

TRANSPORTATION

KELVIN® ENGINEERING IN SCHOOL

Find Land Transportation
on pgs. 2-26.



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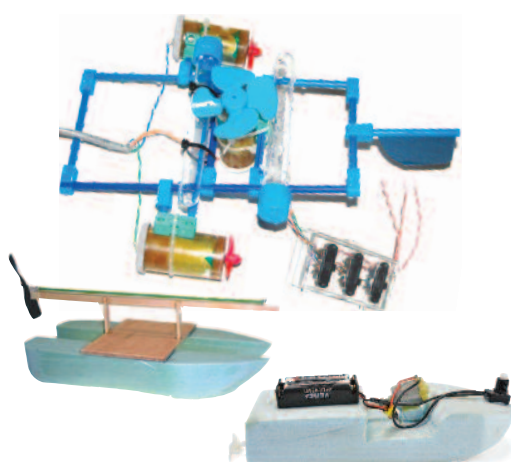
Find Air
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on pgs. 27-38.



Find Space
Transportation
on pgs. 42-45.



Find Water Transportation
on pgs. 39-41.





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

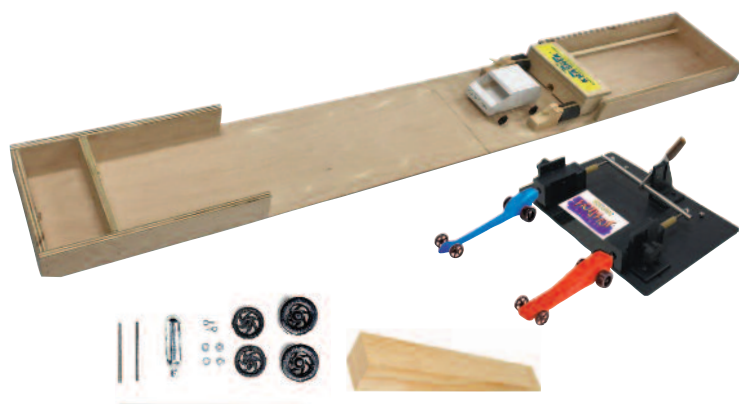
The team pack includes:

- 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**



Compressed Air
Launches
Dragsters Safely

**THE KELVIN®
ORIGINAL
NOT A COPY!**

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**

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+

Bulk Pack Per Kit Price As Low As **\$2.95**



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.

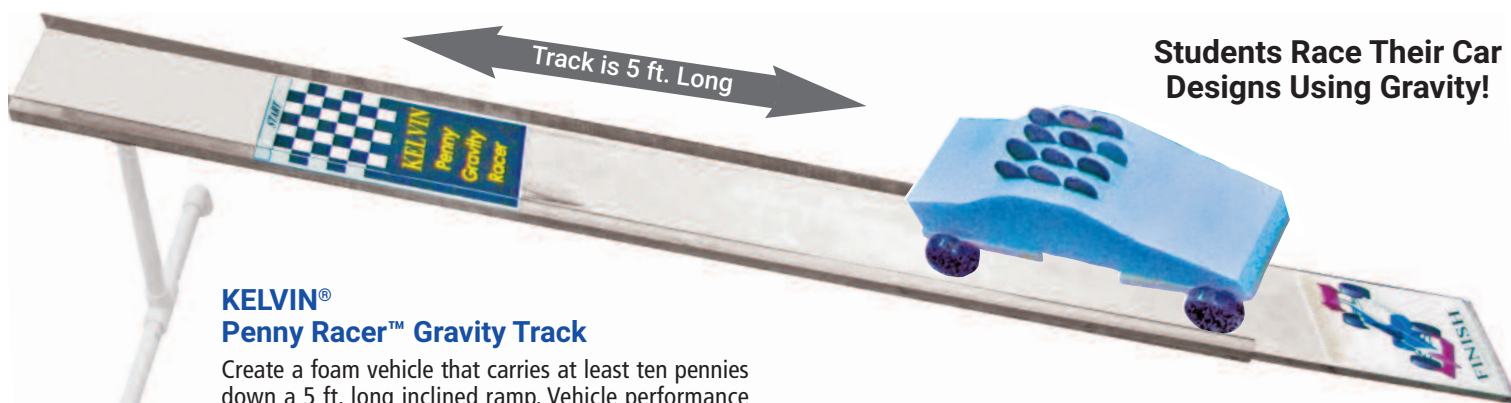
842395 AssembledShipping is \$75 **\$495**



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.).

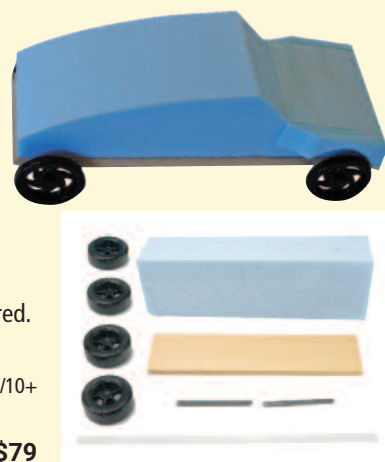
Shaping and assembly required.

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**



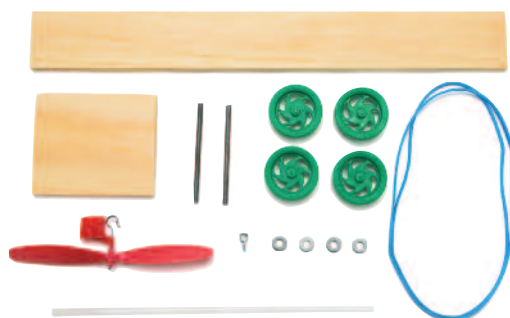
Bulk Pack
Per Kit Price
As Low As

\$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

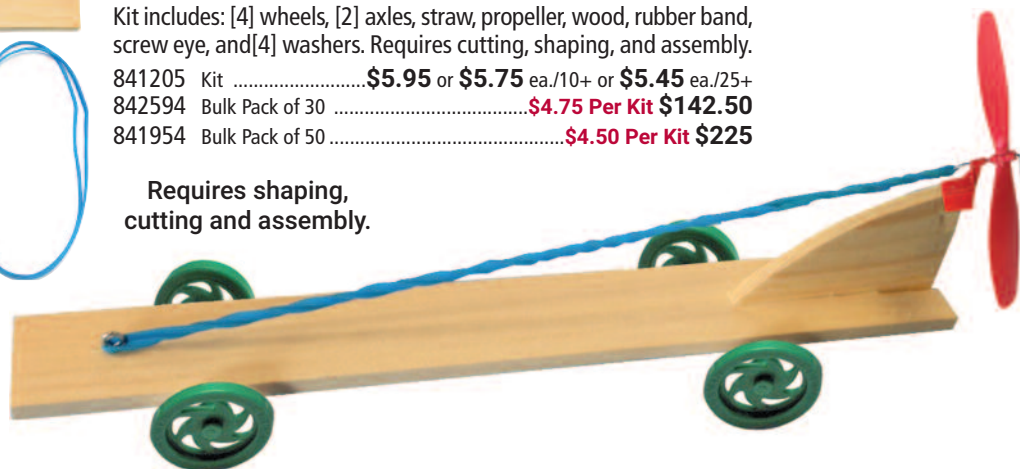
\$450

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

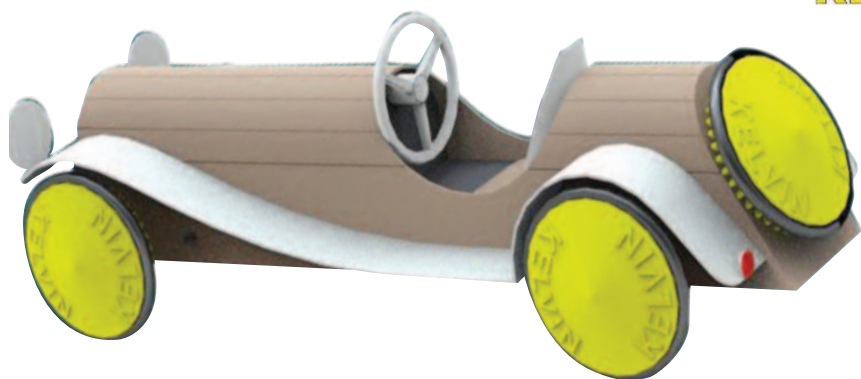
Kre8® kits can be assembled in regular classrooms. Optional Kre8® cutter (283653, pg. 54) can be used to score and snap tubes to length. Use snips (480009, pg. 54) to cut sheet materials and light blue tubes. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is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



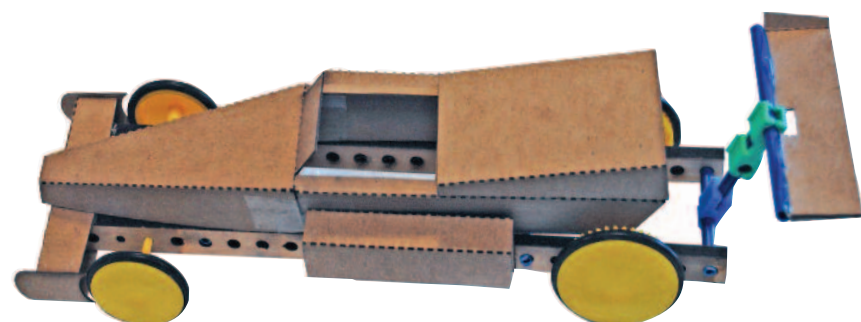
KELVIN® Engineering Principles™ Rubber Band Antique Car

