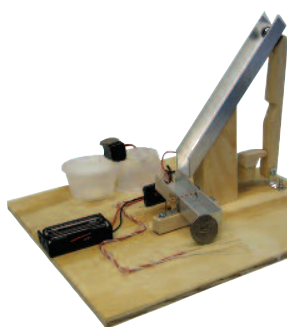


ARCHITECTURE & DESIGN

KELVIN® ENGINEERING IN SCHOOL



Find Tiny House Design on pg. 12.



Find Chain Reaction Contraption on pg. 21.



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



Find Shipping Container House on pg. 14.



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



Find Cranes on pgs. 24-25.



Find Drafting Cubes on pg. 30.



Find Game Design on pg. 29.



Find Catapults on pg. 26-27.



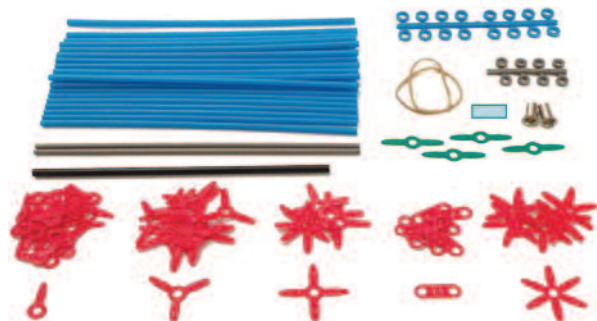
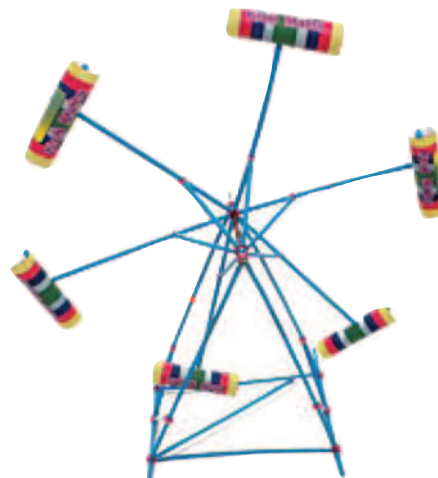
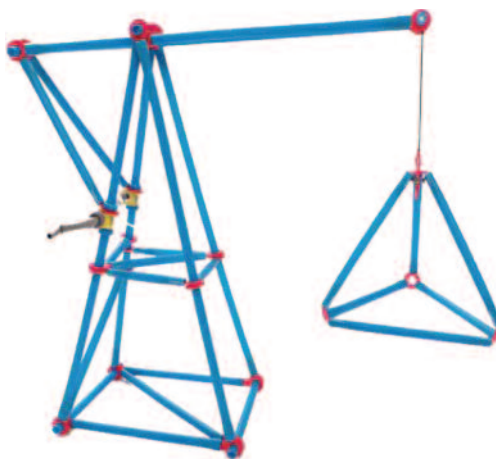
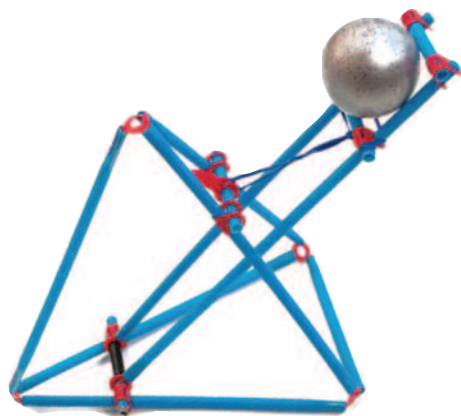
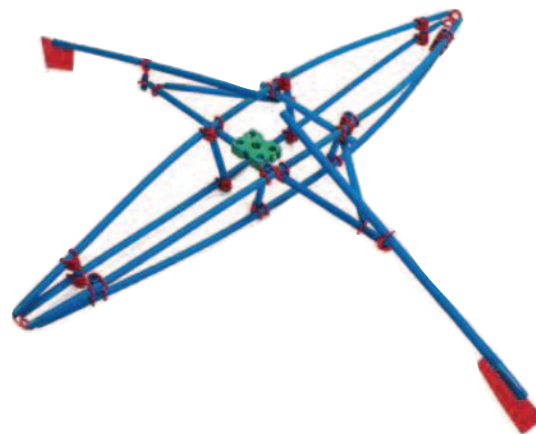
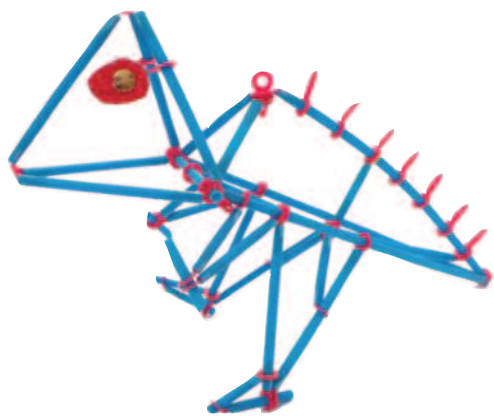
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Kre8® is ideal for
Science, Technology,
Engineering & Math



KELVIN® Kre8® S.T.E.M. Maker Kit

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

This kit is supplied with 156 parts including:

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

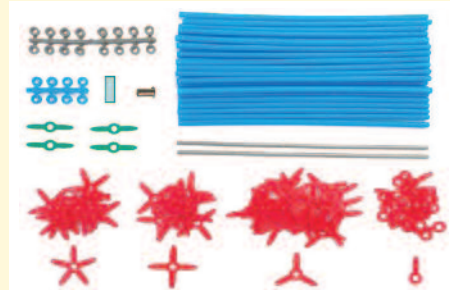
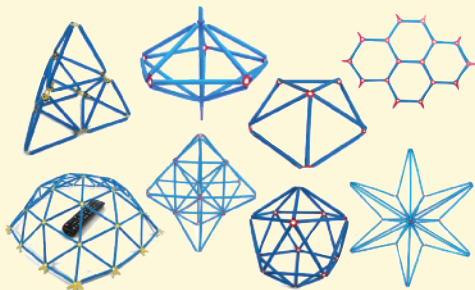
842397 Kit **Educational Pricing \$29.95** or **\$27.95** ea./5+

KELVIN® Kre8® Maker Maths Kit

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

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

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



KELVIN® Kre8® Small Tube Cutter

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

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

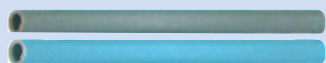
Utility Snips

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

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



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



Tubes

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

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



Snap-Off Rods

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

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

Bendy Tubes

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

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

Wheels

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



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



Safety Propeller

Dual purpose, push-fit.

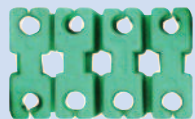
Dia. in.	Stock #	Quantity	\$ ea.
2.95	391369	10	\$14.95
2.95	391384	20	\$28.95



Clip Connectors

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

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



Multi-Blocks

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

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

Cap Ends

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

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

Collars

Slide and fix in position. Gray.

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

Bevel Gears

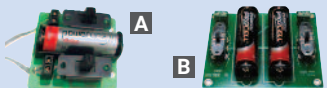
0.16 in. dia. holes. 20-Teeth.

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

Rubber Bands

Durable and will stretch longer.

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



Wired Manual Controllers

Assembled controllers with a meter of ribbon cable.

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

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

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



KELVIN®

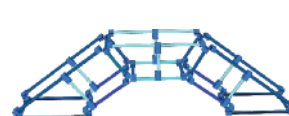
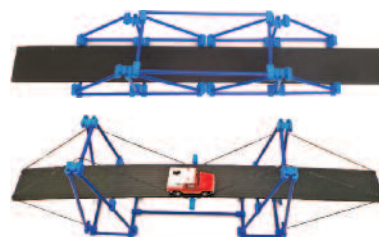
Kre8®

