police car siren with tone adjustment. Can also be used as burglar alarm. Requires 9V battery.

841567 Kit.....**\$7.95** or **\$6.95** ea./10+

842245 Bulk Pack of 20**\$6 Per Kit \$120**

842189 Assembled Demo**\$59.95**

**KELVIN® Hanukkah Menorah**

Candles are simulated with 10mm LEDs. Kit includes: pc board, switches, LEDs and mounting base. Finished board is 6 in. L x 3 in. H. Requires 9V battery (220019) or 110 V AC power adapter.

842524 Kit.....**\$34.95** or **\$29.95** ea./10+

842582 Assembled Demo**\$85**

Bulk Pack
Per Kit Price
As Low As

\$7.45

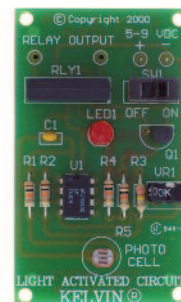
KELVIN® Light Activated

Light triggers a relay for an alarm or robot. Requires a 9V battery.

841129 Kit.....**\$9.95** or **\$8.95** ea./10+

842224 Bulk Pack of 20**\$7.45 Per Kit \$149**

842161 Assembled Demo**\$59.95**



Bulk Pack
Price Per Kit
As Low As

\$12.50

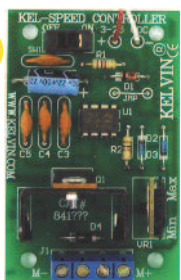
KELVIN® Motor Speed Control

Vary the speed of any DC motor (3-25V DC; 3A max.) from 0 to 100%. Control a fan, motor, etc.

841732 Kit.....**\$15.95** or **\$14.95** ea./10+

842227 Bulk Pack of 10**\$12.50 Per Kit \$125**

842166 Assembled Demo**\$69.95**



Bulk Pack
Per Kit Price
As Low As

\$9.99

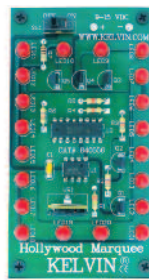
KELVIN® Hollywood Marquee

Kit includes: PC board, parts and instructions. Requires a 9V battery.

840556 Kit.....**\$12.95** or **\$11.95** ea./10+

842229 Bulk Pack of 10**\$9.99 Per Kit \$99.95**

842168 Assembled Demo**\$69.95**



Bulk Pack
Per Kit Price
As Low As

\$10.50

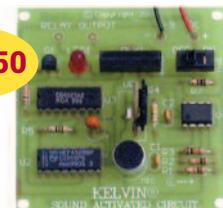
KELVIN® Sound Activated

Using sound or voice, a relay is energized. Increase or decrease the sensitivity as desired. Requires 9V battery.

841128 Kit.....**\$12.95** or **\$11.95** ea./10+

842226 Bulk Pack of 10**\$10.50 Per Kit \$105**

842165 Assembled Demo**\$59.95**



Bulk Pack
Price Per Kit
As Low As

\$3⁹⁵
**KELVIN®
Micro-Mazer**

Blinking LED eyes and a jumbo LED gives this kit a 'robotic face'. Requires a 9V battery.

 841124 Kit.....**\$6.95** or **\$5.95** ea./10+
 842225 Bulk Pack of 20.....**\$3.95 Per Kit \$79**
 842164 Assembled Demo**\$49.95**

 Bulk Pack
Per Kit Price
As Low As

\$3⁹⁵
**PROJECT LEAD
THE WAY**
**KELVIN®
Night Light**

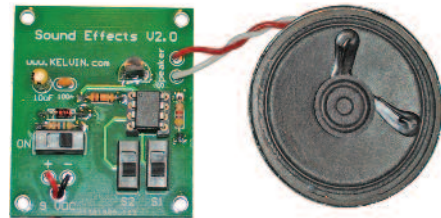
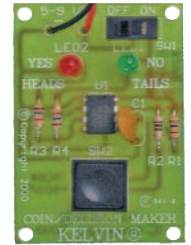
Photocell turns a super bright LED on as the room gets dark or off when it gets light. Requires [2] AA batteries.

 842141 Kit.....**\$5.95** or **\$5.45** ea./10+
 or **\$4.95** ea./20+
 842142 Bulk Pack of 30.....**\$3.95 Per Kit \$118.50**

 Bulk Pack
Per Kit Price
As Low As

\$1⁹⁵
**KELVIN®
Blinking LEDs**

Demonstrates how to blink two LEDs with many basic electronic parts. Requires a 9V battery.

 841123 Kit.....**\$3.95** or **\$2.95** ea./10+
 842162 Bulk Pack of 30 ..**\$1.95 Per Kit \$58.50**
 842163 Assembled Demo**\$49.95**

KELVIN® Sound Effects v2

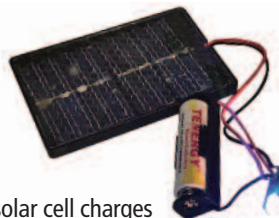
New design features a programmed Arduino chip. Make four different sound effects; from a Laser Gun to Police Siren. Requires a 9V battery.

 842505 Kit.....**\$13.95** or **\$11.95** ea./10+

**KELVIN®
Solar
Battery
Charger
with Light
& Sensor**

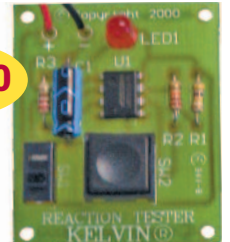
Sunlight and a solar cell charges a rechargeable battery during the day. An IC senses voltage change and turns on a LED at dark.

Kit includes: PC board, LED light, battery holder for rechargeable AA battery (rechargeable battery not included), and solar panel.

 842432 Kit.....**\$12.95** or **\$11.95** ea./10+

 Bulk Pack
Per Kit Price
As Low As

\$3³⁰
**KELVIN®
Reaction Tester**

Anticipate when the LED lights and release the switch. Stays lit up when right. Requires a 9V battery.

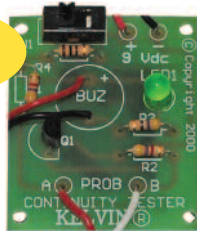
 841134 Kit.....**\$3.95** or **\$3.65** ea./10+
 842191 Bulk Pack of 30.....**\$3.30 Per Kit \$99**
 842192 Assembled Demo**\$49.95**

 Bulk Pack
Price Per Kit
As Low As

\$2⁹⁵
**KELVIN®
Continuity Tester**

Requires 9V battery.

**LED Light Only
Continuity Tester**

 842407 Bulk Pack of 30 ..**\$2.95 Per Kit \$88.50**
**Mechanical Buzzer & LED Light
Continuity Tester Bulk Pack**

 842405 Bulk Pack of 20.....**\$4.95 Per Kit \$99**

 Bulk Pack
Price Per Kit
As Low As

\$3⁹⁵
**KELVIN®
Continuity
Tester w/ Buzzer**

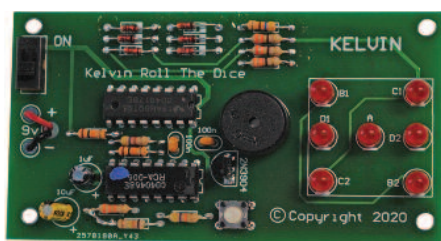
Features an electric buzzer with LED light. Requires 9V battery.

 841241 Kit.....**\$4.45** or **\$4.25** ea./10+
 842233 Bulk Pack of 20.....**\$3.95 Per Kit \$79**
 842172 Assembled Demo**\$59.95**

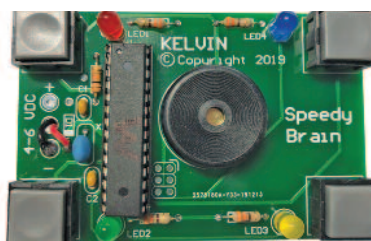
 Bulk Pack
Per Kit Price
As Low As

\$4²⁵
**KELVIN®
Flashing &
Adjustable
Jumbo LED**

Uses an adjustable potentiometer and large LEDs (10mm).

 842490 Kit.....**\$5.95** or **\$4.95** ea./10+
 842528 Bulk Pack of 30.....**\$4.25 Per Kit \$127.50**

KELVIN® Dice

Electronic die with an LED indication. Rolls slowly out when the push button is released. Requires a 9V battery.

 842518 Kit**\$12.95** or **\$9.95** ea./10+

KELVIN® Speedy Brain

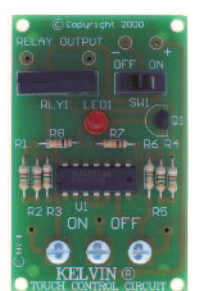
Repeat a random pattern with 4 LEDs and 4 pushbuttons. Micro-processor controlled. Auto power off. Requires [4] AA batteries.

 842506 Kit.....**\$19.95** or **\$16.95** ea./10+

 Bulk Pack
Per Kit Price
As Low As

\$6⁵⁰
**KELVIN®
Touch Control**

Activates a relay just by touching the ON probe. Requires a 9V battery. Enclosure not included.

 841130 Kit.....**\$7.95** or **\$7.45** ea./10+
 842223 Bulk Pack of 20**\$6.50 Per Kit \$130**
 842160 Assembled Demo**\$49.95**


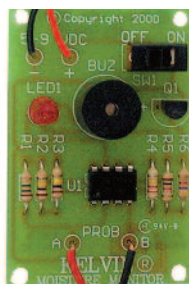
Bulk Pack
Per Kit Price
As Low As

\$7.45

KELVIN® Moisture Sensor

Check the soil moisture of plants with probes and keep them alive. Requires a 9V battery.

841132 Kit.....\$9.95 or \$8.95 ea./10+
842235 Bulk Pack of 20\$7.45 Per Kit \$149
842175 Assembled Demo\$59.95



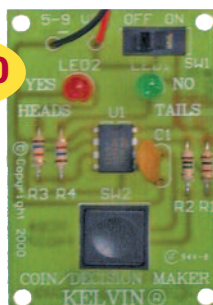
Bulk Pack
Per Kit Price
As Low As

\$3.30

KELVIN® Decision Maker

Great tool for making any "YES," "NO," or "Heads or Tails" decisions. Requires a 9V battery.

841131 Kit.....\$3.95 or \$3.65 ea./10+
842193 Bulk Pack of 30 Kits ..\$3.30 Per Kit \$99
842194 Assembled Demo\$49.95



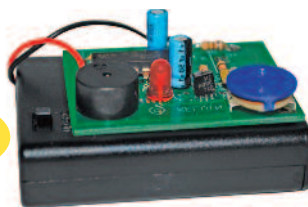
Bulk Pack
Per Kit Price
As Low As

\$12

KELVIN® PaceMaker™

Attach to belt and it will keep track of pace when walking or jogging. Req. 9V battery.