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



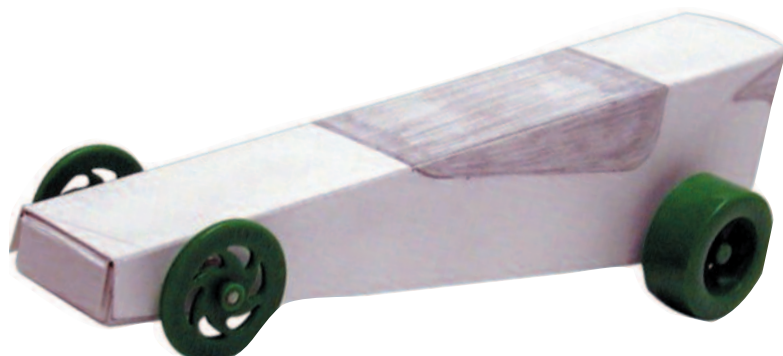
KELVIN® Engineering Principles™ Jet Balloon Car

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

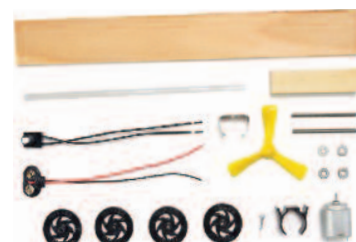
\$4.95

KELVIN® Air Motor Car

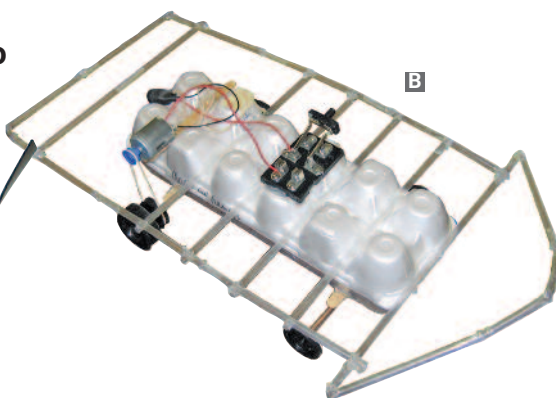
Kit includes: wheels, axles, motor, motor holder, straw, battery holder, propeller, switch, wood for base.

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

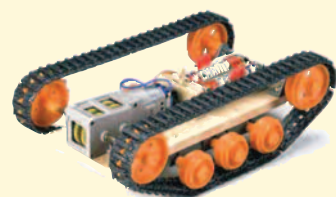
Bring in an empty foam egg carton and, with a few provided parts, create a vehicle. Kit includes: wheels, axles, propeller, wood, straws and rubberband. Requires use of hot glue gun.

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



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+



C



D

Tamiya Amphibious Vehicle Chassis

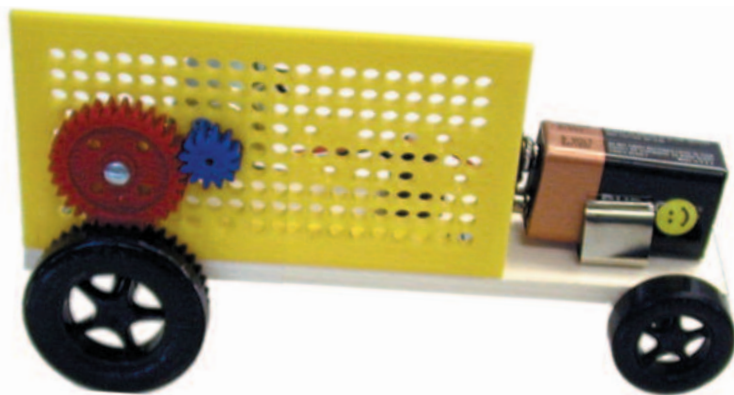
An amphibious vehicle, designed for travel on land or shallow water. Kit includes a chassis, submarine motor, floats, worm gear, propeller and rudder.

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+



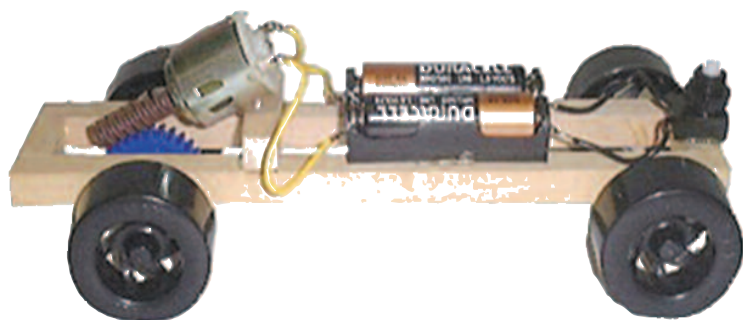
KELVIN® Gear Car

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® 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® 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+



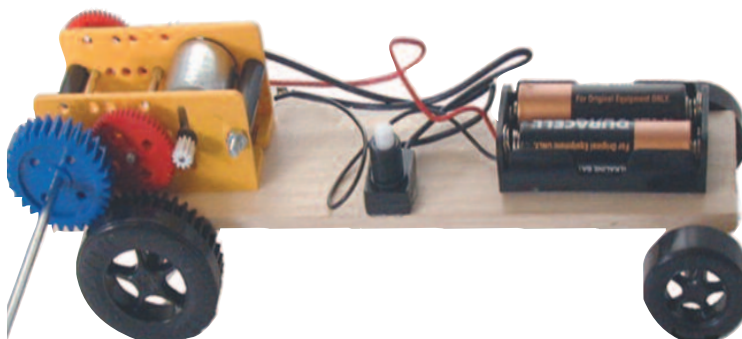
\$6.95

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® 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+



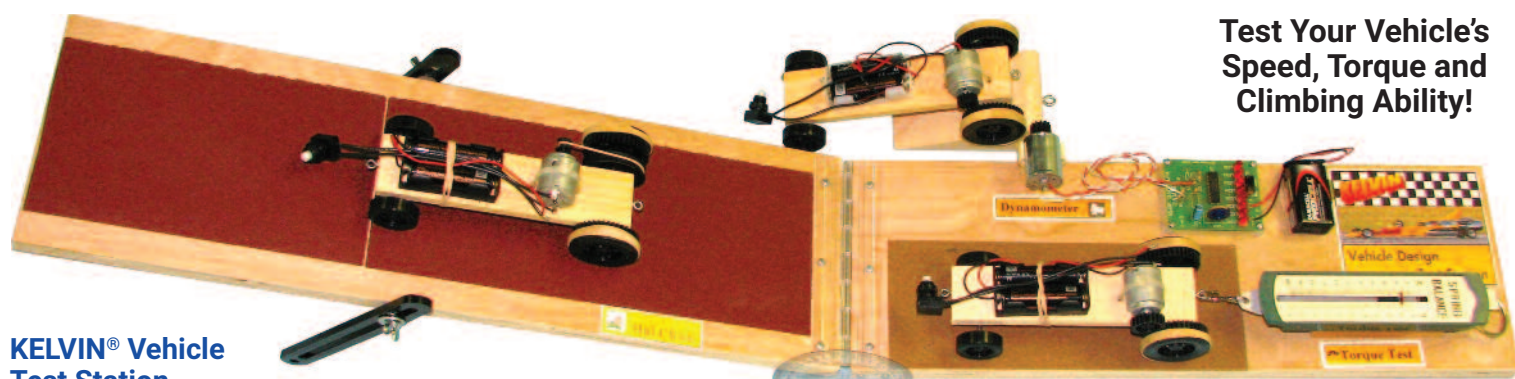
\$9.95

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**



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

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

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/ CD Inserts for Wheels



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+

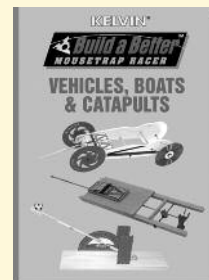


Victor Regulation Mousetraps

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!