Parts Bin Filler

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

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

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



Kre8® 3 Bridge Styles
From Just One Kit

Bulk Pack
Per Kit Price
As Low As

\$14

KELVIN® Kre8® 3-in-1 Bridge

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

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

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

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



Kre8
Design & Make



KELVIN® Kre8® Ferris Wheel

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

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

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

KELVIN® Kre8® Carousel

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

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

KELVIN® Kre8® Fairground Ride

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

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

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

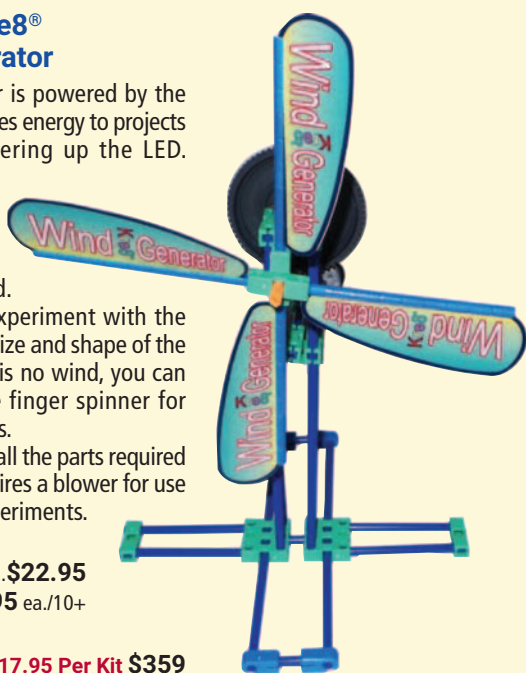
KELVIN® Kre8® Wind Generator

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

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

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

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



KELVIN® Kre8® DC Motor

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

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

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

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



KELVIN® Kre8® Basketball Flier

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

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

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



KELVIN® Kre8® Power Ping-Pong Ball Launcher

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

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



Bulk Pack
Per Kit Price
As Low As

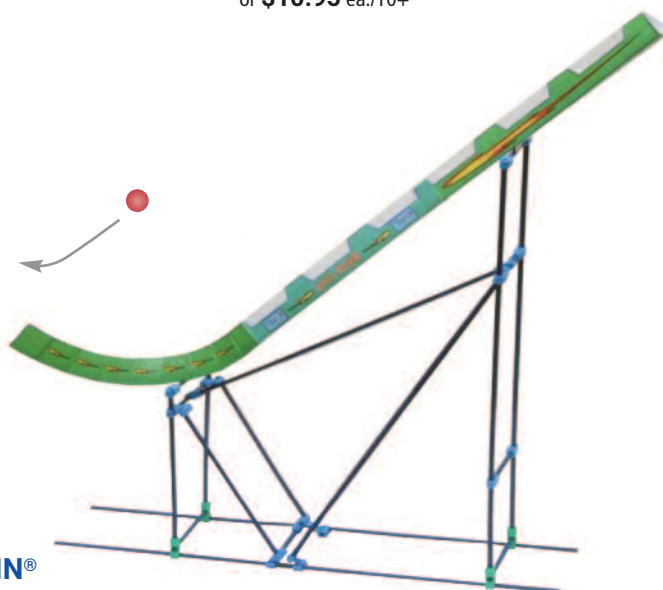
\$7.50

KELVIN® Kre8® Catapult

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

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

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



KELVIN® Kre8® Marble Jump

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

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



KELVIN® Kre8® Scale

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

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

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

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



KELVIN® Kre8® Air-Propelled Racer

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

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

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

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



8.66 in. Long

KELVIN® Kre8® Monster Truck

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

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

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

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



KELVIN® Kre8® Solar Racer

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

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

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

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



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

KELVIN® Kre8® Electric Racer

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

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

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

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

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KELVIN® Kre8® Forklift

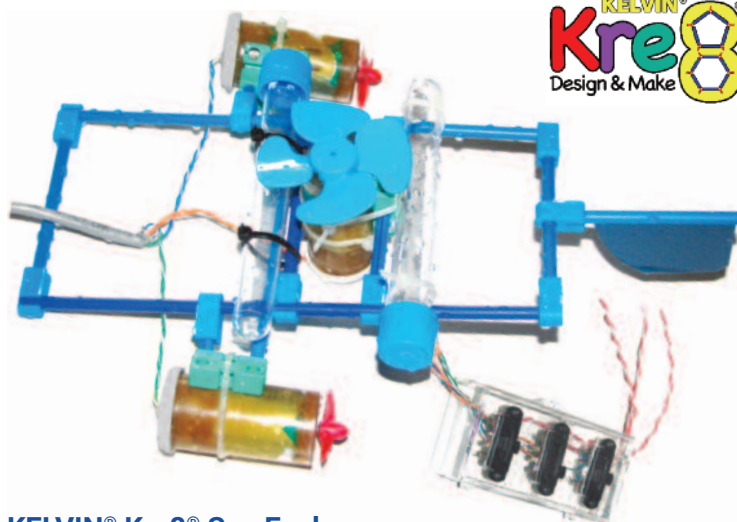
A working simplified fork lift truck that is fun on its own but is also good for competitions. Control its motion using the wired manual controller included. Move forward to collect and lift your load and then return and drop your load as fast as possible.

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

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

Kit w/ Controller

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



KELVIN® Kre8® Sea Explorer

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

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

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



Bulk Pack
Per Kit Price
As Low As

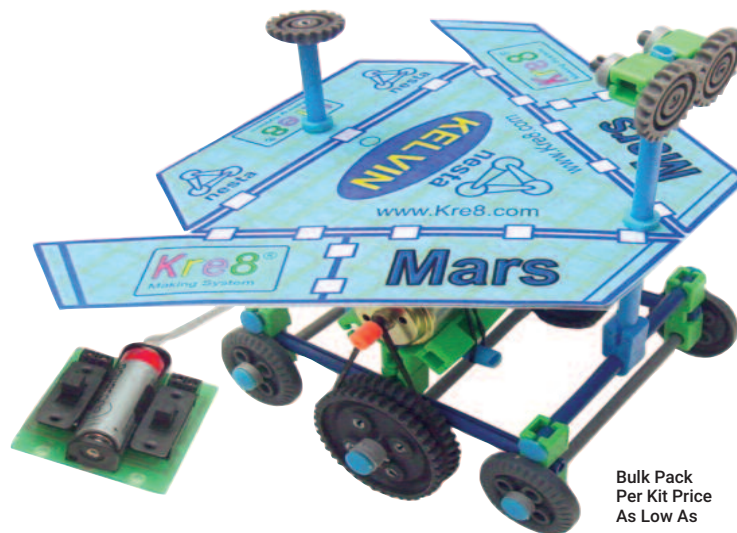
\$22⁹⁵

KELVIN® Kre8® Curiosity Rover

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

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

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



Bulk Pack
Per Kit Price
As Low As

\$21⁵⁰

KELVIN® Kre8® Mars Rover

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

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

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

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

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



AUTONOMOUS



Shown with Genie® Motor Control Board

KELVIN® Kre8® Autonomous Vehicle

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

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

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

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



GENIE® Control Board (Assembled) with Autonomous Vehicle Kit

Requires [4] AA batteries.

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



Arduino® Control Board with Autonomous Vehicle Kit

Requires [6] AA batteries.

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



KELVIN® Kre8® Small Tube Cutter

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

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

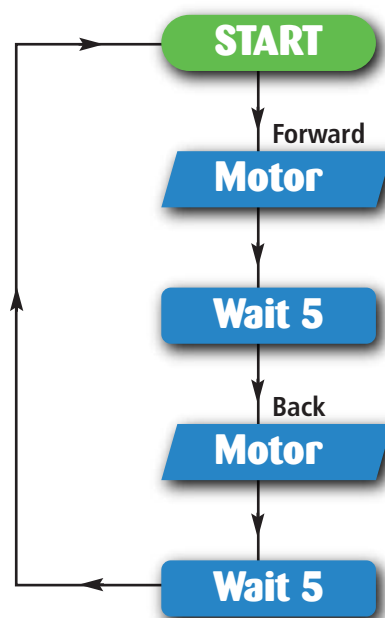
Utility Snips

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

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



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



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

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



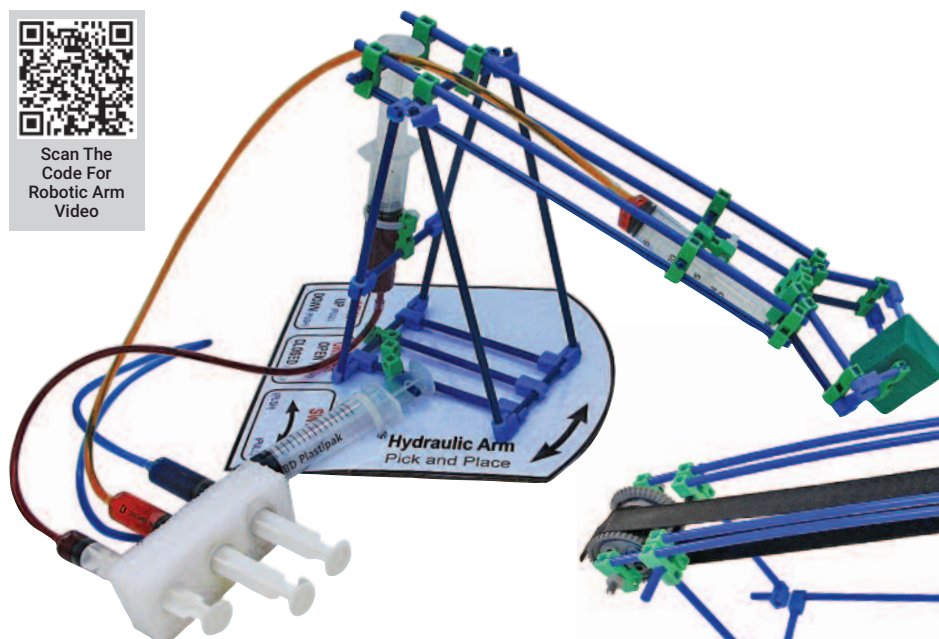
Read more at:

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

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Scan The
Code For
Robotic Arm
Video