842252 Kit\$13.95 or \$12.95 ea./10+
842254 Bulk Pack of 10\$12 Per Kit \$120
842253 Assembled Demo\$49.95



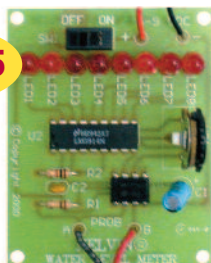
Bulk Pack
Per Kit Price
As Low As

\$9.95

KELVIN® Water Level

A great tool to determine the liquid level in a container. Requires a 9V battery.

841126 Kit.....\$13.95 or \$12.95 ea./10+
842531 Bulk Pack of 10 ..\$9.95 Per Kit \$99.50
842173 Assembled Demo\$59.95



Bulk Pack
Per Kit Price
As Low As

\$7.45

KELVIN® Decision Stick

Push the button to display the answer to your question. Requires a 9V battery.

841569 Kit.....\$9.95 or \$8.95 ea./10+
842248 Bulk Pack of 20\$7.45 Per Kit \$149
842195 Assembled Demo\$59.95



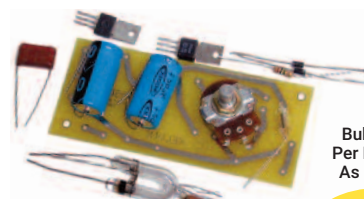
Bulk Pack
Per Kit Price
As Low As

\$15

KELVIN® Strobe Light

Controls flash rate. Includes: pre-drilled PC board, parts and instructions. Requires a 9V battery.

840662 Kit.....\$17.95 or \$16.95 ea./10+
842231 Bulk Pack of 10\$15 Per Kit \$150



Bulk Pack
Per Kit Price
As Low As

\$11.50

KELVIN® Temperature Control

Thermostat with range of 41° F – 86°F. High power load control. Req. 9V battery. Enclosure not included.

841591 Kit.....\$13.95 or \$12.95 ea./10+
842230 Bulk Pack of 10\$11.50 Per Kit \$115
842169 Assembled Demo\$59.95



Bulk Pack
Per Kit Price
As Low As

\$16

KELVIN® Big Ear

Build an ultra sensitive listening device. Requires a 9V battery. Enclosure not included.

841598 Kit.....\$19.95 or \$18.95 ea./10+
842239 Bulk Pack of 10\$16 Per Kit \$160
842182 Assembled Demo\$69.95



KELVIN® Fiber Optics Alarm Chain

Wrap the fiber optic cord around a valuable possession. If the fiber optic wire is cut, it's relay will trigger the alarm circuitry (not included). Alarm can be shut off by pressing reset. Requires 9VDC battery.

841125 Kit.....\$29.95 or \$26.95 ea./10+
842247 Bulk Pack of 10...\$24.50 Per Kit \$245



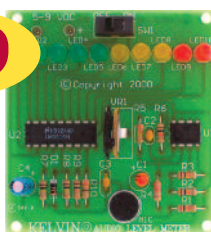
Bulk Pack
Price Per Kit
As Low As

\$19

KELVIN® Audio Level

Uses an ATMEGA328 IC and audio pre-amp to measure an audio level. Requires a 9V battery.

841127 Kit.....\$24.95 or \$22.95 ea./10+
842232 Bulk Pack of 10\$19 Per Kit \$190
842170 Assembled Demo\$59.95



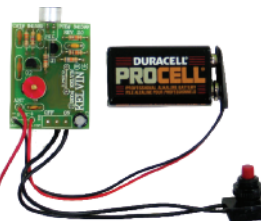
Bulk Pack
Per Kit Price
As Low As

\$14

KELVIN® KGB Ear

Listen to a clear broadcast over a 100 ft. away using any FM radio. Includes a pre-drilled board, parts and instructions. Requires FM radio.

840557 Kit.....\$16.95 or \$15.95 ea./10+
842244 Bulk Pack of 10\$14 Per Kit \$140
842187 Assembled Demo\$69.95



KELVIN® Hands-On Science® Telegraph & Buzzer

Wind coil, connect wires and learn to operate and communicate with this system. Have students take an interdisciplinary journey into the world of telecommunications.

Each kit includes materials, instructions and [4] carbon batteries. Requires assembly.

841978 Kit.....\$44.95 or \$42.95 ea./10+
283119 Bulk Pack of 10.....\$39.50 Per Kit \$395



Kits require batteries, soldering and assembly.

Bulk Pack
Price Per Kit
As Low As

\$9.99

KELVIN® Metal Stud Finder

Detects metal studs behind a wall. Requires a 9V battery. Enclosure not included.

841594 Kit **\$12.75** or **\$11.95** ea./10+
842241 Bulk Pack of 10 **\$9.99 Per Kit \$99.95**
842184 Assembled Demo **\$69.95**

KELVIN® Metal Detector

Detect metal objects in or behind surfaces. Requires a 9V battery. Enclosure not included.

841595 Kit **\$14.95** or **\$13.95** ea./10+
842240 Bulk Pack of 10 **\$12 Per Kit \$120**
842183 Assembled Demo **\$69.95**

Bulk Pack
Per Kit Price
As Low As

\$8.90

KELVIN® Wheel of Fortune

Push the button and see 10 LEDs appear to spin around the wheel. Requires a 9V battery.

841572 Kit **\$10.95** or **\$9.95** ea./10+
842251 Bulk Pack of 10 **\$8.90 Per Kit \$89**
842197 Assembled Demo **\$59.95**

Bulk Pack
Per Kit Price
As Low As

\$9.99

KELVIN® Number Picker

Select numbers from 0-9. Push the button and 7-seg. display will show. Req. 9V battery.

841568 Kit **\$13.95** or **\$12.95** ea./10+
842250 Bulk Pack of 10 **\$9.99 Per Kit \$99.95**
842196 Assembled Demo **\$59.95**

Bulk Pack
Per Kit Price
As Low As

\$9.99

KELVIN® Bicycle Safety Light

Connect to a bicycle for safety. Requires [2] AA batteries.

841596 Kit **\$11.95** or **\$10.95** ea./10+
842228 Bulk Pack of 10 **\$9.99 Per Kit \$99.95**
842167 Assembled Demo **\$59.95**

KELVIN® Intercom x 2 Way

Features include a big easy to use "push-to-talk" button and LED indicator that light up when in use. Small low profile, lightweight intercom with excellent sound quality and long battery life. Convenient screw-type connectors for attaching and detaching wires. Comes with 20 feet of cable.

842532 Kit **\$38.95** or **\$36.95** ea./10+

KELVIN® Dual Power Supply

Adjustable.. Outputs positive-negative voltages from +/-1.25 to +/-15VDC at 700mA per supply. Requires wall adapter. 110 V AC. USA plug.

841590 Kit **\$23.95** or **\$22.45** ea./10+
842174 Assembled Demo **\$79.95**

Bulk Pack
Per Kit Price
As Low As

\$7

KELVIN® Audio Amplifier Booster

Amplify music from any audio signal up to 1W. Relays to included speaker with volume control. Requires a 9V battery.

841133 Kit **\$9.95** or **\$8.95** ea./10+
842236 Bulk Pack of 20 **\$7 Per Kit \$140**
842177 Assembled Demo **\$59.95**

Bulk Pack
Per Kit Price
As Low As

\$16

KELVIN® 20W Audio Amplifier

Amplify small signals and drive an 8 ohm speaker with 1% THD. Requires a power supply.

841570 Kit **\$19.95** or **\$18.95** ea./10+
842237 Bulk Pack of 10 **\$16 Per Kit \$160**
842178 Assembled Demo **\$69.95**

KELVIN® 20W+20W Stereo Audio Amplifier

High quality; uses an LM1875 to amplify any small signal and to drive an 8 ohm speaker with 1% THD. Requires 12-30 V DC power supply.

841593 Kit **\$31.95** or **\$30.95** ea./10+
842179 Assembled Demo **\$69.95**

Bulk Pack
Per Kit Price
As Low As

\$26

KELVIN® Wireless Microphone

Transmit a voice to any FM radio up to 100 feet away. Each kit includes: PVC pipe, microphone, foam cover, wire and other parts. Requires a 9V battery.

841599 Kit **\$29.95** or **\$26.95** ea./10+
842238 Bulk Pack of 10 **\$26 Per Kit \$260**
842181 Assembled Demo **\$69.95**

KELVIN® S.T.E.M. Bin Fillers Each Bin Filler saves you money versus the retail price of buying each item individually.



Electronics Bin Filler

Valued at
\$230

10	Battery Holder w/ Leads, AA, 2	10	Super Bright LED, Red
10	Battery Holder w/ Leads, AA, 4	10	Diffused LED, Green
50	Pre-Cut Wire, Stranded, Red	100	Resistors, 100 Ohm, 1/4 Watt
50	Pre-Cut Wire, Stranded, Black	10	Wire Lead Buzzer
1	Electrical Tape, Black	10	Pushbutton Switch, 110V, Red
20	Alligator Clips w/ Leads, 9 in.	2	Electronics Tool Set
6	Knife Switch, SPST	10	LED Holder, 5mm
6	Slide Switch, SPST	3	Solder w/ Pocket Pak Dispenser
6	Mini Bulb Socket, Clip-On	5	Project Motor w/ Leads, 3 - 6 V
6	Bulb Socket, Threaded, E10	5	Project Motor w/ Leads, 1.2-3 V
10	Bulb, Threaded Base	2	Multimeter w/ Buzzer, 50LE

430512Valued at \$230 **\$225** or **\$195** ea./3+



Soldering Bin Filler

Valued at
\$155

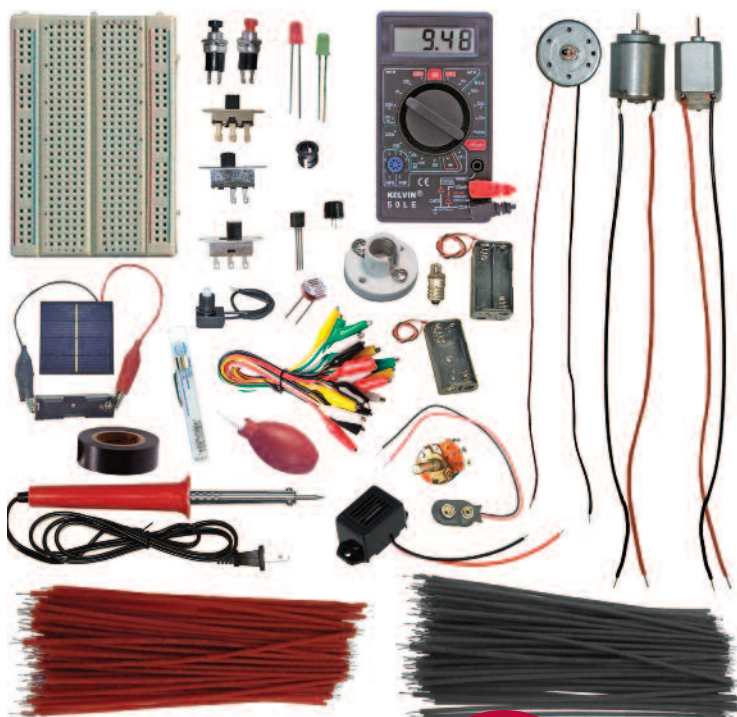
5	Soldering Iron, 20 W	5	Desoldering Wick, 0.19 in. W
5	Solder w/ Dispenser	5	Desoldering Wick, 0.10 in. W
5	Soldering Iron Holder	5	Desoldering Bulb
5	Sponge for Holder, Extra	430521	.....\$135 or \$125 ea./3+