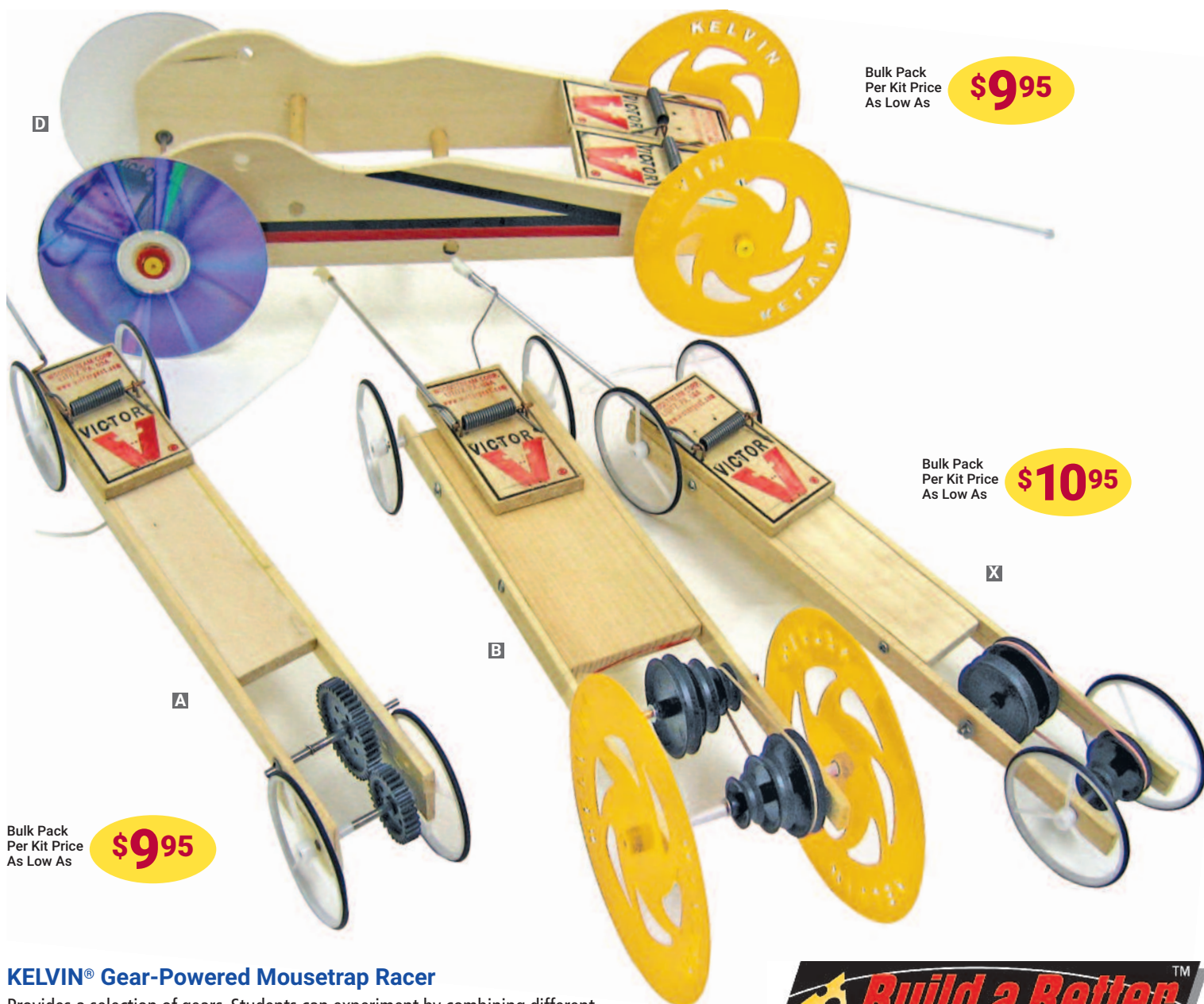
Bulk Pack
Per Kit Price
As Low As

\$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.

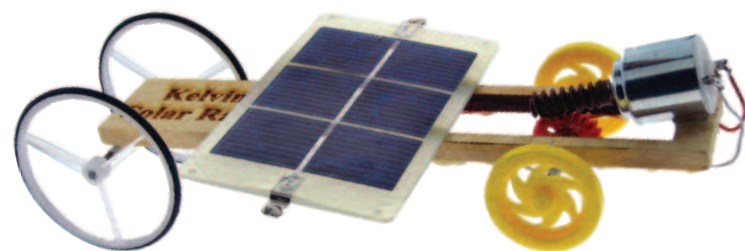
842095 Kit **\$11.45** or **\$10.25** ea./10+
842096 Bulk Pack of 20 **\$9.95 Per Kit \$199**

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.

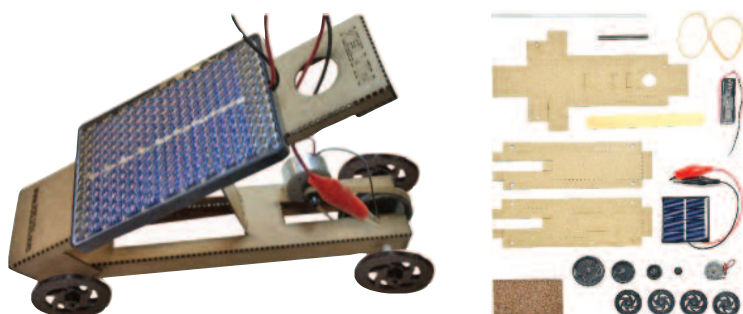
841789 Kit **\$21.95** or **\$19.95** ea./10+ or **\$18.95** ea./20+



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

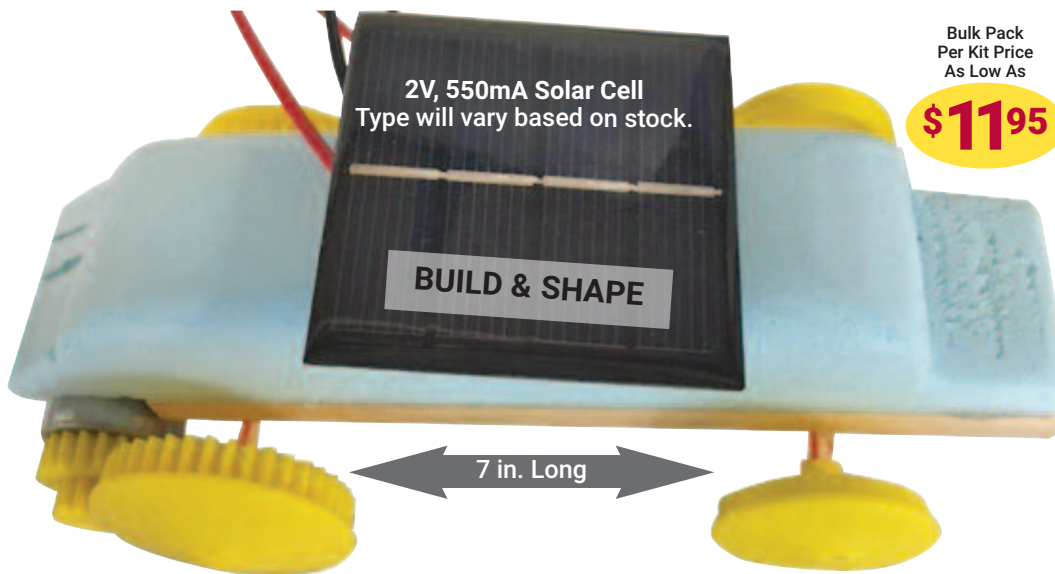
Quickly assemble a solar car without glue or nails. Connect an electric motor to convert the sun's energy into electricity. The solar panel and front wheels are adjustable. Design your own top or use design provided and clip in place. Requires assembly, measuring and cutting.

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

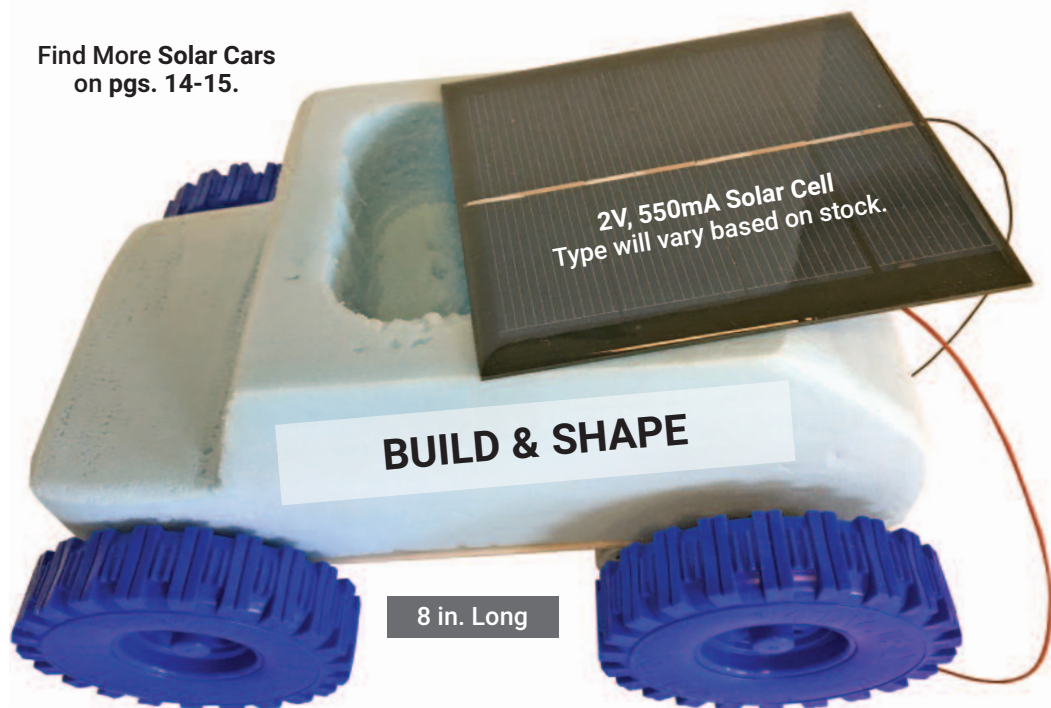
Teach your student's the principles of light to electricity conversions through this hands-on modeling adventure. Students will design and model the vehicle body and solar panel positioning mechanism.

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**



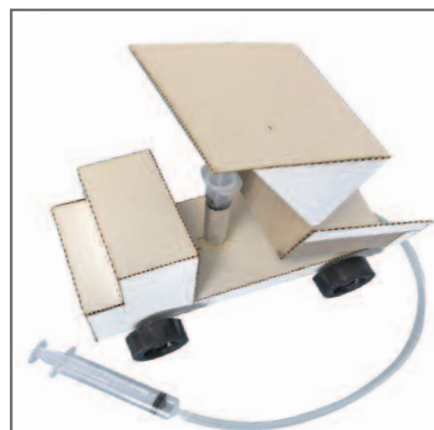
Find More Solar Cars
on pgs. 14-15.