KELVIN® Kre8® Hydraulic Robotic Arm

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

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

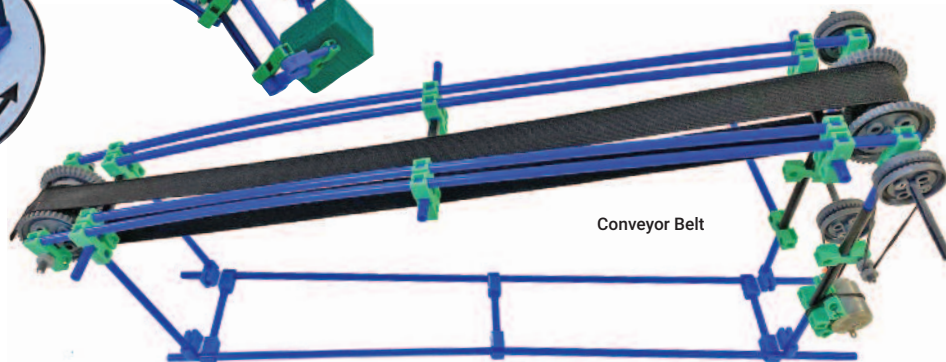
283767 Kit\$39.95 or \$32.95 ea./3+



Kre8® A Robotics Manufacturing Unit



Scan The
Code For
Conveyor
Belt Video

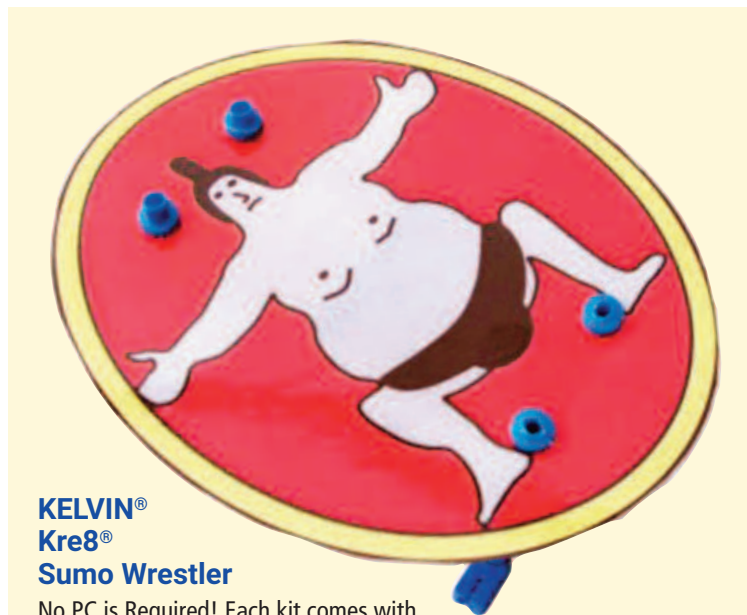


KELVIN® Kre8® Conveyor Belt

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

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

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



KELVIN® Kre8® Sumo Wrestler

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

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

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



KELVIN® Kre8® POP Robots

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

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

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

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



Bulk Pack
Per Kit Price
As Low As
\$9.95

KELVIN® Beams & Triangles™ Open-Ended Design Kit


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

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

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

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

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



Cardstock Wheels **Cardstock Triangles** **Cardstock Axle Mounts**

Wood **Dowels**

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

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

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

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

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

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

Activity Guide

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



Beams & Triangles™ Basic Bin Filler

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

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

Beams & Triangles™ Advanced Bin Filler

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

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

Beams & Triangles™ Bin Filler & Tools Pack

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

840926 **\$695**

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



Team Pack

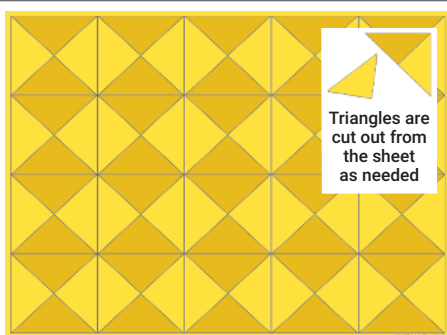
Includes: [2] cutting jigs, [2] mini saws, [10] joining jigs, [5] gear making jigs, [50] wood beams (3/8 x 3/8 x 24 in. and 3/8 x 3/16 x 24 in.), glue, cardstock wheels, dowel rods, cardstock triangles, axle mounts and clamps. Detailed instructions also included.

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

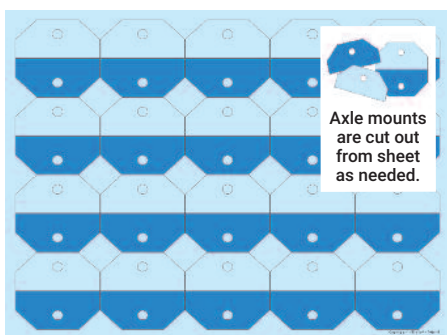
Class Pack

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

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



Triangles are cut out from the sheet as needed



Axle mounts are cut out from sheet as needed.

KELVIN® Beams & Triangles™ Cardstock Sheets

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

420334 Triangles, 30 Sheets\$7.95

390449 Axle Mounts, 30 Sheets\$7.95

Cardboard Wheels

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



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

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



Safety Point Scissors

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



Power Utility Snips

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

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

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

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



KELVIN® Tools & Jigs Set

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

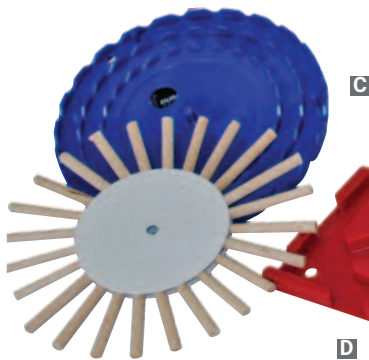
840680 A B Set\$445

KELVIN® Drill Press w/ Hand Drill

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

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

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



KELVIN® Gear Jig

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

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

Joint Jig

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

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



Cutting Jig

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

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

Jr. Hacksaw (style may vary)

Use for cutting of beams and rods.

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

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

Construct a Dream House Model From Scratch!



KELVIN® Ranch Dream House Design Challenge™

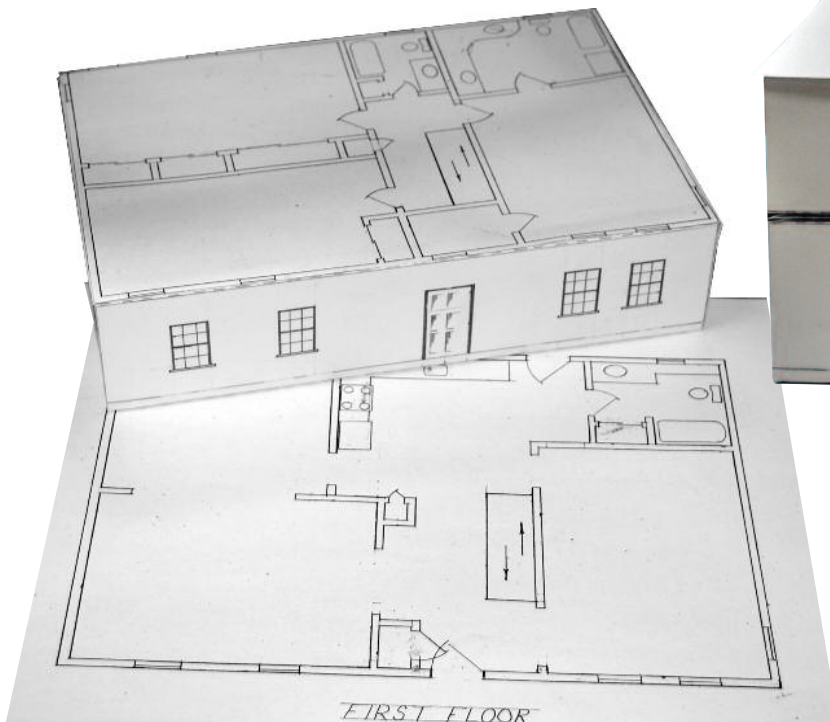
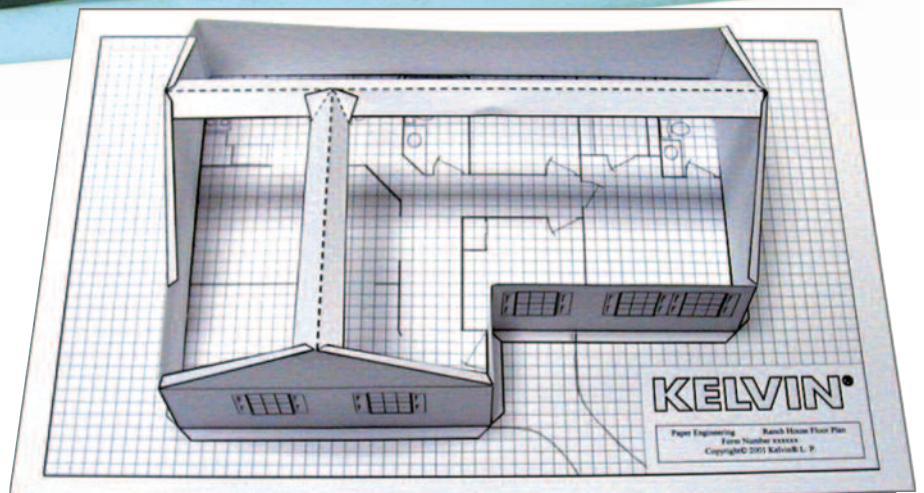
Students design the interior room layout for a house in 1/4 in. scale. They are given a footprint and exterior wall structure to work from. Elements of the interior layout include the location of windows, skylights, doors, partitions and adding other desired features.