Electronic Kits Bin Filler

Valued at
\$116

5	Blinking LEDs Kit	5	Reaction Tester Kit
5	Decision Maker Kit	5	Police Siren Kit
5	Night Light Kit	430516	.. \$105 or \$99.95 ea./3+



Valued at
\$331

Advanced Electronics Bin Filler

10	Battery Holder w/ Leads, AA, 2	3	Project Motor, 0.7 - 5 V
5	Battery Holder w/ Leads, AA, 4	5	Super Bright LED, Red
50	Pre-Cut Wire, Stranded, Red	5	Diffused LED, Green
50	Pre-Cut Wire, Stranded, Black	5	Wire Lead Buzzer
2	Electrical Tape, Black	10	Photo Cell, 450 Ohm
20	Alligator Clips w/ Leads, 9 in. L	10	Battery Snap, 9 V, I-Shape
10	Slide Switch, SPST	10	Pushbutton Switch, 110 V, Black
5	Pushbutton Switch, 14 V, On-Off	5	Slide Switch, SPDT
10	Bulb Socket, Threaded, E10	5	Slide Switch, DPDT
5	Pushbutton Switch, 110 V, Red	5	Piezo Buzzer
10	Bulb, Threaded Base	10	Transistor
10	LED Holder, 5 mm	10	Potentiometer, Vert. PCB Mount
10	Solar Battery Chrg, 2 V, 200 mA	5	Breadboard, 400 Contacts
5	Solder w/ Pocket Pak Dispenser	2	Multimeter w/ Buzzer, 50LE
5	Project Motor w/ Leads, 3 - 6 V	1	Desoldering Bulb
5	Project Motor w/ Leads, 1.2-3 V	1	Soldering Iron, 20 W

430513Valued at \$331 **\$275** or **\$245** ea./3+



KELVIN® Storage Units for New Standards® S.T.E.M. Labs and Bin Fillers

Mix and match to create S.T.E.M. areas within your classroom, organize inventory and store student projects. Each cabinet includes heavy duty plastic storage bins (with or without lids) that slide in on wood runners. Bin color may vary. Constructed from 3/4 in. cabinet grade Maple plywood. Sides are shipped flat and must be assembled after delivery.

★ **FREE SHIPPING ON STORAGE UNITS (SHIPPED FLAT)**

Balsa & Wood Storage Unit (Multi-Compartment)

430461 **A** 18 x 18 in. ★\$295

Parts Storage Unit w/ 3 Bins & Lids

430459 **B** 16-3/4 L x 26-1/4 W x 34-3/4 in. H ★\$345

Parts Storage Unit w/ 6 Bins & Lids (Countertop Height)

430460 **C** 17-3/4 L x 31-3/4 W x 35-3/4 in. H ★\$645

Tall Storage Unit w/ 16 Bins (Anchors to the wall)

430458 **D** 12-1/2 L x 18-1/2 W x 68-1/2 in. H ★\$645

Storage Unit w/ 16 Bins (Countertop Height)

430456 **E** 16-3/4 L x 26-1/4 W x 34-3/4 in. H ★\$645

Tool Panel w/ Hooks & Changeable Sign

430457 **F** Panel is 26 x 26 in. & Sign is 24 x 8-1/2 in. ★\$175



Use the
Polarity Box
to Switch
Power
Polarity

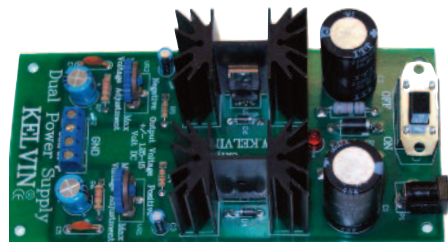


NEW KELVIN® Variable Power Supply w/ Polarity Box

Backlit, 3-digit LED can display 0-30 V and 0-5 A. Constant modes for voltage (CV) and current (CC) automatically switch with connection of the load. Adjustable with fine and coarse knobs. Low noise output and ripple with built-in protection for thermal, short circuit and overload. 8.8 x 3.2 x 6.5 in. Recommended for PowerPole™ and Maglev Racer™.

Use polarity box to conveniently switch power polarity. Can be used with other power supplies that have a round jack. Standard banana plugs for output with regular lab cables. 110 V AC. USA plug.

842639 0-30 V / 0-5 A Power Supply w/ Polarity Box\$145



KELVIN® Dual Power Supply

Adjustable.. Outputs positive-negative voltages from +/-1.25 to +/-15VDC at 700mA per supply. Requires wall adapter. 110 V AC. USA plug.

841590 Kit\$23.95 or \$22.45 ea./10+
842174 Assembled Demo\$79.95

Buy 50 or
More and
Price Each
As Low As

\$5⁹⁵

Features:

- **Buzzer**
- Square Wave Output
- Low Battery Indicator
- Overload Protection

Measure:

- AC/DC Volts
- AC/DC Amps
- Ohms
- Resistance

Tests:

- Diode
- Transistor
- Continuity



KELVIN® 50LE Multimeter w/ Buzzer

Comes with 9V battery, holster, test lead, and manual. LCD display measures 49 x 16 mm. Overall size is 124 x 70 x 26 mm.

990177\$6.95 or \$6.45 ea./25+ or \$5.95 ea./50+
990343 Replacement Leads for 99017780¢

Find More
KELVIN®
Electronic
Kits on
pgs. 14-17.



Find Plugs,
Jacks,
and
Test
Leads
on
pg. 25.

KELVIN® Hands-On Science® Alternative Energy Battery Charger w/ Solar Cell

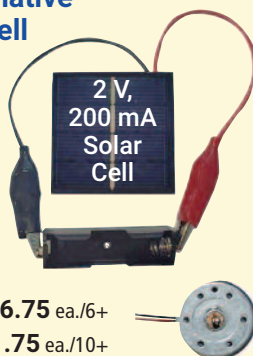
Includes: Solar Cell (2 V, 200 mA, 2 x2 in.), AA battery holder and insulated alligator clips with leads. Requires [1] AA NiCad battery (220025, see below).

220163\$5.95 or \$5.65 ea./10+

KELVIN® Hands-On Science® Alternative Energy Battery Charger w/ Solar Cell and Solar Motor

842411\$6.95 or \$6.75 ea./6+

220025 Ni-Cad Battery, AA, 500 mAh...\$1.95 or \$1.75 ea./10+



KELVIN® Turn On At Night Light & Battery Charger

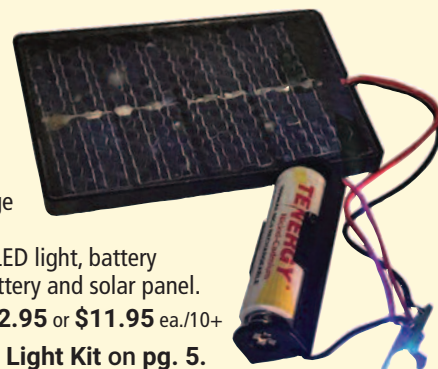
Sunlight and a solar cell charges a rechargeable battery during the day. An IC senses voltage change and turns on a LED at dark.

Kit includes: PC board, LED light, battery holder, rechargeable AA battery and solar panel.

842432 Kit\$12.95 or \$11.95 ea./10+

Find the KELVIN® Night Light Kit on pg. 5.

Find More Solar Cells & Kits in Science on pg. PE 7.



BATTERY HOLDERS
AAA Battery Holders
Plastic


Cells	Stock #	\$ ea.	\$ ea./10+
2	220131	1.55	1.45

AAA Battery Box w/ Switch & Leads


Cells	Stock #	\$ ea.	\$ ea./10+
4	220132	4.95	4.45

AAA Battery Box w/ Switch, Leads & 10 ft. of Wire


Cells	Stock #	\$ ea.	\$ ea./10+
4	851510	19.95	17.95


AA Battery Box with Switch and Leads

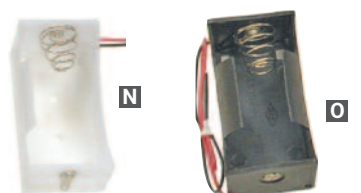
Cells	Stock #	\$ ea.	\$ ea./5+	\$ ea./10+
1	220147	2.25	1.95	1.85
2	220148	2.95	2.75	2.45
4	220149	4.25	3.95	3.75

AA Battery Holders Plastic

Cells	Stock #	Fig.	\$ ea.	\$ ea./10+
1	220089	A	.55	.45
1	220128	B	.85	.75
2	220129	C	1.50	1.45
2	220090	D	.95	.85
4	220091	E	2.95	2.75
4	220004	F	2.95	2.75
6	220092	G	4.95	4.75


C Battery Holders Plastic

Cells	Art	Stock #	\$ ea.	\$ ea./10+
1	L	220093	2.25	1.95
2	M	220094	3.25	2.95


D Battery Holders Plastic

Cells	Art	Stock #	\$ ea.	\$ ea./10+
1	N	220096	.85	.75
1	O	220133	1.95	1.85
2	P	220097	3.95	3.75
4	Q	220098	4.25	4.15

9V Battery Snaps

Type	Stock #	\$ ea.	\$ ea./10+
T-Snap	220001	.25	.19
I-Snap	220017	.25	.19


9V Battery Clips

Type	Stock #	Fig.	\$ ea.	\$ ea./10+
Metal	220013	A	1.15	.99
Plastic	220078	B	2.75	2.45

Stackable D Battery Holder

Snap units together to form series and parallel battery packs. Plastic.

Cells	Stock #	\$ ea.	\$ ea./10+
1	220083	1.49	1.29


BATTERIES

Alkaline Batteries
Eveready or Duracell Quality

Type	V	Stock #	\$ ea.	\$ ea./10+
AAA	1.5	220033	.99	.79
AA	1.5	220016	.99	.79
C	1.5	220015	2.25	1.95
D	1.5	220014	2.95	2.75
Radio	9	220019	2.75	2.45


Carbon Batteries

Type	V	Stock #	\$ ea.	\$ ea./10+
AA, 4pk	1.5	220009	2.95	2.75
D, 4pk	1.5	220007	6.95	6.75
Radio	9	220010	2.45	2.25
Lantern	6	220045	16.95	15.95


Button Batteries

For watches, calculators and more!