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

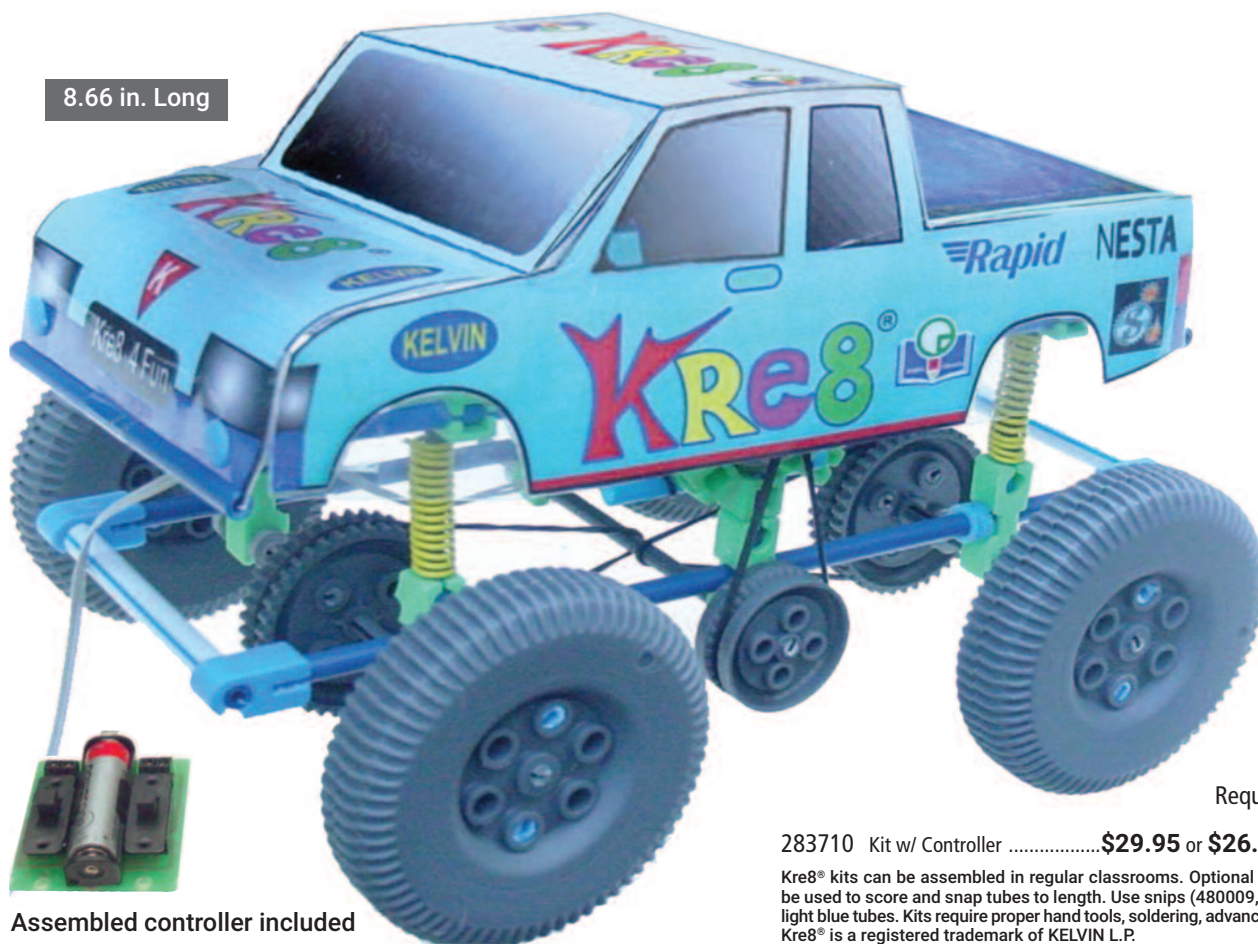


KELVIN® Engineering Principles™ Hydraulic & Pneumatic Truck

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.

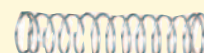
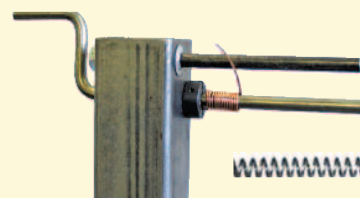
841345 Spring Maker System**\$235**

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

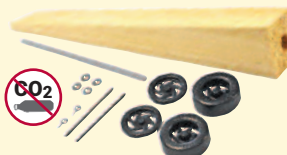
KELVIN® Kel-Air No CO₂™ Dragster Kit with 10 in. L Wood Blank

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® 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 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® 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**

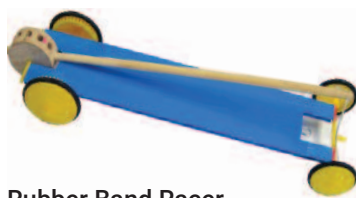
K1 Balsa Blanks ONLY

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



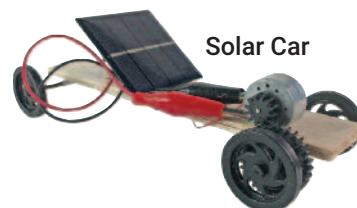
Universal Platform Car



Rubber Band Racer



Balloon Racer



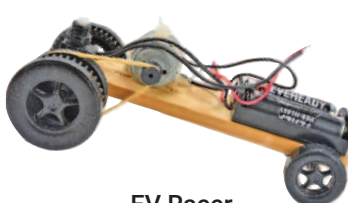
Solar Car



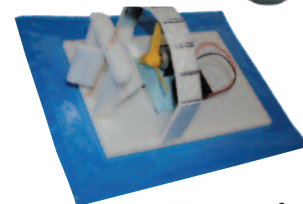
GR Cruiser



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.

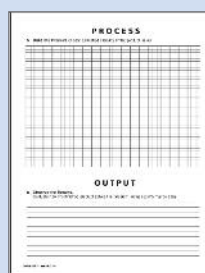
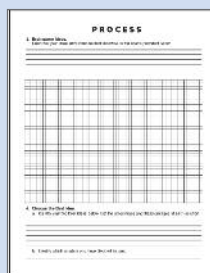
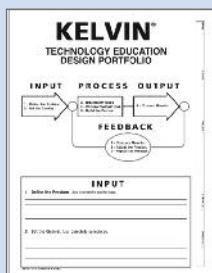
In addition, parts are supplied for more open-ended designs. These parts consist of a Motor Holder, Propeller, Gear, Pulley, Battery Holder, Motor, [2] Foam Pieces, and a Corrugated Board.

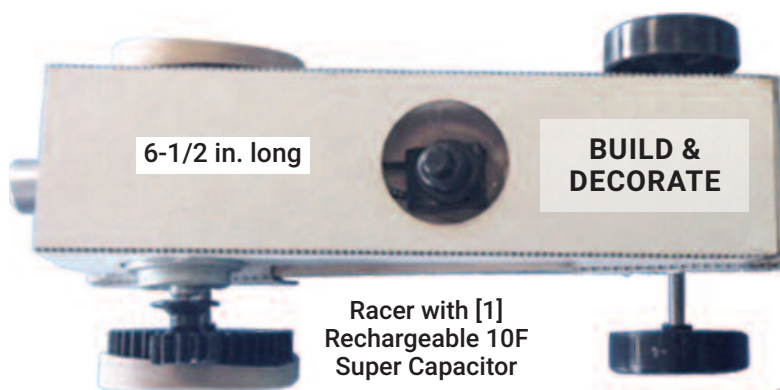
842592 KELVIN® Science Fair Pack for Transportation - [8] Kits & Parts **\$85**

KELVIN® Design Portfolios

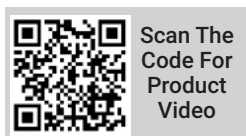
Design portfolios encourage students to use the problem-solving method (input, process, output & feedback) when planning and designing projects. Each portfolio consists of 4 pages for students to fill out.

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+
D-Cell Rechargeable Battery		
220029	\$6.95



Recharges with 9V Battery

Find the Super Capacitor Track (842395) on pg. 4.