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

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

Ranch Dream House Cardstock Only

841424 25 Sheets of Printed Cardstock\$125



KELVIN® Two-Story Dream House Design Challenge™

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

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

842310 Kit\$9.95

Two-Story Dream House Cardstock Only

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

KELVIN® Modern Dream House Design Challenge™

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

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

Modern Dream House Consumables

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

841761\$195



S.T.E.M. BASED ACTIVITY

KELVIN® Bedroom Design Kit

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

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

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

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

Lighting Consumables Pack

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

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

Foam Board/Cardstock Holding Jig

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

842372\$55.00

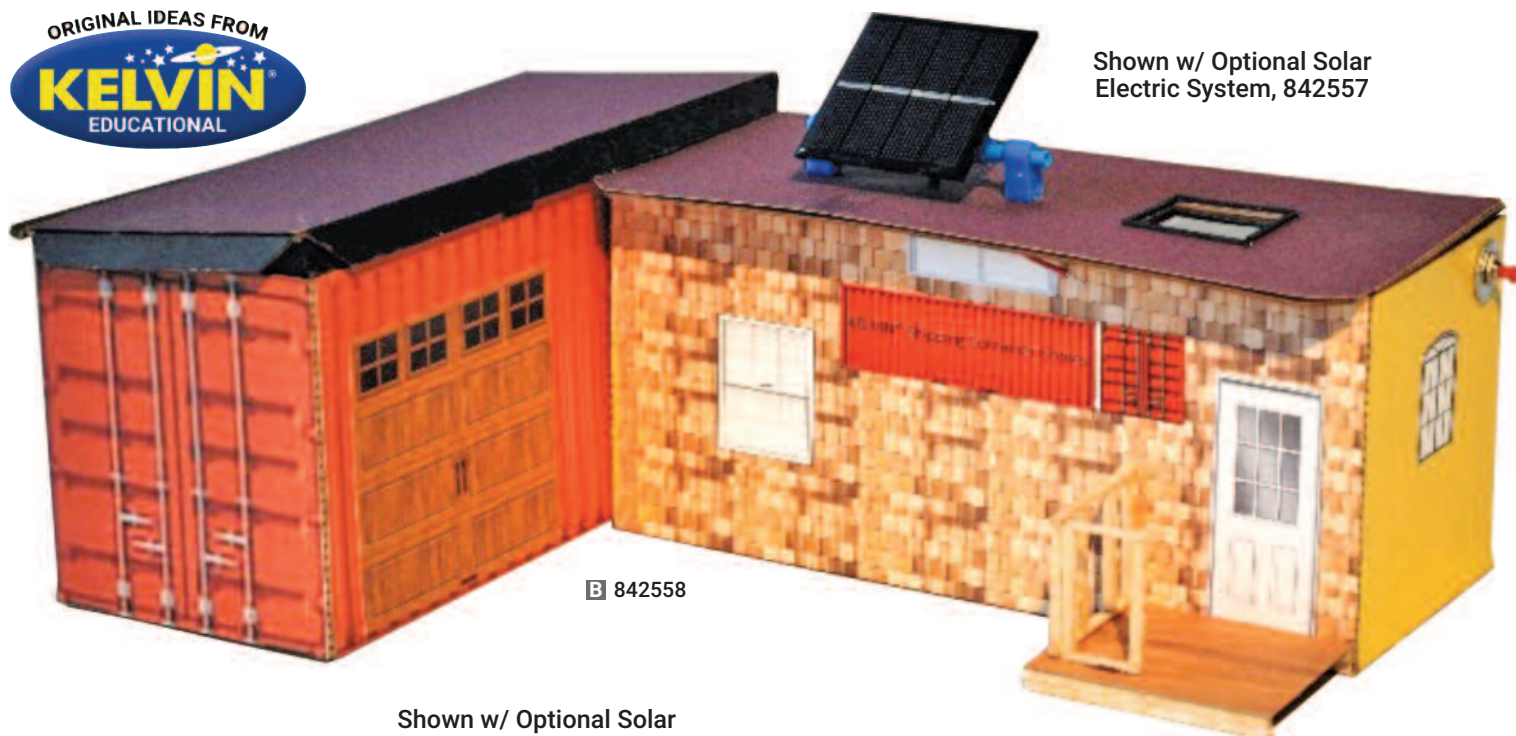


Cut foam safely!



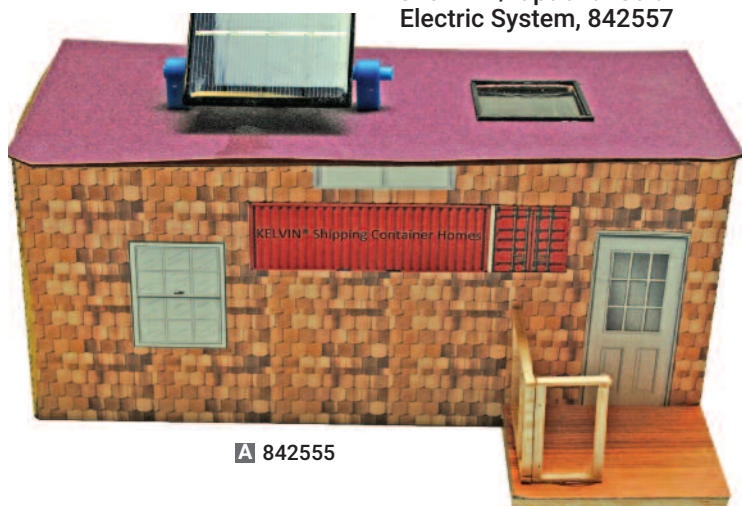
Bulk Pack
Per Kit Price
As Low As

\$7.50



Shown w/ Optional Solar Electric System, 842557

B 842558



Shown w/ Optional Solar Electric System, 842557

A 842555



Sample Floor Plan

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

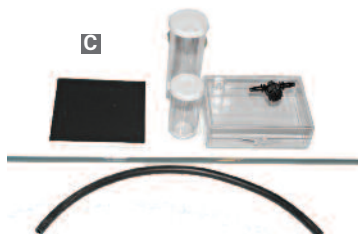
This unique KELVIN® kit helps students explore the alternative housing movement while focusing on the architectural and construction concepts involved in converting shipping containers into small energy efficient homes.

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

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



Optional Water Heater System installed on house.



C

Optional Water Heater System

Includes containers and tubing.

842556 **C** Kit\$15.95

Optional Solar Electric System

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

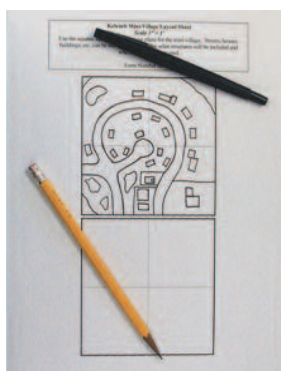
842557 **D** Kit\$12.95



D



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



KELVIN® Build-Your-Own® Community Design Challenge

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

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

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



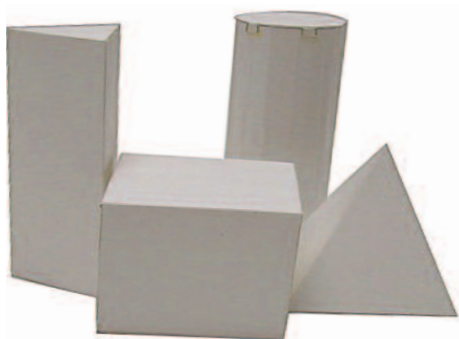
Community Starter Set

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

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

KELVIN®

ENGINEERING PRINCIPLES KITS



KELVIN® E.P. Shapes in Paper

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

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

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



KELVIN® E.P. Packaging Challenge

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

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

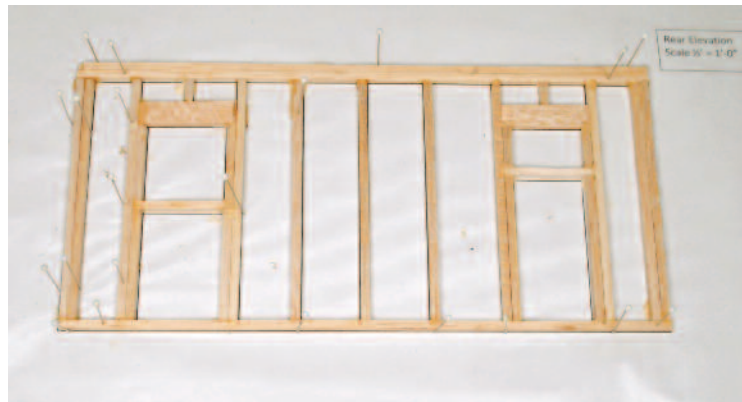
841312 Kit.....\$3.95 or \$3.75 ea./10+
or \$3.45 ea./25+
841821 Bulk Pack of 35\$3.25 Per Kit \$113.75



KELVIN® E.P. Egg Drop Challenge

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

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



KELVIN® Tiny House

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

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





KELVIN® A-Frame Model House Framing

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

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

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

Updated
with
Drawings!