Type	V	Stock #	\$ ea.
CR2032	3	220154	.95
Holder	3	250075	2.25

POWER CORDS

Power Strip

Six outlets. Power surge protection, On/off switch. 110 V AC. USA plug. 340060 ...\$16.95 or \$14.95 ea./3+


Extension Cord

Polarized. 16/3 cord. 25 ft. long. 110 V AC. USA 3-prong plug. 350325 ...\$22.95 or \$21.95 ea./3+

RECHARGEABLE
Rechargeable Ni-Cad Batteries

1.2V (except the 9V radio) sealed Nickel Cadmium cells provide up to 1,000 charge/discharge cycles.

Type	mAH	Stock #	\$ ea.	\$ ea./15+
AAA	—	220039	1.95	1.75
AA	500	220025	1.95	1.75
C	1200	220027	4.45	4.25

Quick Charger w/ [4] AA Ni-MH Batteries

Charges in 1 to 2.5 hours, 4000 mW.

220155 ...\$49.95


Ni-Cad/Ni-MH 4-Cell Battery Charger

Charges D, C, AA, AAA, 6V, and 9V Ni-Cad/Ni-mh batteries. LEDs indicate proper charging and switch charges at 50 mAH or 120 mAH.

Cells	Stock #	\$ ea.	\$ ea./10+
4	220035	34.95	31.95

WALL ADAPTERS

2.1 mm plug. 110 V AC. USA plug.



V	A	Stock #	\$ ea.	\$ ea./3+
9	500	220069	19.95	18.95
12	500	220068	19.95	18.95
12	800	220121	19.95	18.95
12	2000	220100	19.95	18.95

POWER TRANSFORMER

Use to design a power supply or in circuits. Center tapped output. 12 V, 4 A.

320047..\$22.95 or \$20.95 ea./10+



Electronics Tool Set

Set includes:

- 30 W Soldering Iron (110 V AC, USA plug)
- Sponge
- Mini Needle Nose Pliers
- Diagonal Cutter
- Wire Stripper/Cutter
- Slotted Screwdriver
- Phillips Screwdriver

840213\$24.95 or \$22.95 ea./6+



Diagonal Cutters

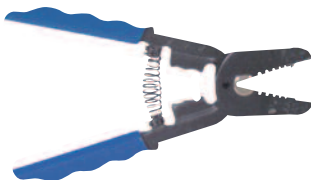
4-1/2 Long
520023\$7.95 or \$7.45 ea./6+

6 Long
520303\$5.95 or \$5.45 ea./6+

6-1/2 Long
520022\$7.95 or \$7.45 ea./6+

Economy Wire Stripper

For wire up to 10 AWG.
520298\$4.25 or \$3.95 ea./6+



Wire Stripper, Premium

7-in-1 all-purpose wire stripper, cutter, pliers, and crimper. Cushion grip, strips AWG 16 - 26. 6 in. long.
520302\$8.95 or \$8.45 ea./6+



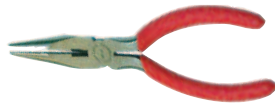
Electrician Pliers

Use to cut or twist wire or remove metal electrical box knockouts. 7 in. L.
520026\$9.95 or \$9.75 ea./6+

Long Nose Pliers

4-1/2 Long
520021\$7.95 or \$7.45 ea./6+

6 Long
520020 6 in. L \$9.95 or \$9.45 ea./6+



Inch Crimping Tool & Wire Stripper

Crimps insulated and non-insulated lugs. Strips 10 to 22 AWG wire. Cuts bolts from #4 to #10.
520002\$5.95 or \$5.75 ea./6+



Automatic Wire Stripper

Holds wire in place while the blade strips off the insulation. Use to strip 12 to 22 AWG wire. 7-1/2 in. long.
520194\$27.95 or \$25.95 ea./6+



Wire Stripper/Cutter

Self adjusting. Strips 0.2-6mm wire.
520069\$29.95 or \$27.95 ea./6+

ETCHING



Etch in 4 minutes!

Fast Etching Tank

Max. PC board size is 160 x 250 mm. Includes electric agitator and hanging accessories. Requires tank heater. ★ 110 V AC, USA plug.
440142 ★ Fast Etching Tank\$195
450069 ★ Air Circulation & Agitation Pump Only\$12.95 or \$11.95 ea./3+

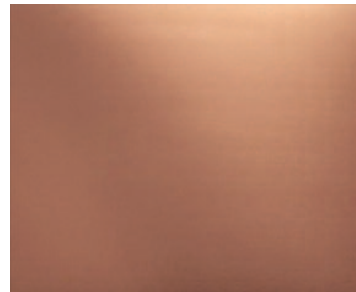


Acid Brushes 3/8 in. wide
580045 10/pkg.....\$2.95 or \$2.75 ea./6+

Ammonium Persulphate

Economical! Etchant powder features an indefinite shelf life. Mix with water as needed; 4 lbs. makes up to 2 gallons of 20% solution.

440026 4 lbs.\$125 or \$120 ea./3+



Copper-Plated Boards

One-sided. 1/16 in. thick. 1 oz.

L in.	W in.	Stock #	\$ ea.	\$ ea./10+
6	4-1/2	440002	5.95	5.75
7	5	440003	6.95	6.75
15.5	7.5	440014	13.95	12.95
36	34	440065	99.95	94.95



Transfer Film

Photocopy or print designs on film then iron on copper board. Peel off film before etching. [5]
8.5 x 11 in. sheets.

440198\$13.95 or \$12.95 ea./6+



Direct Etch Tape

1/8 in. W x 54 ft. L. 440010,
\$9.95 or \$9.65 ea./6+



PCB Etch Resist Pens

Tip Dia. in.	Stock #	\$ ea.	\$ ea./6+
1/64	440116	4.95	4.45
1/32	440115	4.95	4.45



Practical Soldering Project Kits

Learn good soldering techniques. Each kit includes parts. Requires 9V battery.

Project I w/ Soldering Iron & Side Cutters

282459 Kit\$29.95
or \$26.95 ea./10+

Project II w/ Color Code Calculator

282460 Kit\$19.95
or \$18.95 ea./3+


WELLER Stained Glass Soldering Iron

Ideal for hobby work, stained glass and minor repairs. Soldering iron rest included. 3/8 in. dia. replaceable iron-plated copper tip. 900°F/482°C temperature. Indicator light allows you to instantly see that the iron is on. 9-3/4 in. long. 110 V AC. USA plug.

820051 80W\$39.95 or \$37.95 ea./3+

WELLER Thread-On Soldering Iron Tip

Pencil-type silver-plated.

820068 1/4 dia.\$7.95 or \$7.15 ea./5+


WELLER Soldering Gun

All-purpose. Features built-in, pre-focused spotlight with pull of trigger. Pistol-grip with replaceable tip. 110 V AC. USA plug.

810001\$79.95 or \$74.95 ea./3+

810007 High Heat, 200-260 W\$105

DESOLDERING


Electric Desoldering Iron w/ Cleaning Wand

820083\$48.95 or \$46.95 ea./3+



Vacuum Desoldering Pump, Metal

450030\$6.95 or \$6.75 ea./6+

Desoldering Wick 5 ft. long.

580009 0.150 in. W\$6.95 or \$6.75 ea./6+

580026 0.190 in. W\$6.95 or \$6.75 ea./6+

Imported Desoldering Wick 5 ft. long.

580004 0.075 in. W\$1.95 or \$1.75 ea./6+

580025 0.100 in. W\$1.95 or \$1.75 ea./6+

580009 0.150 in. W\$6.95 or \$6.75 ea./6+

580026 0.190 in. W\$6.95 or \$6.75 ea./6+

Desoldering Bulb

Economical! Includes a high heat resistant, removable tip for removing solder, but without scratching or damaging delicate PC boards.

990084\$4.45 or \$3.95 ea./6+


Project Soldering Iron

Soldering iron with 3/16 in. long tapered tip and break-resistant plastic handle. 30W, 117V, 60Hz (UL). 110 V AC. USA plug.

990098 2-Prong Iron\$9.95 or \$8.95 ea./6+

990099 2-Prong Iron Tip Only95¢ or 85¢ ea./12+

990072 3-Prong Iron\$14.95 or \$13.95 ea./6+

Soldering Iron Holder w/ Sponge

Heavy-duty spring with bakelite support, steel base, and sponge.

830010\$2.95 or \$2.75 ea./10+

990083 Sponge Only85¢ or 79¢ ea./10+

WELLER
Marksman Soldering Irons

Featherweight (1-3/4 oz.); ideal for reaching hard to get spots on PC boards. 110 V AC. USA plug.

810002 A 25 W\$46.95 or \$44.95 ea./6+

810005 40 W\$49.95 or \$47.95 ea./6+

WELLER Marksman Soldering Set

Includes: soldering iron, [3] copper tips, 40/60 solder, soldering aid and instructions. 110 V AC. USA plug.

810029 25 W\$49.95 or \$47.95 ea./3+

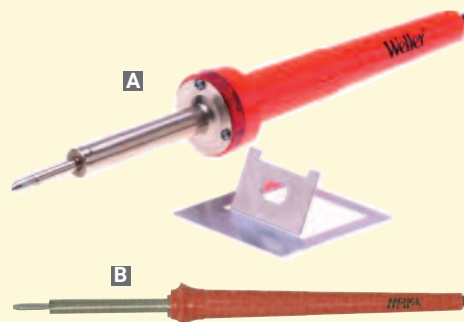
Replaceable Soldering Iron Tips

Cone

810004 25 W\$14.95 or \$13.95 ea./6+

Chisel, 2/pkg.

810006 40 W\$16.95 or \$15.95 ea./6+


WELLER Pencil Soldering Iron

Ideal for reaching tight spots. Tip temp. is 800°. Use Weller MP auto slide-in soldering iron tips. 110 V AC. USA plug.

810054 B 12 W\$24.95 or \$22.95 ea./6+

Wire Glue

Join together wires and components in small electrical projects where soldering is unsafe or impractical. Great for elementary grades.

580059\$7.95 or \$7.75 ea./6+


Solder Paste

Designed for applications where a liquid flux may be hazardous or inconvenient to use. 50 grams

580052 ...\$13.95 or \$12.95 ea./3+


60/40 Solder

Kester-brand, Flux Resin Core.

1/16 in. dia., 1 lb. Spool

580001 ...\$59.95 or \$57.95 ea./4+

1/32 in. dia., 1 lb. Spool

580005 ...\$59.95 or \$57.95 ea./4+



60/40 Solder Pocket-Pack Flux Resin Core

580022 1/2 oz.\$4.95 or \$4.45 ea./4+


Heat Sinks

Protect heat-sensitive parts when soldering.

450034 A Clip-On\$1.25 or \$1.15 ea./10+

480024 B Snap-On80¢ or 75¢ ea./10+


Soldering Aids Set

Heat sink, fine probe, slotted probe and brush/scraper.