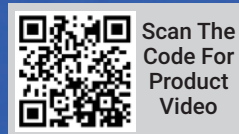
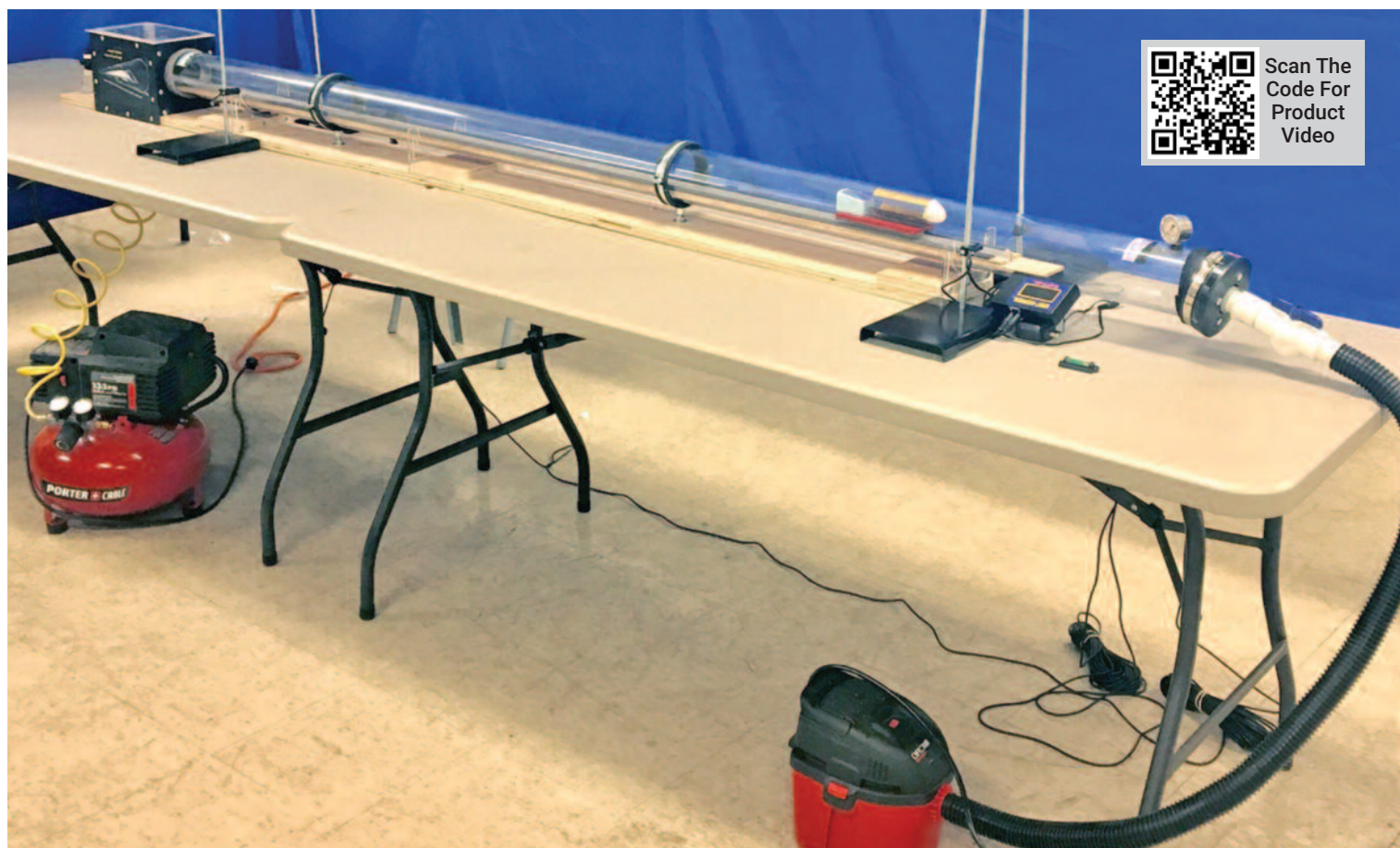
KELVIN® 20F Super Capacitor Dragster

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**

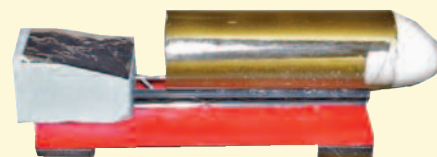
KELVIN® Hyperloop Trainer

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

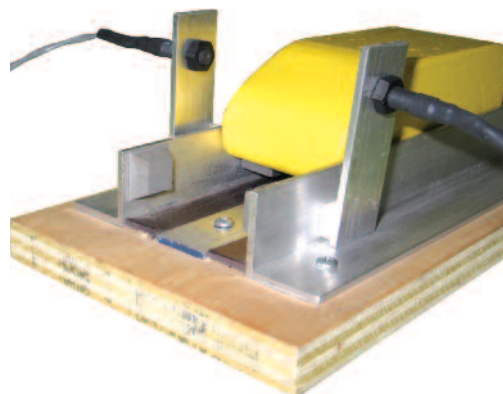
Design and construct a maglev vehicle that travels as fast as possible along a magnetic levitation track. This challenge enables students to design different types of vehicles using a variety of materials. This challenge gives students an opportunity to understand the mystery and excitement of magnetic 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

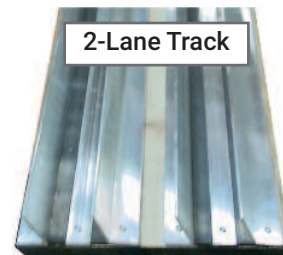
THE ORIGINAL KELVIN® MAGLEV RACER™ TRACK

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).

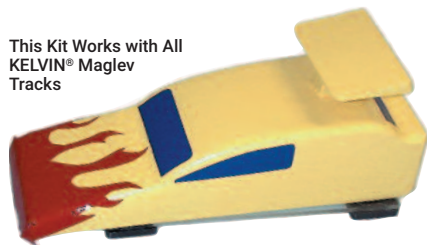
842092 4ft. L.Shipping is \$45 **\$145** or **\$125** ea./3+
840445 8ft. L, 1-LaneShipping is \$295 or PU **\$295**
841209 8ft. L, 2-LaneShipping is \$295 or PU **\$335**

840451 Maglev Track Connector**\$26.95**
Variable Power Supply w/ Polarity Box
842639 0-30 V / 0-5 A**\$145**



2-Lane Track

This Kit Works with All
KELVIN® Maglev
Tracks



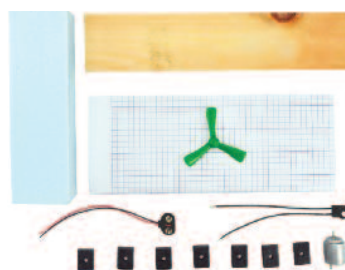
KELVIN® Basic Maglev

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

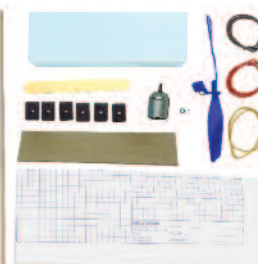


This Kit Works ONLY
with Electric Propulsion Tracks

KELVIN® Advanced Maglev

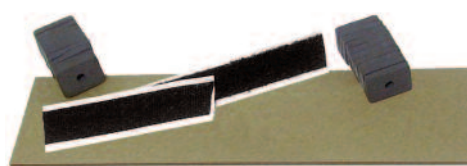
Propel like basic maglev or use motor and propeller when track is powered. Kit includes: [6] maglev magnets, 3-6 V DC project motor, wire (red and black), nosehook propeller, foam blank, basswood, masonite board, dowel, craft stick, screw eye, [2] rubber bands, grid paper, and instructions.

840666 Kit.....**\$9.95** or **\$9.65** ea./10+ or **\$9.25** ea./25+



KELVIN® Universal Maglev Base

Attach designs to base
using 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.

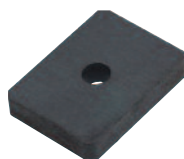
841294 Kit**\$9.95** or **\$8.95** ea./10+ or **\$7.95** ea./25+

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.

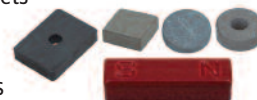
640102 N & S Set**\$125** or **\$99** ea./3+
640103 North Only.....**\$75** or **\$65** ea./3+
640104 South Only.....**\$75** or **\$65** ea./3+



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

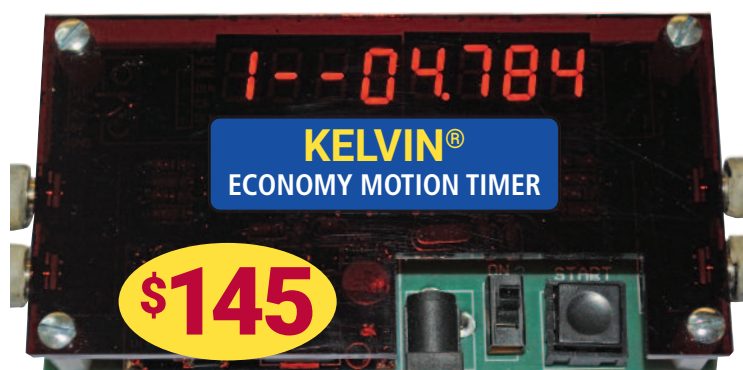
The track includes leveling feet and bumpers at the end of the guide way. Watching head to head vehicle performance from a side view helps students observe design differences and flaws helpful in optimizing their design solutions.

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.