KELVIN® Bungalow Model House Framing

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

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

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

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



KELVIN® Basic Design-A-Deck

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

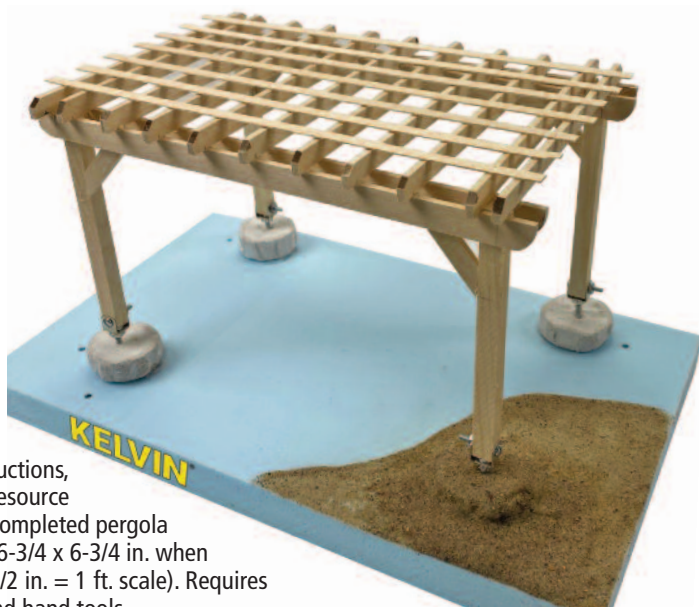
841561 Kit\$29.95 or \$27.95 ea./3+

KELVIN® Pergola

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

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

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



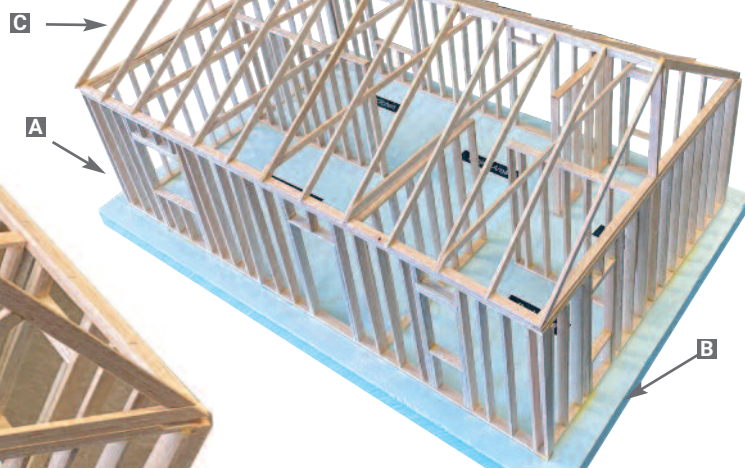
KELVIN® Advanced Design-A-Deck

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

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



Roof Optional,
see 841773 on
Page Bottom.



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

KELVIN® 1-Story House Framing Kit

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

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



Updated with
Drawings!

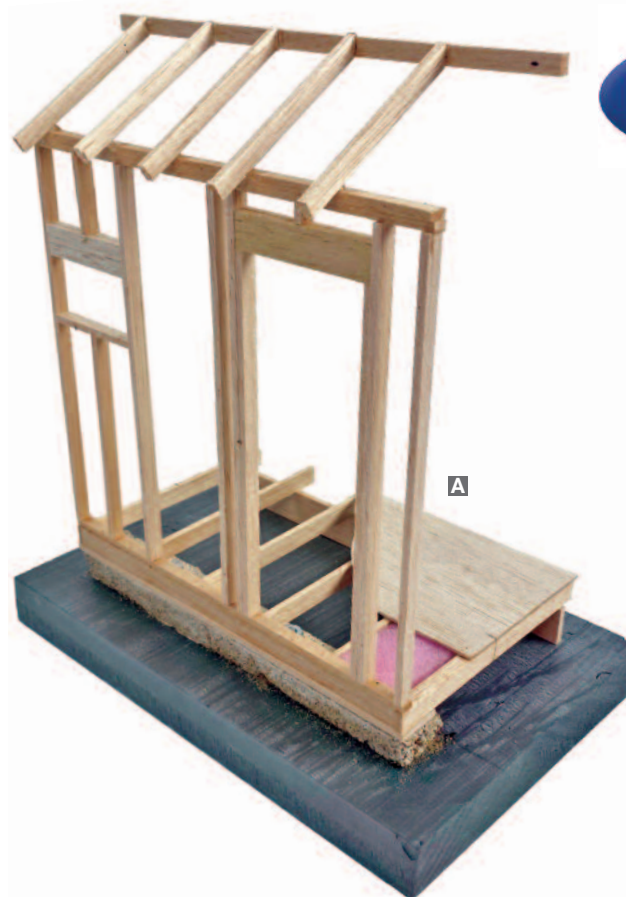


Updated with Drawings!

KELVIN® Roof Framing Kit

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

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



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

KELVIN® House Framing Section

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

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

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

KELVIN® Advanced House Framing Kits

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

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

Cabin House Framing

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

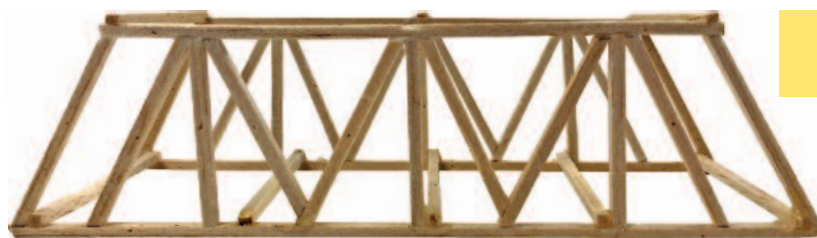
842575 Kit\$34.95 or \$32.95 ea./5+ or \$29.95 ea./10+

2-Story Advanced House Framing

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

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





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

KELVIN® Bridge Kits w/ BALSA WOOD Beams

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

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

KELVIN® Bridge Kits w/ BALSA WOOD Beams PLUS Balsa StiKutter™

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

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

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



24 in. Long!

KELVIN® Brooklyn Bridge

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

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



KELVIN® Bridge Kits w/ BASS WOOD Beams

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

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

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

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

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

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

KELVIN® Suez Canal Bridge

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

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

ModelSmart

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

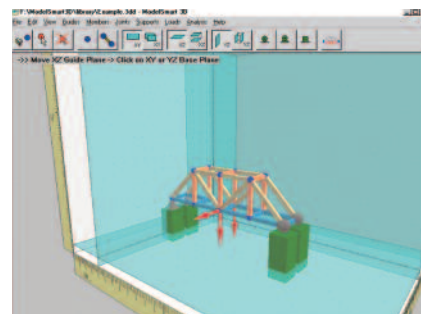
121603	1-User, Windows, CD-ROM	.....\$49.95
121605	School License, Windows, CD-ROM	.....\$389.95