450032\$4.25 or \$3.95 ea./10+

Solder Brush with Metal Bristles

580043\$1.95 or \$1.75 ea./3+



Project Wire

22 AWG, Solid

Color	L ft.	Stock #	\$ ea.	\$ ea./3+
Red	100	330193	9.95	8.95
	1000	330017	77.95	74.95
Black	100	330208	9.95	8.95
	1000	330011	77.95	74.95
Blue	100	330192	9.95	8.95
	1000	330012	77.95	74.95
Brown	100	330209	9.95	8.95
	1000	330013	77.95	74.95
Green	100	330210	9.95	8.95
	1000	330014	77.95	74.95
Gray	100	330211	9.95	8.95
	1000	330015	77.95	74.95
Violet	100	330213	9.95	8.95
	1000	330018	77.95	74.95
White	100	330214	9.95	8.95
	1000	330019	77.95	74.95
Yellow	100	330194	9.95	8.95
	1000	330020	77.95	74.95
Orange	100	330212	9.95	8.95
	1000	330016	77.95	74.95

Test Lead Wire
18 AWG, Solid

Type	Color	Stock #	L ft.	\$ ea.
Rubber	Red	330369	50	22.95
Rubber	Black	330370	50	22.95
PVC	Red	330007	100	35
PVC	Black	330008	100	35
PVC	Red	330166	1000	249
PVC	Black	330167	1000	249

Building Wire

Solid, THHN, 500 ft.
* Stranded Version

AWG	Color	Stock #	\$ ea.	\$ ea./3+
14	Black	330247	150	140
14	Green	330259	150	140
14	Red	330260	150	140
14	White	330261	150	140
14	* White	330270	99.95	—

Bell Wire
18 AWG
Solid, PVC

Color	L ft.	Stock #	\$ ea.
Red	100	330365	12.95
Red	1000	330118	115
Black	100	330366	12.95
Black	1000	330116	115
Brown	100	330367	12.95
Brown	1000	330117	115
Yellow	100	330368	12.95
Yellow	1000	330364	115

22 AWG, Stranded 1000 ft. Long

Color	Stock #	\$ ea.	\$ ea./3+
Red	330032	79.95	75.95
Black	330026	79.95	75.95
Blue	330027	79.95	75.95
Brown	330028	79.95	75.95
Green	330029	79.95	75.95
Gray	330030	79.95	75.95
Violet	330033	79.95	75.95
White	330034	79.95	75.95
Yellow	330035	79.95	75.95
Orange	330031	79.95	75.95

22 AWG, Pre-Cut
10 in. long with both ends stripped.

Type	Color	Stock #	Qty.	\$ ea.	\$ ea./3+
Solid	Red	330425	50	9.95	8.95
Solid	Black	330426	50	9.95	8.95
Strnd	Red	330427	50	9.95	8.95
Strnd	Black	330428	50	9.95	8.95
Strnd	R / B	391489	20	4.95	—

Copper Wire

Solid. Non-Insulated.

AWG	L ft.	Stock #	\$ ea.	\$ ea./3+
18	50	330343	24.95	23.95

Magnet Wire

Copper Enamel

AWG	Spool	Stock #	\$ ea.	\$ ea./3+
22	1 lb.	330128	18.95	17.95
24	1 lb.	330130	25.95	24.95
26	1 lb.	330132	18.95	17.95
28	1 lb.	330134	19.95	18.95
30	1 lb.	330136	22	21
20	10 lb.	330037	130	125
22	10 lb.	330038	215	199
24	10 lb.	330039	140	135
26	10 lb.	330040	160	158
28	10 lb.	330041	150	140

Speaker Wire

Clear

Stock #	L ft.	\$ ea.	\$ ea./3+
330154	25	6.95	6.45

Phone Wire

Solid. 4-Conductor

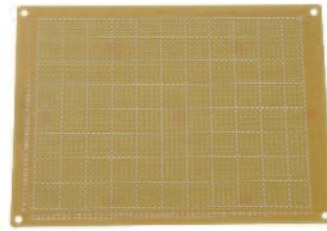
Stock #	L ft.	\$ ea.	\$ ea./3+
860017	7	2.95	—
860025	50	4.95	4.45

Control Wire

Stranded. 2-Conductor.

Color	Stock #	L ft.	\$ ea.
Red/White	330348	50	14.95

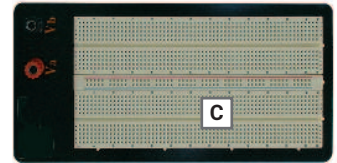
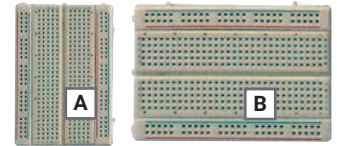
BREADBOARDS



General Purpose Boards

Multi-purpose boards for circuit design featuring pre-drilled and solder-ringed holes. Accept DIPs, sockets, headers. Indexed for pin-out ID.

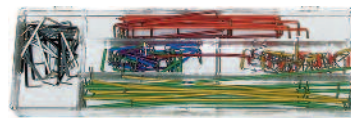
HOLES	Stock #	\$ ea.	\$ ea./6+
356	440209	3.75	3.25
750	440208	6.95	6.45



Breadboards

Works with most electronic parts.

Contacts	Stock #	Fig.	\$ ea.	\$ ea./3+
400	680093	A	6.95	6.45
840	680097	B	10.95	9.95
1380	680098	C	21.95	19.95



Wire Jumper Kit

Quick test sockets, bus strips and 22 AWG wire (pre-cut/pre-stripped).

Stock #	Pieces	\$ ea.	\$ ea./3+
330289	140	7.95	6.95
330290	350	18.95	17.95

Zip Cords

Stranded, Vinyl, UL-listed, 250 ft.

Type	Color	Stock #	\$ ea.	\$ ea./3+
18/2	Black	330010	34.95	32.95
18/2	Clear	330120	59.95	56.95
18/2	White	330152	59.95	56.95
16/3	Black	330082	194	174.95

Locking Cable Ties 100/pkg.

Stock #	Dia. in.	\$ ea.	\$ ea./10+
390169	4	3.95	3.55
390299	8	5.95	5.55

Plastic Spacers

All dimensions in inches. 100/pkg.

Stock #	Type	Size	\$ ea.	\$ ea./6+
390146	#4	1/4	24.95	23.95
390151	#6	1/4	22.95	21.95
390152	#6	3/8	24.95	23.95
390153	#6	1/2	24.95	23.95
390154	#6	5/8	24.95	23.95
390157	#8	1/4	24.95	23.95
390159	#8	1/2	24.95	23.95
390161	#8	3/4	24.95	23.95
390162	#8	1	24.95	23.95



Heat Gun

Top quality gun with dual temperature and a 6 ft. long cord. 1000 W. 110 V AC. USA plug.

820054\$69.95 or \$64.95 ea./6+

Heat Shrink Tubing

Shrinks to 50% of inside diameter. 10 ft. long.

Dia. in.	Stock #	\$ ea.	\$ ea./10+
1/8	330078	3.95	3.65
3/16	330079	3.95	3.65
1/4	330080	5.45	4.95
5/16	330081	7.95	6.95

Wire Nuts

100/pkg.

Stock #	Color	Size	\$ ea.
340024	Black	Small	25
340085	Orange	Small	25
340025	Black	Med.	36

Electrical Tape

Useful for electronics and other projects. 3/4 in. W; 60 ft. L.

Stock #	color	\$ ea.	\$ ea./3+
340005	Black	1.95	1.75
340006	Red	2.25	1.95
340157	White	2.25	1.95
340158	Green	2.25	1.95
340139	4 Colors	7.45	6.95

ALLIGATOR CLIPS
Micro Alligator Clip Solder-Type


Type	Stock #	\$ ea.	\$ ea./10+
#34	310009	.59	.55

Mini Alligator Clip Solder-Type


Type	Stock #	\$ ea.	\$ ea./10+
#30	310008	.50	.45

Mini Alligator Clip Insulated


Color	Stock #	\$ ea.	\$ ea./10+
Black	990013	.75	.68
Red	990012	.75	.68

Banana Alligator Clip Solder-Type


Type	Stock #	\$ ea.	\$ ea./10+
#60	310001	.50	.45


Alligator Clip Threaded

Type	Stock #	\$ ea.	\$ ea./10+
#70	310010	.80	.70

JACKS
Right Angle Phone Jack Solder-Type.Black.


Color	Stock #	\$ ea.	\$ ea./10+
Black	370058	2.95	2.75

Phone Jack Chassis Solder-Type.


Color	Stock #	\$ ea.	\$ ea./10+
Black	370052	1.95	1.75

PLUGS
Phone Plug

3.5mm. Solder-Type.



Color	Stock #	\$ ea.	\$ ea./10+
Black	990043	.75	.65

Stereo Phone Plug Solder-Type.


Color	Stock #	\$ ea.	\$ ea./10+
Black	400041	4.95	4.25

DC Power Barrel Tip Plug Solder-Type.

12.1mm x 5mm



Color	Stock #	\$ ea.	\$ ea./10+
Black	370051	.75	.65

TEST LEADS
BNC to Mini Alligator Clips

BNC Plug to [2]

Mini Alligator

Clips. Pair of black/red leads.



L in.	Stock #	\$ ea.	\$ ea./3+
39	990070	7.95	7.45

Banana to Alligator Clip


L in.	Stock #	\$ ea.	\$ ea./3+
7	282442	4.95	4.45

Stackable Banana to Alligator Clip


L in.	Stock #	\$ ea.	\$ ea./3+
36	282440	9.95	8.95


Alligator to Alligator Clip
Set of 10 leads in assorted colors.

AWG	L in.	Stock #	\$ ea.	\$ ea./3+
20	24	330114	7.95	7.45
22	20	330009	5.95	5.45
22	180	330410	10.95	10.45


Stackable Banana Cables
Banana leads. 10/pk. 2mm plug. Yellow and white.

990136 ...\$29.95 or \$26.95 ea./10+

TERMINALS

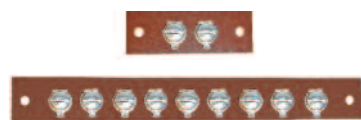
Terminal Strip Solder-Type

Pins	Stock #	\$ ea.	\$ ea./10+
6	390099	2.25	1.95

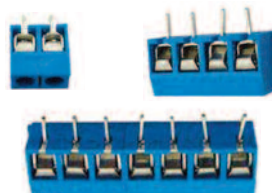

Terminal Barrier Strip

Equivalent to Cinch Jones 140 series

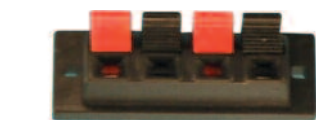
Pins	Stock #	\$ ea.	\$ ea./10+
2	390111	3.25	2.95
4	390113	4.25	3.95


Terminal Strip Threaded

Pins	Stock #	\$ ea.	\$ ea./10+
2	390056	2.45	2.15
9	390106	5.95	5.45


Low Profile Terminal Blocks. 5mm, Blue.

Pins	Stock #	\$ ea.	\$ ea./10+
2	390323	1.15	.95
4	390319	1.95	1.75
7	391071	12.95	10.95


Pushbutton Terminal

Includes spring-loaded posts for easy connection. 2 red, 2 black.