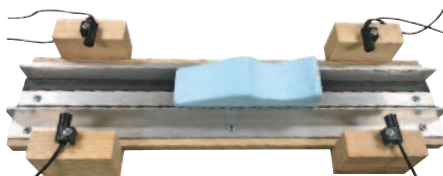
KELVIN® Elite Kel-Timer™ Motion Timer

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

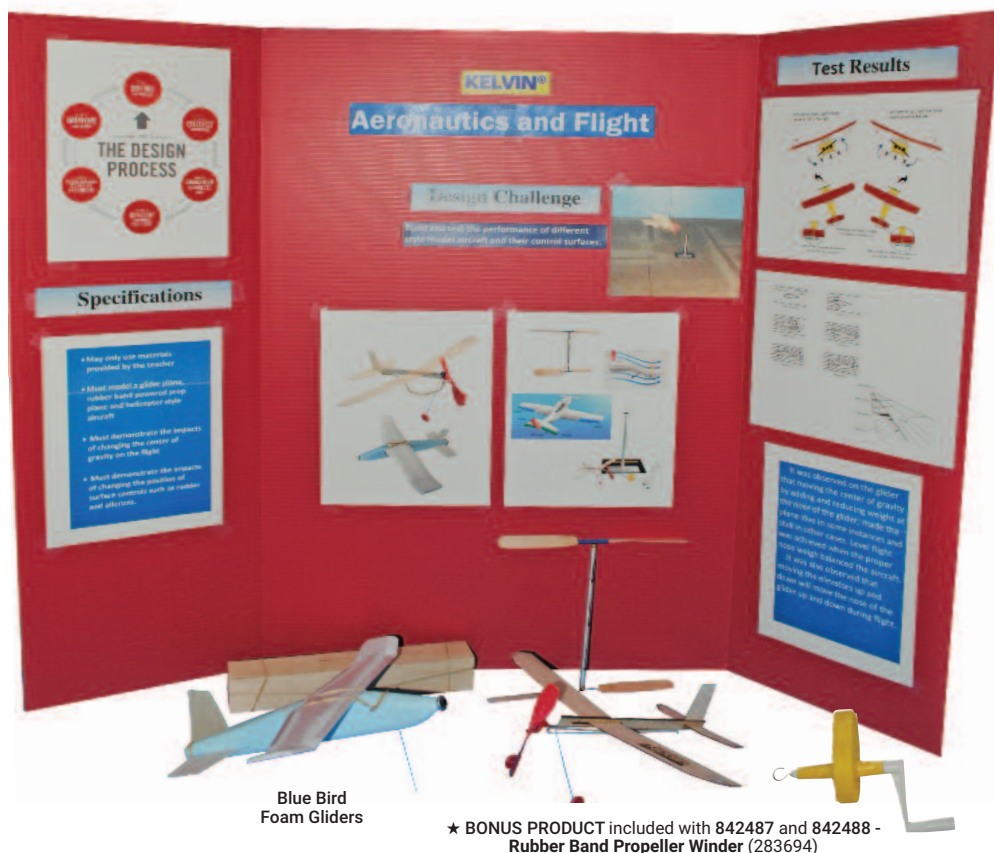
Includes Reusable Corrugated Plastic Display Board, [5] Blue Bird Foam Glider Kits, [10] Rubber Band Powered Plane Kits, [5] Double Prop Helicopter Kits, Wing Forming Jig and Abrasive Paper. Extra parts and an instruction manual complete the lab. All kits require assembly with hand tools.

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

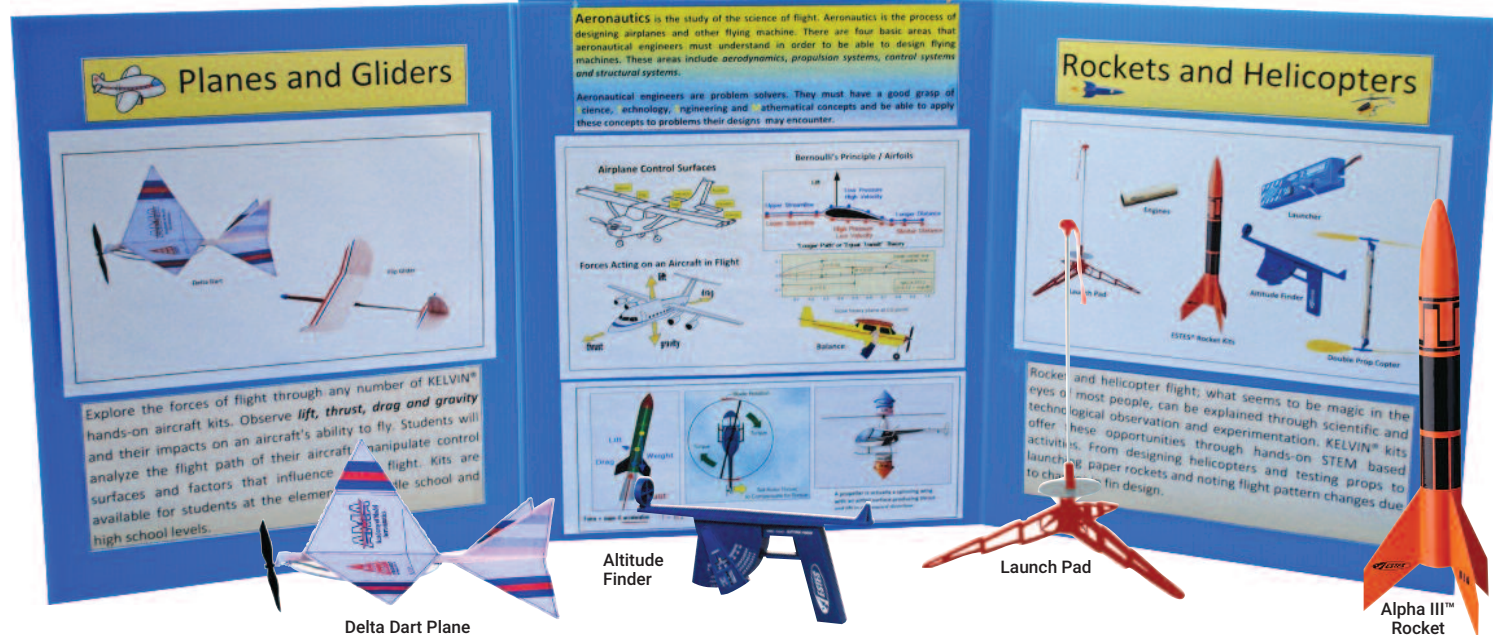


Find More **KELVIN® New Standards™**
S.T.E.M. Labs in the S.T.E.M. chapter
on pgs. S 2-11.

**Aeronautics
and Flight**



**KELVIN® New Standards™ S.T.E.M.
Lab: Aeronautics & Flight Gr. 7-12**



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

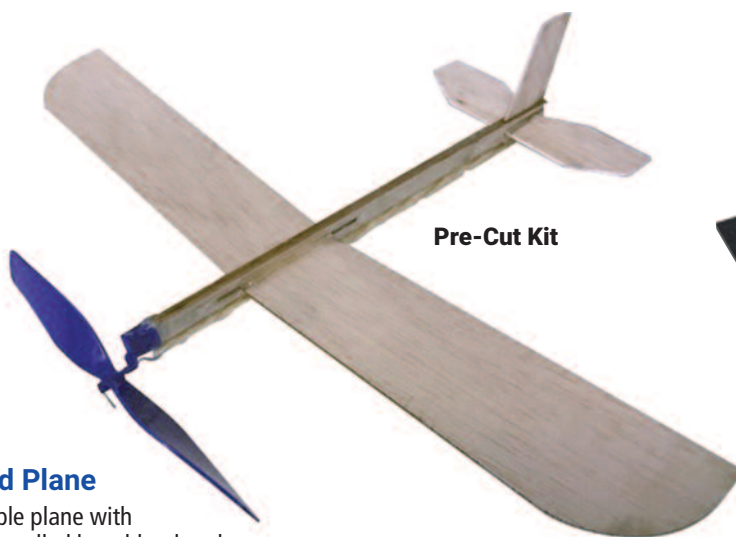
KELVIN® RBTP™
Rubber Band Power Plane w/ 13 in. wide Wing Span

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



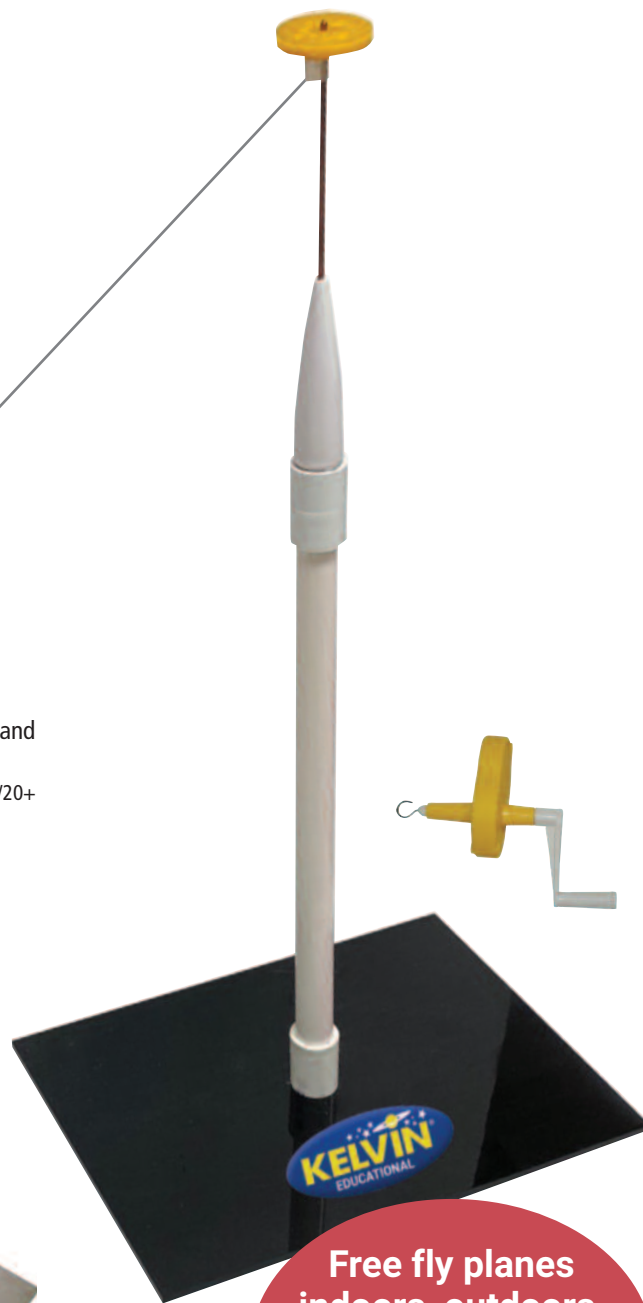
Pre-Cut Kit

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

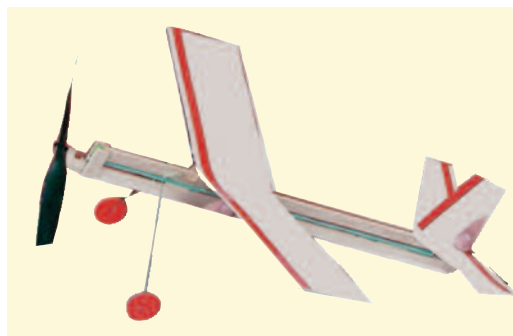
**KELVIN® Rubber Band
Flight Activity Class Pack**