ModelSmart 3D

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

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



KELVIN® Towers & Skyscrapers w/ Balsa Wood

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

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

Skyscraper w/ Internal Divider Kit

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

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

Towers & Skyscrapers Kit

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

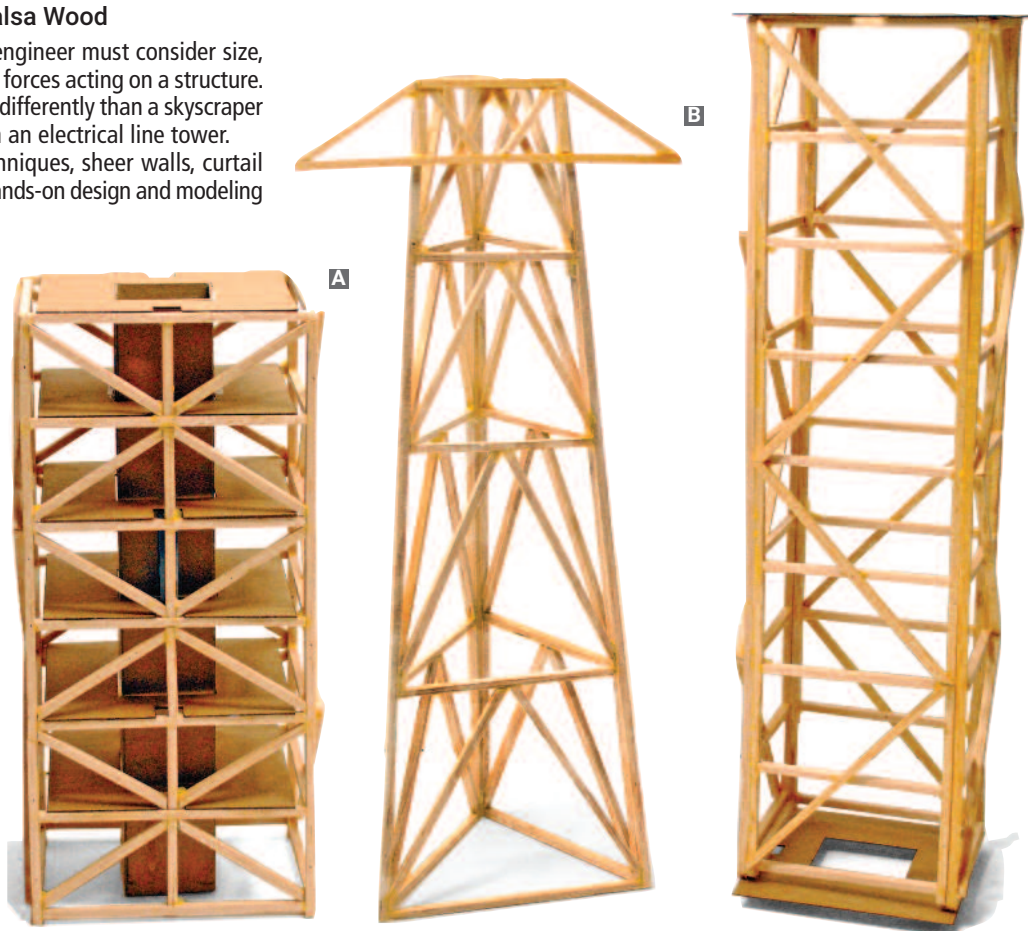
842569 **B**\$11.95 or \$10.95 ea./10+

Towers & Skyscrapers

Bulk Pack of 10 Kits

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

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



KELVIN® Chain Reaction Contraption Mechanical Parts

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

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

1-2 Students

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

Team of 2-4 Students

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

Bulk Pack for 6-10 Students

841302\$195

KELVIN® Chain Reaction Contraption Electronic Parts

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

Team of 2-4 Students

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

Bulk Pack for 8-16 Students

841304\$195

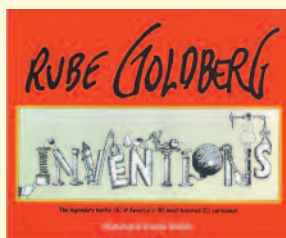
KELVIN® Chain Reaction Contraption

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

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

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

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

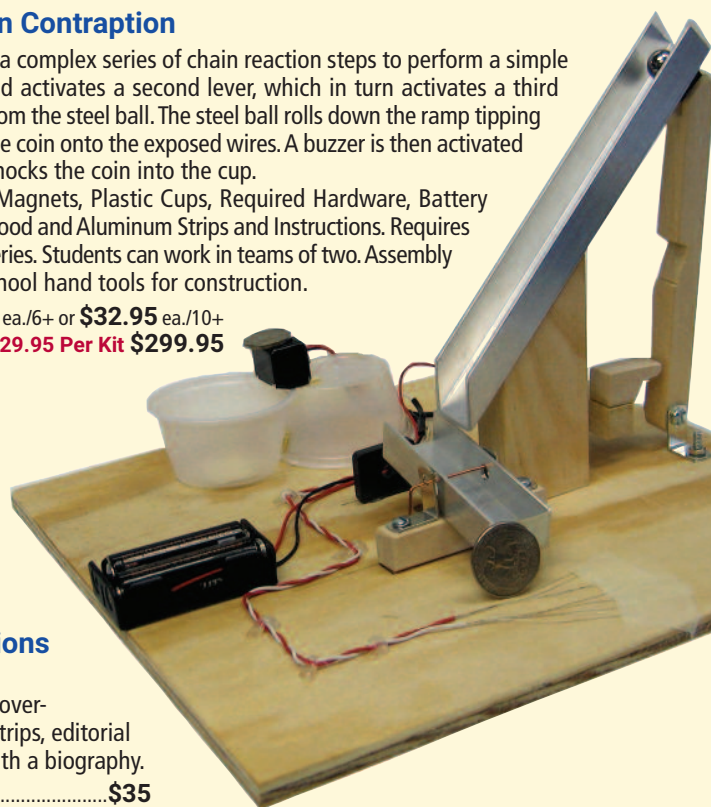


Rube Goldberg® Inventions

LIMITED AVAILABILITY

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

651529 Book, 192 pages\$35

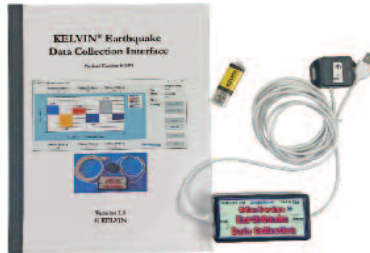


Test Model Bridges, Towers, Skyscrapers & Houses



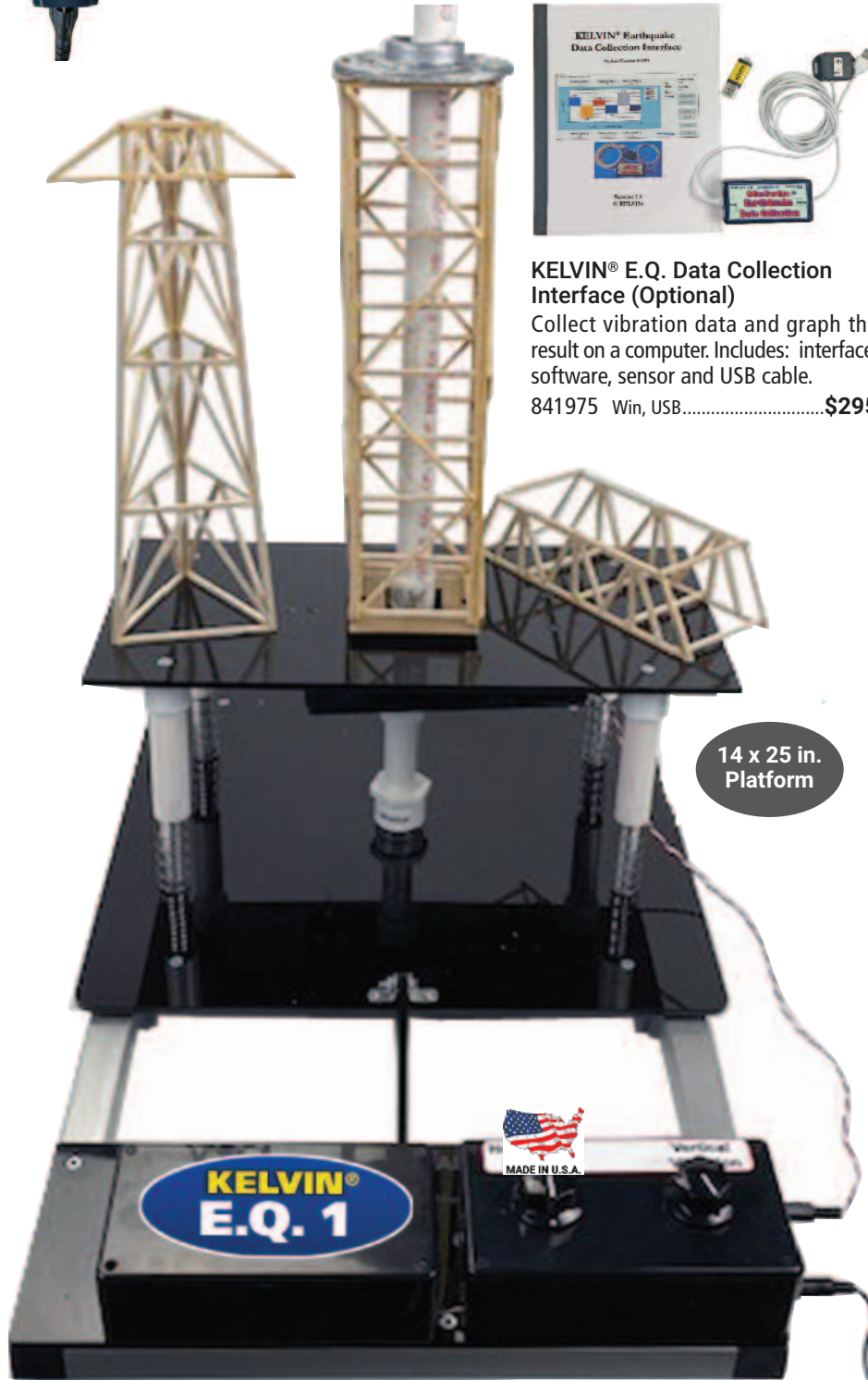
KELVIN® Advanced Earthquake Simulator w/ Horizontal & Vertical Magnet Motion

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



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

Collect vibration data and graph the result on a computer. Includes: interface, software, sensor and USB cable.
841975 Win, USB.....\$295



14 x 25 in.
Platform



12 x 18 in.
Testing
Platform

KELVIN® Manual Earthquake Simulator w/ Horizontal Motion ONLY

Simulator has control lever for side-to-side horizontal motion. The testing platform measures 12 x 18 in.
851984\$275