Pos.	Stock #	\$ ea.	\$ ea./10+
4	390737	4.25	3.95

COMPUTERS

D-Sub Mini Connector

Panel and cable mount. Right angle, Solder-type, no hood. 9-pin.

120288\$1.45 or \$1.30 ea./10+


D-Sub Connector

Socket-type. Panel and cable mount. Solder-type, no hood. 9-pin.

39107395¢ or 85¢ ea./10+


USB Connector
Type B.

391073\$1.45 or \$1.30 ea./10+


Connector Cover/Hood

9-Pin. Accepts plugs or socket ends.

37005695¢ or 85¢ ea./10+

BINDING POSTS

5-way type binding posts. Includes 1/4 in. long post. Insulated.


Round Mounting Hole

Color	Stock #	\$ ea.	\$ ea./10+
Black	400022	4.95	4.50
Red	400021	4.95	4.50


Hex Mounting Hole

Color	Stock #	\$ ea.	\$ ea./10+
Black	400013	3.95	3.75
Red	400012	3.95	3.75

DIP SWITCHES


For flow soldering on PC boards or mounting with standard sockets.

Type	Stock #	\$ ea.	\$ ea./10+
4	270026	1.25	1.15
8	270029	1.65	1.45

LEDs

Diffused LEDs

5mm. T 1-3/4. Min. order of 20.

Color	Stock #	\$ ea./20+	\$ ea./100+
Red	260020	.15	.10
Green	260027	.15	.10
Yellow	260026	.15	.10
Br. Red	260067	.22	.19

Mini Diffused LEDs

3mm. T1. Minimum order of 20.

Color	Stock #	\$ ea./20+	\$ ea./100+
Red	260080	.20	.18
Green	260081	.20	.18
Yellow	260082	.20	.18

Blinking Diffused LEDs

5mm. Minimum order of 10.

Color	Stock #	\$ ea./20+	\$ ea./100+
Red	260075	.95	.85
Green	260076	.95	.85
Yellow	260077	.95	.85

Rectangular Diffused LEDs

2x5mm

Color	Stock #	\$ ea./20+	\$ ea./100+
Red	260083	.22	.18
Green	260084	.26	.24

Triangular LEDs

Minimum order of 10.

Color	Stock #	\$ ea./20+	\$ ea./100+
Red	260102	.28	.25
Green	260103	.28	.25
Yellow	260107	.28	.25

Extra Large LEDs

10mm. Minimum order of 10.

Color	Stock #	\$ ea./20+	\$ ea./100+
Red	260085	.39	.35
Green	260086	.39	.35
Yellow	260087	.39	.35

Dual Color LEDs Red/Green,

T 1-3/4. Min. order of 10.

Legs	Stock #	\$ ea./20+	\$ ea./100+
2	260078	.36	.29
3	260079	.36	.29

PC Board Mount LEDs

5mm. Minimum order of 10.

Color	Stock #	\$ ea./20+	\$ ea./100+
Red	260104	.25	.22
Green	260105	.28	.24
Yellow	260106	.28	.24
Orange	260160	.25	.22
White	260159	.50	.40
Blue	260158	.50	.40

Super Bright LEDs

4000-8000 mcd

Color	Stock #	\$ ea./20+	\$ ea./100+
Orange	260172	.99	.85
Red	260170	.99	.85
Yellow	260171	.99	.85
White	260168	.99	.85
Green	260169	.99	.85

Ultra Violet LED

Use to expose UV sensitive PC boards, light up fluorescent and phosphorescent materials, cure UV adhesives, and demonstrate color change in photochromic pigments.

Color	Stock #	\$ ea.	\$ ea./10+
Clear	260200	3.95	3.75

KELVIN® LED Bulk Pack

An assortment of LEDs in various colors, sizes, and styles.

# of Pieces	Stock #	\$ ea.	\$ ea./3+
670	840485	95	85

LED Holders

5mm

Color	Stock #	\$ ea./10+	\$ ea./100+
Black	250019	.49	.45

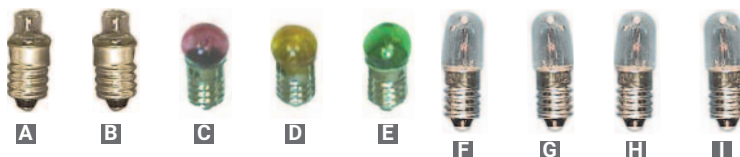
LED Readouts

7-Segment. Red.

Anode

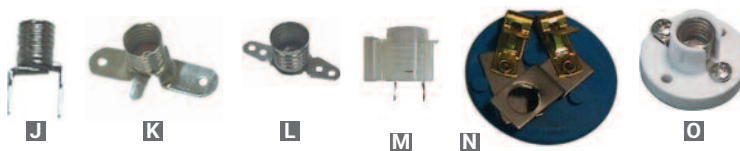
Pin #	Stock #	\$ ea.	\$ ea./20+
14	260022	2.50	2.25
10	260021	2.50	2.25

BULBS



E-10 Base Mini Bulbs

Description	Color	Stock #	Fig.	Qty.	\$ ea.	\$ ea./10+
2.2 V. 0.25 A. Threaded. #222.	Clear	260016	A	1	.35	.30
2.3 V. 0.27 A. Threaded. #233.	Clear	260156	B	1	.75	.65
3.5 V. 0.2 A. Threaded.	Red	260138	C	10	5.95	5.45
3.5 V. 0.2 A. Threaded.	Yellow	260139	D	10	5.95	5.45
3.5 V. 0.2 A. Threaded.	Green	260140	E	10	5.95	5.45
6.3 V. 0.15 A. Threaded. #40.	Clear	260019	F	1	.35	.30
6.3 V. 0.25 A. Threaded. #46.	Clear	260025	G	1	.35	.30
7.5 V. 0.22 A. Threaded. #50.	Clear	260051	H	1	.35	.30
14 V. 0.20 A. Threaded. #1449	Clear	260024	I	1	.35	.30



E-10 Base Mini Bulb Sockets

Description	Stock #	Fig.	Qty.	\$ ea.	\$ ea./10+
PCB Mount	250059	J	10	4.95	4.45
Solder Tab. Raised. Threaded.	250057	K	10	4.95	4.45
2 Solder Tabs. Threaded.	250056	L	10	4.95	4.45
Clip-On. Can slide on a craft stick.	260130	M	10	6.45	5.95
Fahnestock. Screw-type.	260117	N	1	1.25	1.15
Classic. Screw-type. 1-3/8 in. dia.	250036	O	10	6.95	6.75

Bayonet Base Mini Bulb Clear.

V	A	#	Stock #	\$ ea.	\$ ea./10+
2	.06	49	260015	.85	.75
6.3	.15	47	260002	.85	.75

Bayonet Base Mini Bulb Socket

Bare. 6 in. Lead.

Quantity	Stock #	\$ ea.	\$ ea./10+
1	250012	.95	.75

Insulated. 2 Solder Tabs.

Stock #	\$ ea.	\$ ea./10+	\$ ea./100+
260127	1.95	1.45	1.25

PCB Base Mini Bulb

12 V. Clear

A	Stock #	\$ ea.	\$ ea./10+
.27	260109	1.25	.99

E-5 Base Mini Bulb

12 V. Clear. Threaded.

A	#	Stock #	\$ ea.	\$ ea./10+
.27	1769	260157	.75	.55

Neon Bulb Panel Kits

Each kit includes NE2 neon bulb, high temperature lens cap (colored plastic), Tinnerman mounting clip, and a current limiting resistor (68K, 1/2W). Solder tabs. 115V AC. 7/8 in. long. 11/32 in. diameter. Requires a 5/16 in. dia. mounting hole.

Color	Stock #	\$ ea.	\$ ea./100+
Clear	260009	.95	.89
Green	260005	.95	.89
Red	260004	.95	.89

Neon Bulb Only

0.059 W, #NE2. Includes lead.

Color	Stock #	\$ ea.	\$ ea./20+
Clear	260003	.29	.25

Neon Bulb Assembly

Includes red indicator and housing.

V	Stock #	\$ ea.	\$ ea./10+
125	260113	5.95	5.45

TRIMMERS

Vertical Mini Trimmers
PC board mount.



Ohms	Stock #	\$ ea.	\$ ea./10+
2.2M	110106	1.95	1.75

Top adjustable.

Ohms	Stock #	\$ ea.	\$ ea./10+
1k	110099	2.25	1.95

CTS.

Ohms	Stock #	\$ ea.	\$ ea./10+
2 k **	110109	1.95	1.75

Horizontal Trimmers

Horizontal mount.



Ohms	Stock #	\$ ea.	\$ ea./10+
10 k	110121	4.95	4.65

CTS,
PC board mount.



Ohms	Stock #	\$ ea.	\$ ea./10+
5 k	110083	1.95	1.75
100 k	110111	1.95	1.75
500 k	110102	1.95	1.75

Top adjustable.
PC board mount.



Ohms	Stock #	\$ ea.	\$ ea./10+
47k	110107	2.95	2.75

XENON STROBE TUBE

Strobe Tube Only

Used for photoflashes. Features a 4KV trigger with a 200-300V DC anode.



V	Stock #	\$ ea.	\$ ea./10+
4k	260050	2.95	2.75

Trigger Coil

For xenon strobe tube.



V	Stock #	\$ ea.	\$ ea./10+
4k	320037	1.95	1.75

Project Cases

For projects and storage. Cover snaps off. Plastic.



2-1/8 x 1-5/8 x 1 in.

Stock #	\$ ea.	\$ ea./10+
430014	.69	.65

3-1/2 x 2-9/16 x 1

Stock #	\$ ea.	\$ ea./10+
430017	1.25	1.15

4-5/8 x 3-1/2 x 1-3/4

Stock #	\$ ea.	\$ ea./10+
430064	2.25	1.95

POTENTIOMETERS

Linear Taper Potentiometers



Ohms	Stock #	\$ ea.	\$ ea./10+
500	110051	3.95	3.65
1 k	110052	3.95	3.65
5 k	110054	3.95	3.65
10 k	110055	3.95	3.65
50 k	110057	3.95	3.65
100 k	110058	3.95	3.65
500 k	110060	4.95	4.45
5 M	110063	4.95	4.45

Audio Taper Potentiometers



Ohms	Stock #	\$ ea.	\$ ea./10+
1 k	110064	2.95	2.50
100k	110068	2.45	2.25

PCB Mount Potentiometers



Ohms	Stock #	\$ ea.	\$ ea./10+
1 k	110132	2.29	1.95
2 k	110136	2.29	1.95
10 k	110130	2.29	1.95
100 k	110133	2.29	1.95
500k	110135	2.29	1.95
1M	110134	2.29	1.95

High Quality Potentiometers
2W, 10-Turn



Ohms	Stock #	\$ ea.	\$ ea./10+
100 k	110088	13.95	11.95

Rotary Switches

30° indexing, single phenolic wafer sections and silver-plated contacts.