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

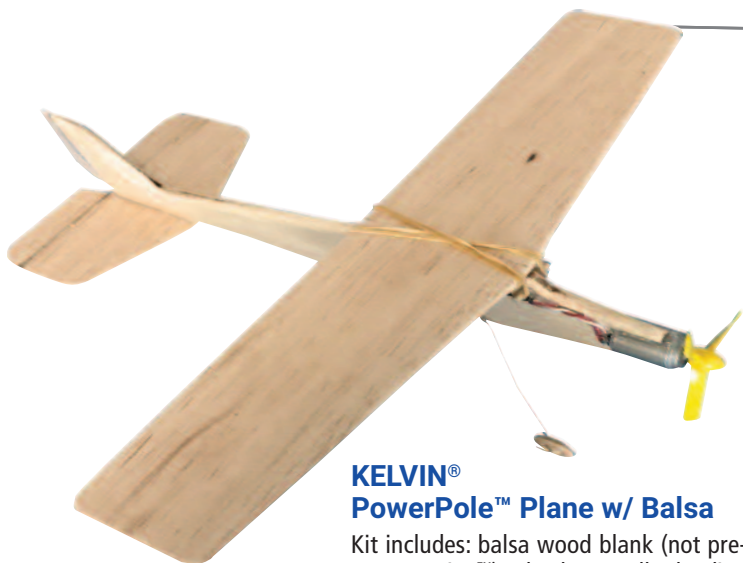
\$16⁵⁰

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+

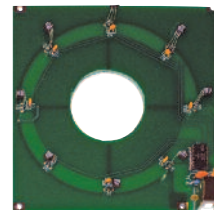
Upgrade Kit for Older PowerPole™ Models

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.

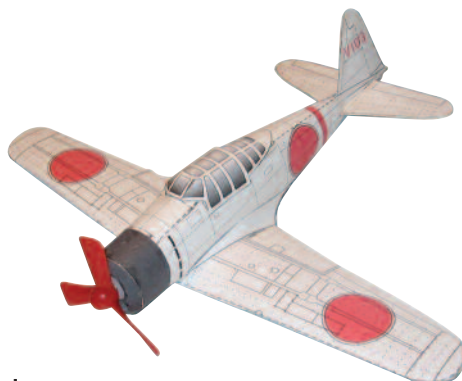
842059\$59.95 or \$49.95 ea./2+



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

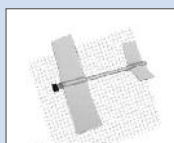
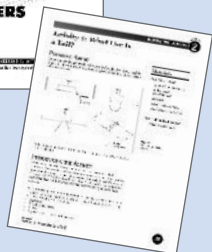
CO₂ Cartridges 8 Gram**We only ship CO₂ cartridges to the Continental
U.S. via Ground Service.**

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.

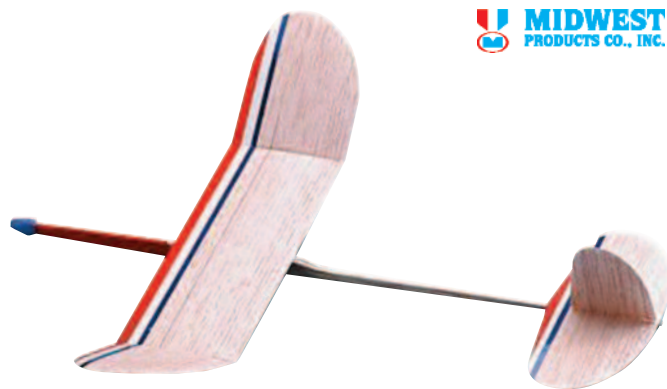
280377\$135 or \$125 ea./3+



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.

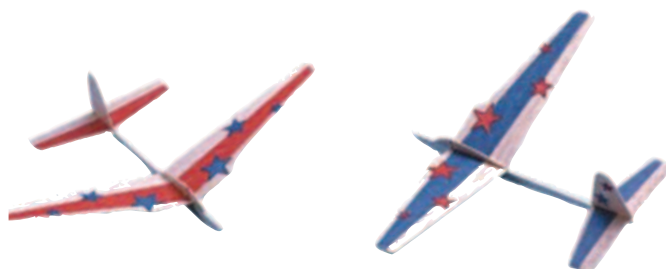
282406 Kit\$29.95 or \$27.95 ea./3+



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**

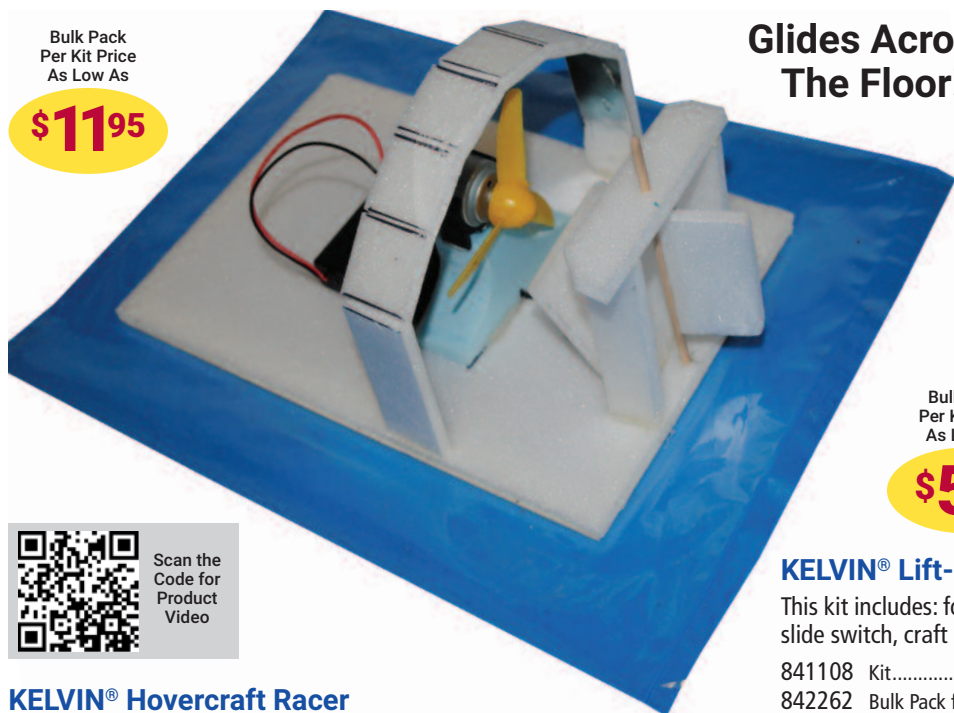


**Great
Outdoor
Activity**

**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

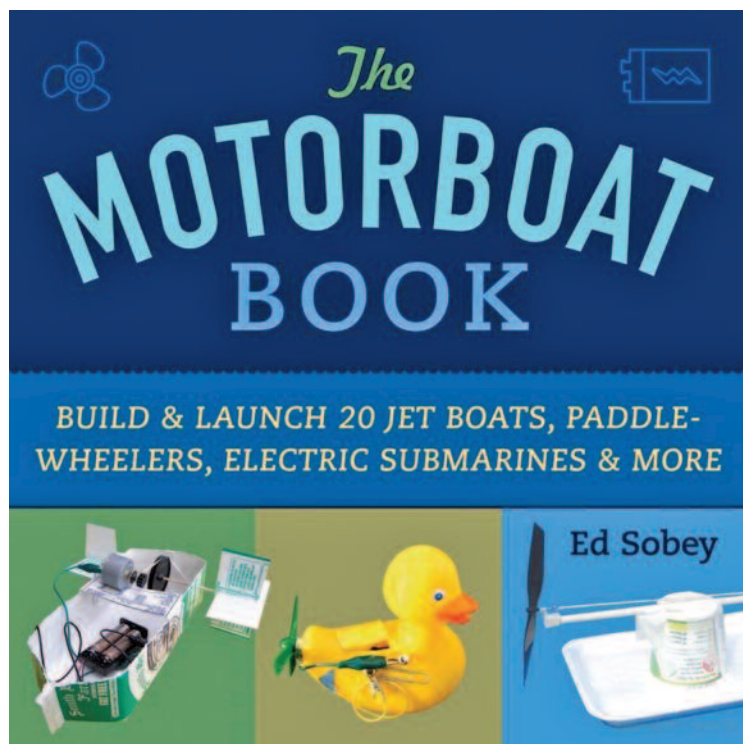
220155 **B** Charges in 1 to 2.5 hours, 4000 mW **\$49.95**



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

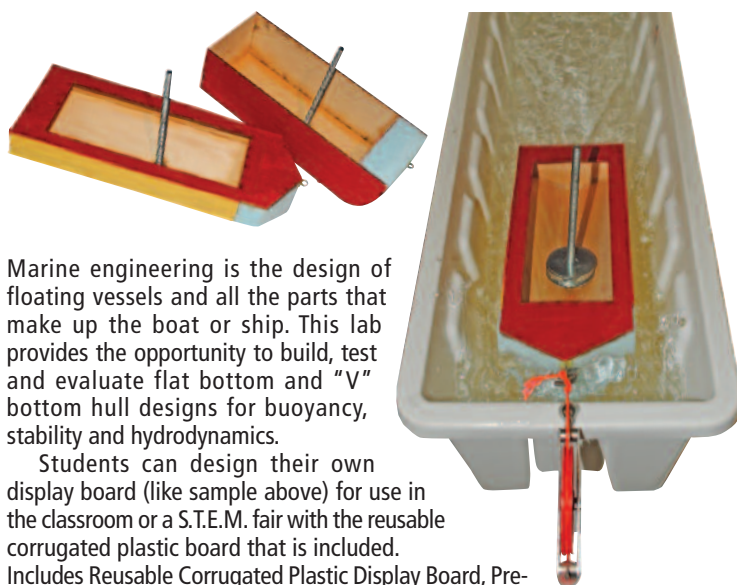
Includes Reusable Corrugated Plastic Display Board, [4] Basic Buoyancy Kits, [4] Rubber Band Powered Pontoon Boat Kits, [4] Basic Submarine Kits, [4] Motor Boat Kits and instructions. Grades 6-12.