12 x 18 in.
Testing
Platform

KELVIN® Mini Earthquake Simulator w/ Horizontal Motion ONLY

The simulator has a built-in power supply and one control knob that controls the side-to-side horizontal movement. Testing platform measures 12 x 18 in. 110 V AC. USA plug.
851985\$695

Test Model Bridges & Towers

KELVIN® Long Island Structure Tester™

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

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

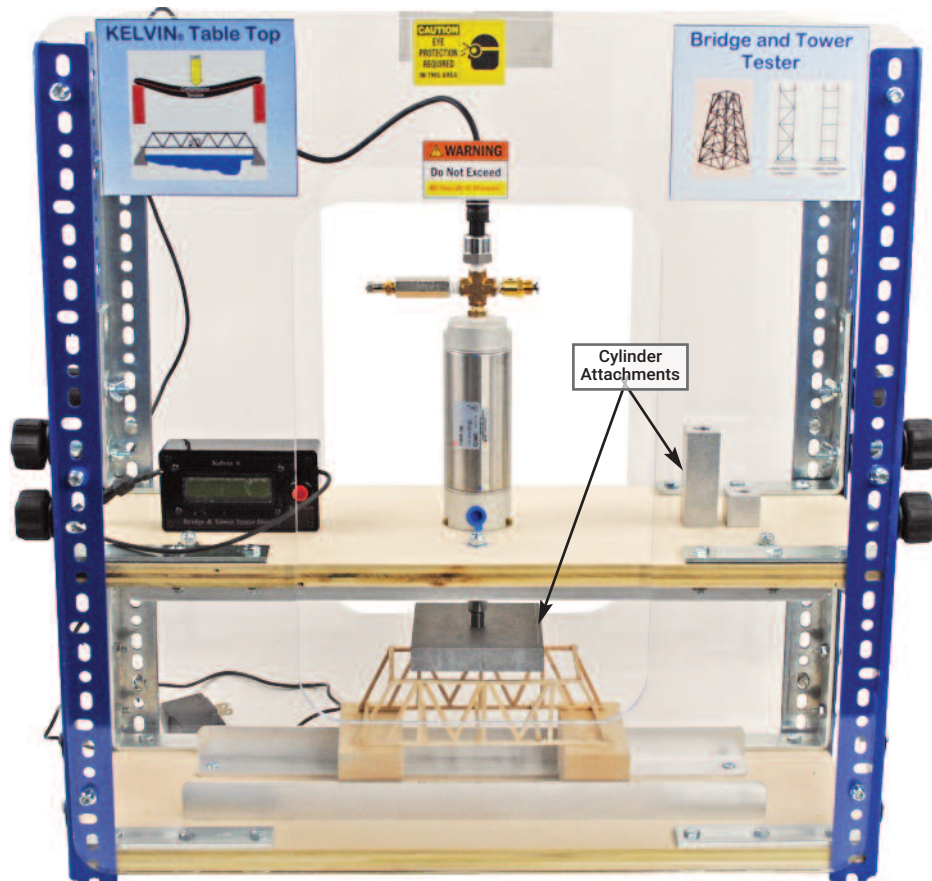
851993\$395



KELVIN® Tabletop Bridge & Tower Tester

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

851964\$1,295





Creative Crane
COMPEITION
An Engineering & Design Challenge

KELVIN® Creative Crane

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

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

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

Kit w/ Balsa Wood

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

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

Kit w/ Balsa Wood & StiKutter™

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

Class Pack of 6 Kits (No Wood)

841285 **\$9.99 Per Kit \$59.95**

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

281684 **\$99**

KELVIN® Variable Power Supply w/ Polarity Box

842639 0-30 V / 5 A **\$145**

KELVIN® Creative Crane Pulley

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

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



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



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

KELVIN® Beams & Triangles™ Open-Ended Design Kit

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

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

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

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

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

650511 Lesson Guide..... **\$9.95**

KELVIN® Tower Crane

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

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

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

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

KELVIN® Variable Power Supply w/ Polarity Box

842639 0-30 V / 5 A\$145

KELVIN® Creative Crane Pulley

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

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



KELVIN® Swing Unit Kit

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

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

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

KELVIN® Gear Box & Pulley Activity

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

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

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

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

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



Bulk Pack
Per Kit Price
As Low As

\$9.90

Variable Power Supply
w/ Polarity Box



Design It! Lesson Guide: Cranes

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

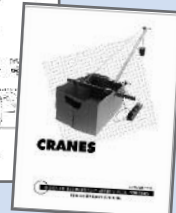
651813 Guide.....\$9.95 or \$8.95 ea./10+