Positions	Stock #	\$ ea.	\$ ea./10+
3	990035	3.95	3.15
6	990031	3.95	3.15
12	990029	3.95	3.15

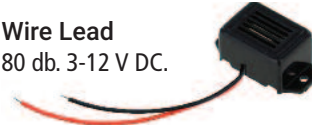
CIRCUIT BREAKERS



A	Stock #	\$ ea.	\$ ea./10+
2	380074	16.95	15.95
4	380073	17.95	16.95

BUZZERS

Wire Lead
80 db. 3-12 V DC.



Stock #	\$ ea.	\$ ea./10+
680089	1.95	1.85

Piezo

80 db. 3-6 V DC



Stock #	\$ ea.	\$ ea./10+
680135	2.95	2.75

PCB Mount 80 db.
With leads. 6-9 V DC



Stock #	\$ ea.	\$ ea./10+
680104	1.95	1.75

Bell for Doorbells, etc.

Double Coil,
6-10 V AC,
3-6 V DC.



340040\$29.95

FUSES

Slow-Blow Fuses

125 V. 1/4 x 1/4 in.
Minimum order of 10.



A	Stock #	\$ ea.	\$ ea./10+
2	380014	.85	.75

Fast-Acting Fuses

250 V. AGC. 1/4 x 1/4 in.
Minimum order of 10.



A	Stock #	\$ ea.	\$ ea./10+
1	380002	.49	.45
1.5	380024	.49	.45
2	380003	.49	.45
3	380004	.49	.45

Test Instrument Fuses

250 V. GMA. 1/4 x 1/4 in.
Minimum order of 10.



A	Stock #	\$ ea.	\$ ea./10+
0.5	380034	.15	.11
1	380035	.15	.11

Fuse Holders

Post-Type. Includes mounting nut.



Quantity	Stock #	\$ ea.	\$ ea./10+
1	380019	1.60	1.50

Bayonet-Type.

With mounting nut.



Qty.	Stock #	\$ ea.	\$ ea./10+
1	380001	14.95	14.25

SENSORS

Thermistors

Raises the temperature as resistance goes down.



Ohms	Stock #	\$ ea.	\$ ea./10+
100	110097	1.35	1.00
1 K	110108	1.35	1.00
10 K	110098	1.55	1.45



IR Switch / Sensor Detector

Stock #	\$ ea.	\$ ea./20+
260093	.99	.85

Photo Cells

Variable Resistance



Ohms	Stock #	\$ ea.	\$ ea./100+
450	260017	.99	.85
1.5 K	260018	.99	.85

Ultrasonic Sensor Set
Aluminum Case



Stock #	\$ ea.	\$ ea./10+
680115	13.95	12.95

Tilt Switches
Metal Can



Stock #	\$ ea.	\$ ea./10+
270086	2.65	2.45

Magnetic



Stock #	\$ ea.	\$ ea./10+
270065	2.25	1.95

Magnet switch
with magnet. 1 set.



Stock #	\$ ea.	\$ ea./10+
842603	3.25	2.95

Key Switch

Normally Open



Quantity	Stock #	\$ ea.	\$ ea./6+
1	270081	.49	.44

Momentary Switches



Type	Stock #	\$ ea.	\$ ea./10+
SPST, NO	270052	1.25	.99
SPDT, NO/C	270074	3.45	2.95

Right Angle.
SPST. 12mm.



Quantity	Stock #	\$ ea.	\$ ea./10+
1	270104	1.75	1.58

Hall Effect Switch & Sensor



Quantity	Stock #	\$ ea.	\$ ea./10+
1	270051	2.75	2.45

TOGGLE SWITCHES

SPST. 125 V AC, 4 A
Includes nut.



Stock #	\$ ea.	\$ ea./10+	\$ ea./100+
270007	1.45	1.35	1.25

SPST. 125 V AC, 6A
Includes nut.



Stock #	\$ ea.	\$ ea./10+	\$ ea./100+
270034	1.45	1.35	1.25

SPST. 125 V AC, 8 A
Includes nut.



Stock #	\$ ea.	\$ ea./10+	\$ ea./100+
270001	3.95	3.75	3.65

SPST. 125 V AC, 20 A
Includes nut.



Stock #	\$ ea.	\$ ea./10+	\$ ea./100+
270059	4.45	4.35	4.25

SPDT. 125 V AC, 0.3 A
PCB Mount



Stock #	\$ ea.	\$ ea./10+	\$ ea./100+
990097	9.95	8.95	7.95

SPDT. 125 V AC, 6A
Includes nut.



Stock #	\$ ea.	\$ ea./10+	\$ ea./100+
270035	1.25	1.15	.99

SPDT. 125 V AC, 6 A
Includes nut. Center-off



Stock #	\$ ea.	\$ ea./10+	\$ ea./100+
270036	1.25	1.15	.99

SPDT. 125 V AC, 15 A
Includes nut. Center-off



Stock #	\$ ea.	\$ ea./10+	\$ ea./100+
270005	5.95	5.45	4.95

DPST. 125 V AC, 6 A
Includes nut. Center-off



Stock #	\$ ea.	\$ ea./10+	\$ ea./100+
270011	1.35	1.25	1.15

DPDT. 125 V AC, 6 A
Includes nut. Center-off



Stock #	\$ ea.	\$ ea./10+	\$ ea./100+
270037	1.95	1.85	1.75

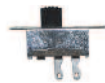
DPDT. 125 V AC, 15 A
Includes nut. Center-off



Stock #	\$ ea.	\$ ea./10+	\$ ea./100+
270013	2.65	2.45	2.35

SLIDE SWITCHES

SPST
Solder-type
125 V AC, 0.5 A



Stock #	\$ ea.	\$ ea./10+	\$ ea./25+
270042	.95	.85	.75

SPST
Includes nut.
125 V AC, 3 A



Stock #	\$ ea.	\$ ea./10+	\$ ea./25+
270004	.70	.66	.63

SPST
Horiz. PCB Mount
125 V AC, 0.5 A



Stock #	\$ ea.	\$ ea./10+	\$ ea./25+
270111	3.45	3.25	2.95

SPDT. PCB Mount.
30 V DC, 0.2 A



Stock #	\$ ea.	\$ ea./10+	\$ ea./25+
270064	1.45	1.25	.95

SPDT. PCB Mount.
50 V DC, 0.5 A



Stock #	\$ ea.	\$ ea./10+	\$ ea./25+
270099	.95	.85	.75

SPDT. Solder-type.
125 V DC, 0.5 A



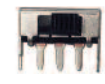
Stock #	\$ ea.	\$ ea./10+	\$ ea./25+
270002	2.95	2.85	2.75

SPDT. PCB Mount.
125 V DC, 0.5 A



Stock #	\$ ea.	\$ ea./10+	\$ ea./25+
270089	3.45	3.25	2.95

DPDT. Side Mount.
50 V DC, 0.5 A



Stock #	\$ ea.	\$ ea./10+	\$ ea./25+
270092	1.75	1.65	1.55

DPDT. Solder-type.
125 V DC, 0.5 A



Stock #	\$ ea.	\$ ea./10+	\$ ea./25+
270009	3.45	3.25	2.95

DOLLHOUSE SWITCHES

Toggle
SPST. Screw-type.
On/Off.



Stock #	\$ ea.	\$ ea./10+	\$ ea./25+
270095	10	10.95	9.95

PUSHBUTTON SWITCHES

Normally Closed
14 V, 2 A Black w/ nut.



Hole in.	Stock #	\$ ea.	\$ ea./100+
3/8	270023	1.85	1.75

On/Off
14 V, 2 A White w/ nut.



Hole in.	Stock #	\$ ea.	\$ ea./100+
3/8	270021	1.85	1.75

Normally Open
14 V, 2 A Red w/ nut.



Hole in.	Stock #	\$ ea.	\$ ea./100+
3/8	270022	1.85	1.75

Normally Closed
Black w/ Nut
110 V, 3 A



Hole in.	Stock #	\$ ea.	\$ ea./100+
1/4	990074	.39	.35

Normally Closed
Red w/ Nut
110 V, 3 A



Hole in.	Stock #	\$ ea.	\$ ea./100+
17.81/4	990002	.39	.35

On/Off
Red w/ Nut
230 V, 3 A



Hole in.	Stock #	\$ ea.	\$ ea./100+
1/2	270058	3.25	2.95

On/Off
Black
250 V, 1.5 A



Hole mm	Stock #	\$ ea.	\$ ea./100+
17.8	270125	.65	.50

Normally Open
Red w/ Nut
125 V, 3 A



Hole in.	Stock #	\$ ea.	\$ ea./100+
3/8	270110	3.95	3.75

Normally Open
Black w/ Nut
125 V, 3 A



Hole in.	Stock #	\$ ea.	\$ ea./100+
1/2	270109	3.95	3.75

KNIFE SWITCHES

SPST
Screw Terminal



Stock #	\$ ea.	\$ ea./10+	\$ ea./100+
990193	2.45		1.95

SPDT
Screw Terminal



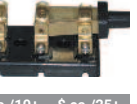
Stock #	\$ ea.	\$ ea./10+	\$ ea./25+
990194	3.55	3.45	3.25

DPST
Screw Terminal



Stock #	\$ ea.	\$ ea./10+	\$ ea./25+
990192	2.50	2.25	1.95

DPDT
Screw Terminal



Stock #	\$ ea.	\$ ea./10+	\$ ea./25+
990195	9.95	8.95	7.95

DPDT
Binding Post



Stock #	\$ ea.	\$ ea./10+	\$ ea./25+
990085	8.95	8.45	8.25

ROCKER SWITCH

Lighted. SPST. Snap
Action. 250 V, 10 A.
Requires panel cutout.