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+

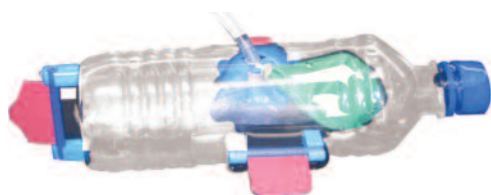
**KELVIN®
Air Boat**

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.

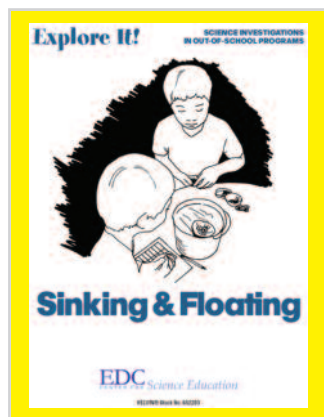
842105 Kit\$16.95 or \$14.95 ea./10+



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

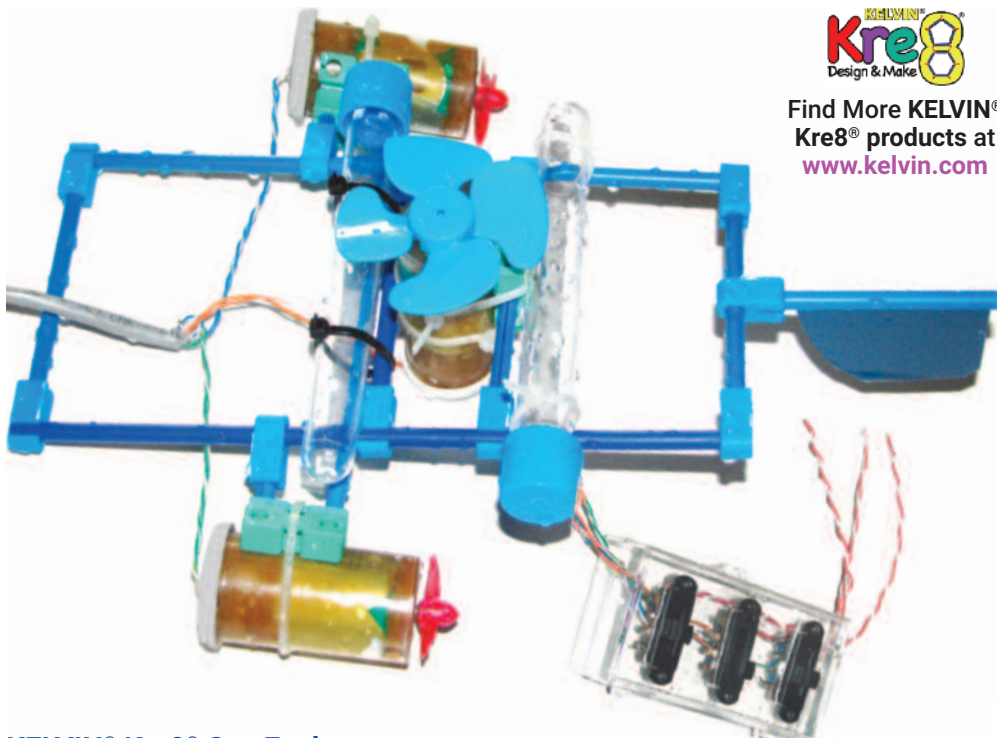


Explore the buoyancy of common objects and make boats from a variety of materials and shapes to see what will sink or float.

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.

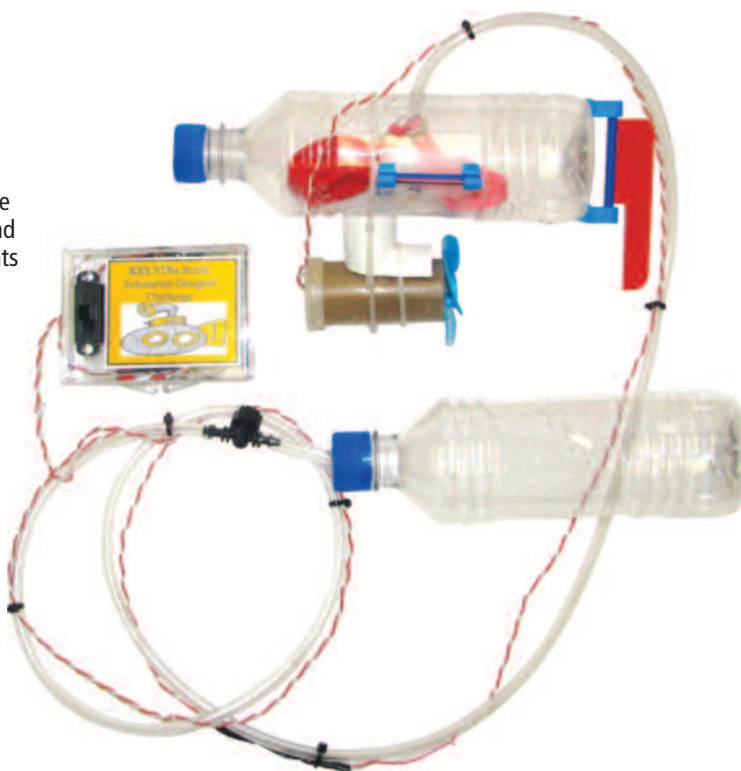
842107 Kit\$69.95 or \$59.95 ea./3+ or \$49.95 ea./10+


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

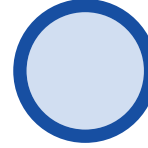
KELVIN® adjustable angle launch pad can launch paper rockets up to 175 feet using compressed air. Flight is based on fin design and assembly. The system includes pre-printed colored paper, launch pad, extension tube attachment, dowel rods and instructions. Requires a portable air compressor (see below). 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**





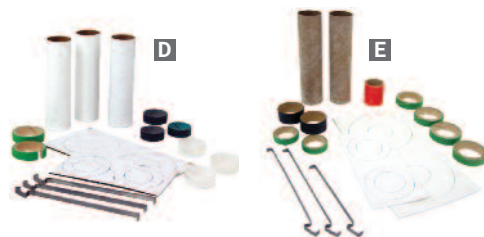
Rocket Body Tubes

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

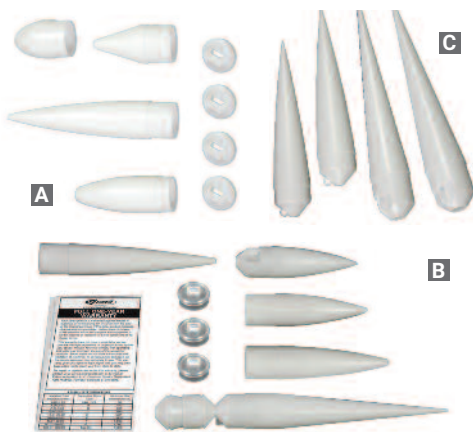
Fits BT-50, 55, 56 & 60 tubes. Includes parts to make [1] quick change mount for D-engine rockets.

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

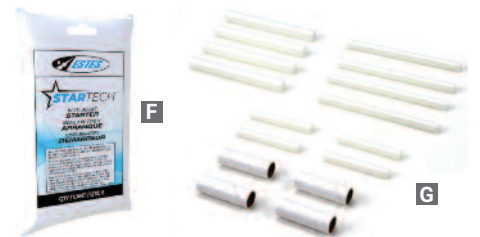
Two sizes of shock cords with mounts & instructions.

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.

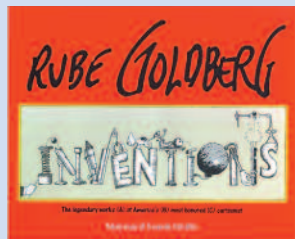
840380\$22.95 or \$21.95 ea./3+



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+

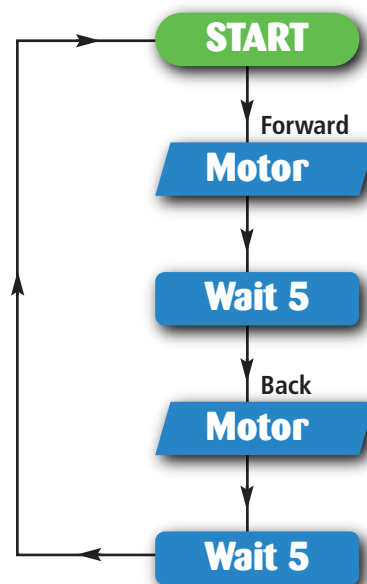
Utility Snips

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.