EDC

KELVIN®

Introductory
Engineering
Experiences



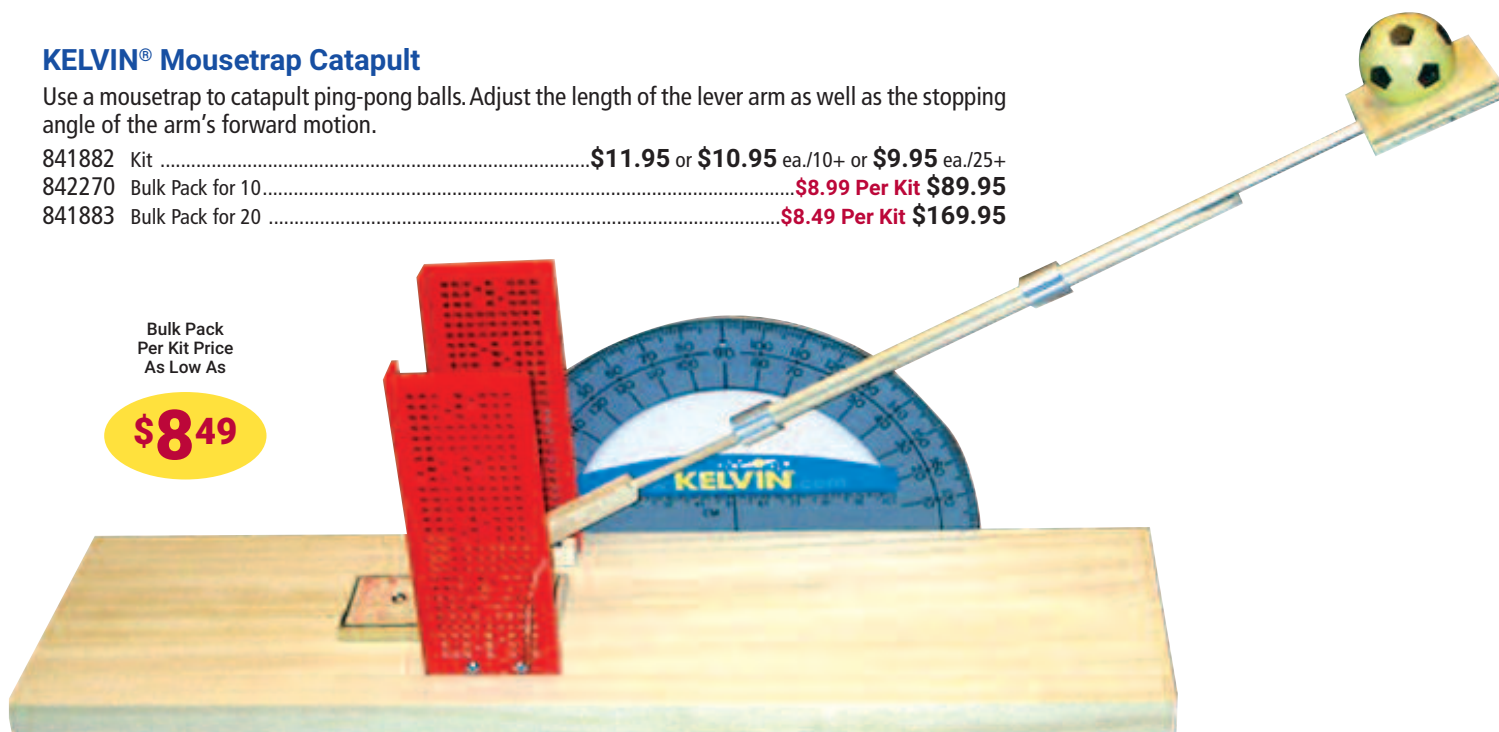
KELVIN® Mousetrap Catapult

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

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

Bulk Pack
Per Kit Price
As Low As

\$8.49



Bulk Pack
Per Kit Price
As Low As

\$12.50

Bulk Pack
Per Kit Price
As Low As

\$13.50

KELVIN® Ancient Catapult

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

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

KELVIN® Medieval Trebuchet

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

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



Bulk Pack
Per Kit Price
As Low As

\$7.50

KELVIN® Kre8® Catapult

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

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

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

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

Pre-Cut &
Pre-Drilled



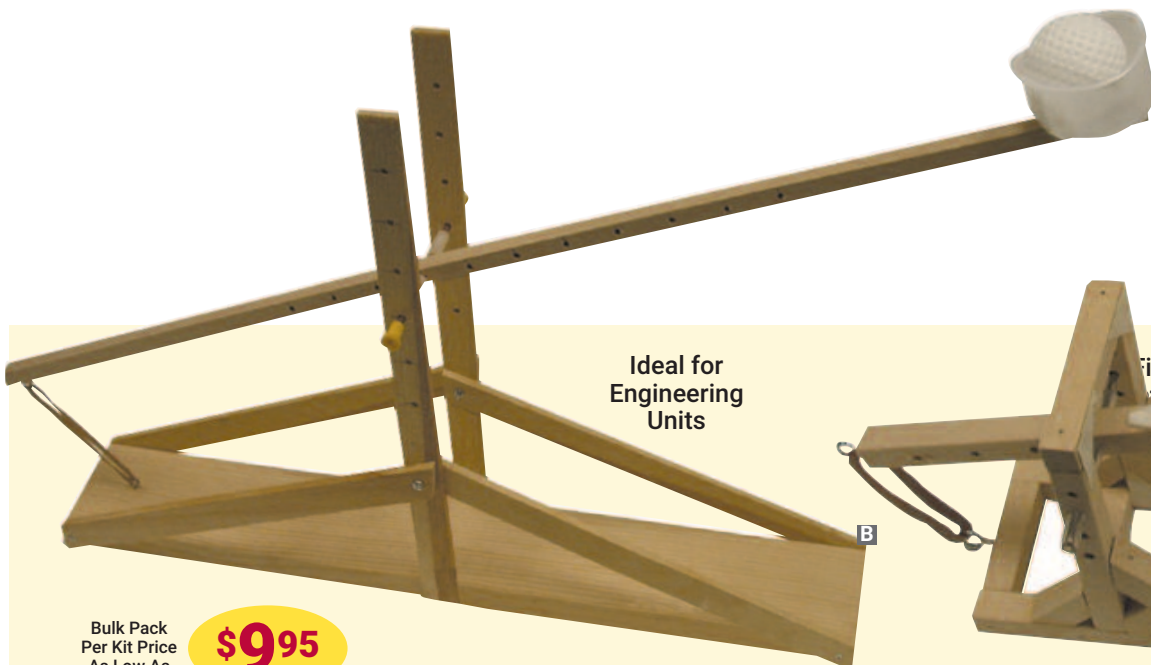
KELVIN® Adjustable Stop Catapult

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

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

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

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



Ideal for
Engineering
Units

Bulk Pack
Per Kit Price
As Low As

\$9⁹⁵

KELVIN® Large Catapult B

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

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

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



Find More
Catapults at

KELVIN® Small Catapult A

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

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

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

Bulk Pack
Per Kit Price
As Low As

\$7⁹⁵

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

Bulk Pack
Per Kit Price
As Low As

\$4.99



KELVIN® Discover It™ Lighthouse

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

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

KELVIN® Design-A-Totem Pole™

6D Design for the
Sides, Top & Bottom!

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

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

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

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



KELVIN® Reverse Engineering A Flashlight

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

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

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



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

KELVIN® Lamp Kit

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

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

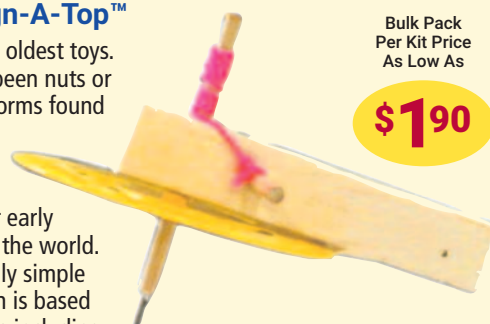
KELVIN® Design-A-Top™

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

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

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

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



Bulk Pack
Per Kit Price
As Low As

\$1.90

KELVIN® Design-A-Game™ Classroom Challenge

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

Design-A-Game™ Class Pack

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

842514 Design-A-Game™ Class Pack\$295

Design-A-Game™ Parts

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

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

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

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

Game Box Kit

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

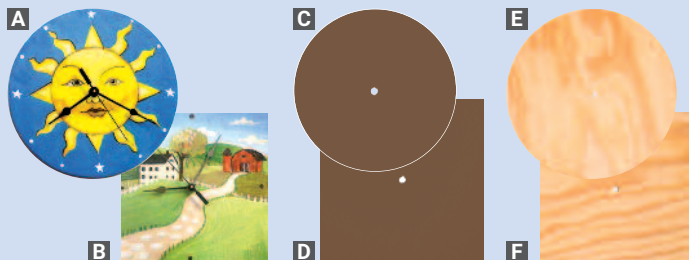
430158 20/pkg.\$49.95



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



Design A Clock & Decorate It How You Want



KELVIN® Design-A-Clock™ Kit

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

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

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

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

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

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

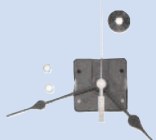
970241 E Wood, Circle, 10 in. dia., 3/8 in. T\$7.95 or \$7.45 ea./10+

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

Quartz Clock Movement w/ Hands

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

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



Dice

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

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

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

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

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

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

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

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



Pawns

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

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

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

210029 L Horse/Rider, 1 5/16 in. tall, Assorted Colors, 100/pkg.\$27.95



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



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



Marbles

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

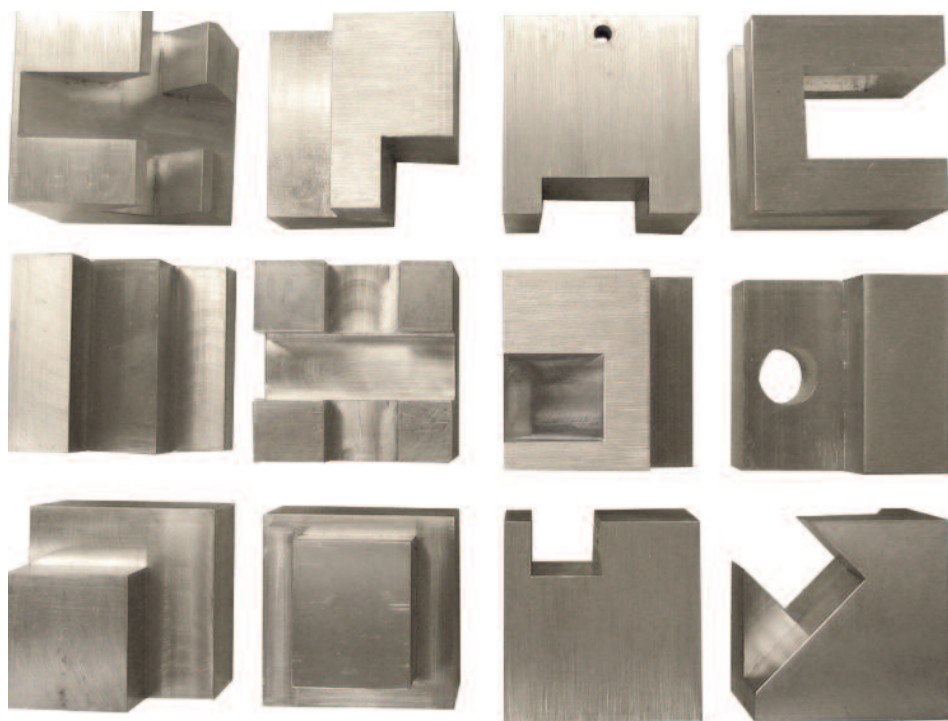
870037 M 12/pkg.....\$1.45 or \$1.25 ea./10+

Arrow Spinner

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

Scoring Pencils

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



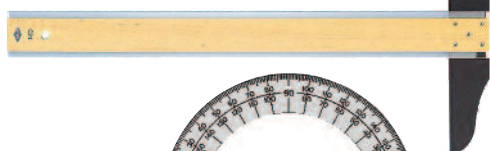
KELVIN® Drafting & Measurement Cubes

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

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

T-Square Hardwood

- 420086 24 in. L\$24.95



Protractor

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



Triangles

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



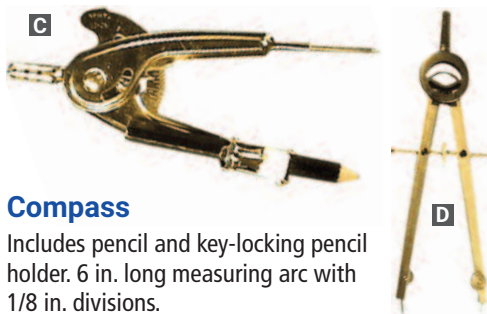
Rulers

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



Triangle Scales

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



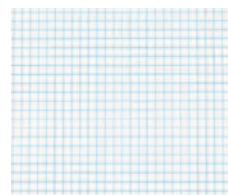
Compass

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

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

Compass & Divider Bow-Style

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



Grid Paper

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

Foam Sheets

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

- 420223 3/pkg.\$19.95



Pins



Useful for attaching paper and balsa wood to foam.

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



Drafting Dots

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

Drafting Tape

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



Inch Dial Calipers

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

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



Digital Calipers Precise

- 910062\$39.95



Micrometer

0.001 in. accuracy.
 Zero adjust. Satin finish.

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