Stock #	\$ ea.	\$ ea./10+	\$ ea./25+
340130	3.25	2.95	2.75

LEVER SWITCHES

Submini. Snap Action,
SPST. 125 / 250 V, 6 A



Stock #	\$ ea.	\$ ea./10+	\$ ea./25+
270084	1.95	1.75	1.65

Mini, Snap Action,
SPDT, w/ Nut.
125 / 250 V, 10 A



Stock #	\$ ea.	\$ ea./10+	\$ ea./25+
270061	11.95	9.95	8.95

Check Out the
KELVIN® website at
www.kelvin.com

RESISTORS

1/4 W Resistors
200/pkg., **\$10**



Ohms	Stock #	Ohms	Stock #
10	010016	5.1K	010105
33	010081	6.8K	010119
47	010101	10K	010017
82	010137	15K	010034
100	010018	20K	010054
150	010035	22K	010058
220	010059	33K	010082
330	010083	47K	010102
470	010103	68K	010126
560	010115	82K	010138
680	010127	100K	010019
820	010139	150K	010036
1K	010014	220K	010060
2K	010051	330K	010084
2.7K	010049	470K	010104
3.3K	010069	1M	010015
4.7K	010095	4.7M	010096

1/2 W Resistors
200/pkg., **\$14**



Ohms	Stock #	Ohms	Stock #
10	030016	5.1K	030110
33	030085	6.8K	030126
47	030106	10K	030017
82	030145	15K	030036
100	030019	20K	030060
150	030038	22K	030064
220	030065	33K	030086
330	030087	47K	030107
470	030108	68K	030133
560	030121	82K	030146
680	030134	100K	030020
820	030147	150K	030039
1K	030014	220K	030066
2K	030057	330K	030088
2.7K	030055	470K	030109
3.3K	030075	1M	030015
4.7K	030100	4.7M	030101



1/2 W Resistors Bulk Pack

Selected to be the most useful values for any electronics project. Resistors are conveniently separated in plastic bags, sorted by value. Bulk pack contains 5 each of 73 standard resistor values from 1 to 1M ohms. 365 total.
282452 **\$23.95** or **\$20.95** ea./3+



1 W Resistors
50/pkg., **\$16**

Ohms	Stock #
2.7k	050052
10	050016
33	050086
100	050018



5 W Resistor
080000, **\$2.50**

DIODES

1N Series

Type	Stock #	\$ ea.	\$ ea./10+
1N34A	620043	.59	.49
1N914	620080	.39	.35
1N4148	620051	.39	.35



Shottky Diodes 40V, 3A

Type	Stock #	\$ ea.	\$ ea./10+
1N5822	620145	.99	.89

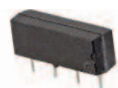


Zener Diodes

V	Stock #	\$ ea.	\$ ea./10+
2.7	620132	.20	.18
5.1	620023	.20	.18
12	620008	.20	.18

RELAYS

SPST. Contacts:
200 V DC, 0.5 A.
Coil: 5 V DC, 10 mA.



Ohms	Stock #	\$ ea.	\$ ea./10+
500	410030	3.95	3.75

SPDT. Contacts: 120 V AC / 24 V DC, 10A. Coil: 6 V DC, 60 mA.

Ohms	Stock #	\$ ea.	\$ ea./10+
100	410024	2.75	2.55

SPDT. Contacts: 250 V AC / 30 V DC, 7A. Coil: 12 V DC, 30 mA.

Ohms	Stock #	\$ ea.	\$ ea./10+
400	410027	4.95	4.45

DPDT. Contacts: 110 V AC / 24 V DC, 5A. Coil: 6 V DC, 86 mA.

Ohms	Stock #	\$ ea.	\$ ea./10+
700	410025	8.45	7.95

CAPACITORS

Monolithic Capacitors 50V. 10/pkg.



mF	Stock #	\$ ea.	\$ ea./10+
0.01	140046	2.20	1.95
0.047	140047	2.50	2.25
0.1	140048	2.50	2.25
0.22	140049	2.75	2.60
0.47	140050	2.75	2.60

Mini Radial Capacitors



Farads	V	Stock #	\$ ea.	\$ ea./10+
1	50	180036	.50	.45
10	35	180035	.50	.45
100	16	180037	.50	.45

Polyester Metallized.
±10% 250V.



Farads	V	Stock #	\$ ea.	\$ ea./10+
0.22	250	130060	1.15	.95
0.47	250	130061	1.25	1.05

Radial Capacitors
Electrolytic
Aluminum. *Low ESR.



Farads	V	Stock #	\$ ea.	\$ ea./10+
1	50	180012	.50	.45
4.7	50	180015	.50	.45
10	16	180002	.50	.45
10	35	180017	.50	.45
22	35	180019	.50	.45
47	25	180004	.50	.45
100	16	180023	.50	.45
100	25	180006	.50	.45
220	16	180026	.50	.45
1000	16	180005	.50	.45
1000	35*	180034	1.20	1.08
2200	16	180029	.99	.95

Axial Capacitors
Electrolytic, insulated.



Farads	V	Stock #	\$ ea.	\$ ea./10+
1	50	190022	.95	.85
4.7	50	190002	.85	.75
10	25	190001	.99	.95
10	50	190021	.95	.85
22	50	190024	.95	.75
22	450	190006	4.95	4.65
100	15	190028	.25	.23
100	25	190007	2.95	2.45
100	50	190020	.95	.85
220	25	190008	1.55	1.45
470	25	190019	2.25	1.95
1000	25	190009	.85	.75
1000	50	190010	2.95	2.75

Disc Capacitors
Ceramic. 50V. 20/pkg.



mF	Stock #	\$ ea.	\$ ea./10+
0.0010	140001	6.00	5.50
0.0022	140003	6.00	5.50
0.0047	140005	6.00	5.50
0.022	140009	6.00	5.50
0.10	140011	6.00	5.50
pF	Stock #	\$ ea.	\$ ea./10+
12	140014	6.00	5.50
33	140028	6.00	5.50
120	140015	6.00	5.50
330	140029	6.00	5.50
470	140034	6.00	5.50

Tantalum Capacitor Resin. 10/pkg.



Farads	Stock #	\$ ea.	\$ ea./10+
2.2	190054	9.00	8.00

Find More Bin Fillers on pg. 17.



Soldering Bin Filler

Valued at
\$155

5	Soldering Iron, 20 W	5	Desoldering Wick, 0.19 in. W
5	Solder w/ Dispenser	5	Desoldering Wick, 0.10 in. W
5	Soldering Iron Holder	5	Desoldering Bulb
5	Sponge for Holder, Extra	430521	.....\$135 or \$125 ea./3+

INTEGRATED CIRCUITS

PLEASE NOTE: As ICs become obsolete, we'll substitute an equal series one.

A 7400 Series ICs

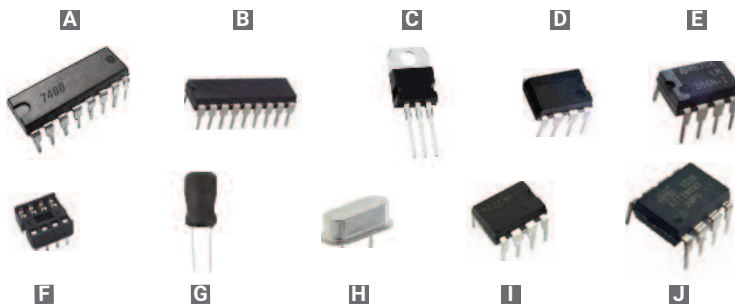
Type	Stock #	\$ ea.
7400	590001	1.30
7404	590005	1.75
7447	590043	2.45
7473	590052	.75
74HC-08	590275	1.25
74LS-00	590088	1.25
74LS-47	590144	1.99
74LS-74	590080	.85
74LS-90	590111	1.50
74LS-161	590094	.65
74LS-163	590180	.65
74LS-194	590100	.95
74LS-240	590081	2.95
74LS-283	590213	.65

CD4000 Series ICs

Type	Stock #	\$ ea.
4011	590229	.55
4017	590228	.95
4027	600178	.95
4046	600181	1.35
4078	590343	.55
4081	600186	.55
4528	600188	1.45

B Arrays

Type	Stock #	\$ ea.	\$ ea./10+
ULN2803A	590421	2.25	1.95
ULN2003	590269	.95	.90



C Voltage Regulators

Type	Stock #	\$ ea.	\$ ea./5+
7805	600023	.99	.90
7815	600025	1.15	.95
LM317T	600044	1.25	1.05
LM337T	600093	1.45	1.25
LM78L05	620151	.65	.60

D Operational Amplifiers

Type	Stock #	\$ ea.	\$ ea./5+
741C	600018	1.65	1.55
1458	600026	1.55	1.45
LM324N	600027	1.25	1.15

E Power Amplifiers

Type	Stock #	\$ ea.	\$ ea./5+
LM386	600096	1.25	1.20

F IC Sockets Solder-Type

Pins	Stock #	\$ ea.	\$ ea./10+	\$ ea./100+
8	250013	.20	.15	.12
16	250005	.17	.13	.10
20	250049	.85	.80	.75
40	250022	.45	.35	.25

RECTIFIERS

Controlled Rectifiers Silicon

A	PIV	Stock #	\$ ea.	\$ ea./10+
1.5	50	600002	3.75	3.45
4	200	600014	.99	.95

Bridge Rectifier

A	V	Stock #	\$ ea.	\$ ea./10+
8	200	620152	2.75	2.60

Power Rectifiers Silicon, 1A

Type	Stock #	\$ ea.	\$ ea./5+
1N4001	620103	.15	.12
1N4003	620104	.25	.20
1N4004	620089	.20	.18
1N5400	620098	.22	.18
1N5401	620094	.22	.18

Full Wave Bridge Rectifiers Min. order of 100

A	V	Stock #	\$ ea./100+
2	50	620099	1.45
2	100	620100	1.25
4	50	620110	1.35
4	100	620111	1.35

TRANSISTORS

Type	Stock #	\$	\$ ea./10+	\$ ea./100+
2N2222	630041	.75	.65	.40
2N2222A	630042	.75	.65	.40
2N2907	630056	.85	.65	.60
2N3904	630117	.25	.20	.15
2N3906	630119	.25	.20	.15
PN2222A	630383	.25	.20	.15

G Coils

Type	mH	Stock #	\$ ea.	\$ ea./10+
DC	1	290015	1.95	1.75
DC	10	290016	1.95	1.75
PCM	100	290014	4.95	3.95

H Crystals

Type	Stock #	\$ ea.
3.57 MHz	590258	1.65

I Timers

Type	Stock #	\$ ea.	\$ ea./10+	\$ ea./100+
555	600021	.35	.30	.25
556 Dual	600029	1.25	1.15	.99
7555	600164	1.25	1.15	.99

ATTiny85 Microcontroller

Low-power CMOS 8-bit microcontroller based on the AVR enhanced RISC architecture. By executing instructions in a single clock cycle, the ATTiny85 achieves throughputs approaching 1 MIPS per MHz. 8-pin PDIP. 8 KB Flash. 2.7 - 5.5 V.

590451 J\$8.95



Electronic Playground

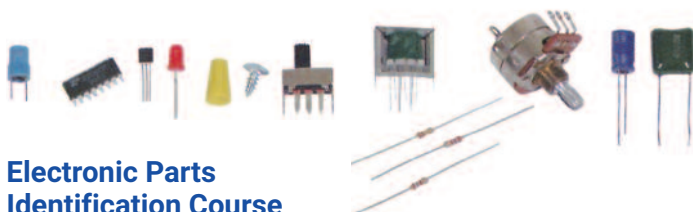
Build over 60 electronic projects including a finger touch lamp, a metal detector, a transistor radio, and an alarm with the Electronic Playground. Learn about voltage, currents, resistors, capacitors, and much more. Uses spring hook-up method. Requires 9V battery.

281645 Kit\$36.95



Basic Electronic Parts

Parts include: resistors, LEDs, capacitors, trim pots, switches, displays, transistors, ics, timer, diodes, etc. plus plastic container. 282462\$99.95



Electronic Parts Identification Course

Over 50 Parts Included with the Course! 28 pg. manual with dozens of illustrations includes detailed descriptions of parts, their functions, color codes, and five self tests.

282432\$22.95 or \$19.95 ea./3+