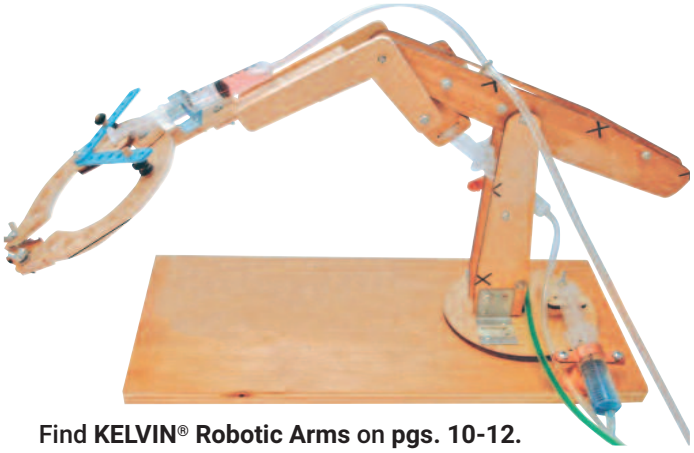
ROBOTICS

KELVIN® ENGINEERING IN SCHOOL

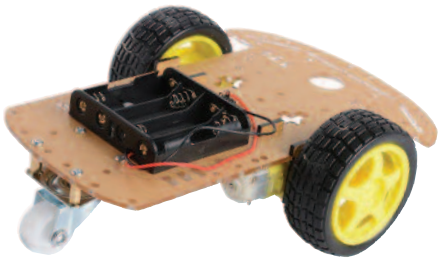
Find **KELVIN® XZXT™ Robot** and **Build Your Own® Robot Parts** on pg. 8.



Find **KELVIN® Robotic Arms** on pgs. 10-12.

Find **KELVIN® GENIE Program It™ Activity** on pg. 5.

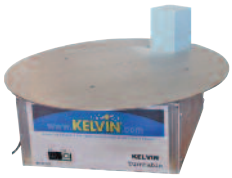
Find **KELVIN® ExCITE Robotic Control Packs w/ Micro:Bit Controller** on pgs. 6-7.



Kre8® Design & Make

AUTONOMOUS

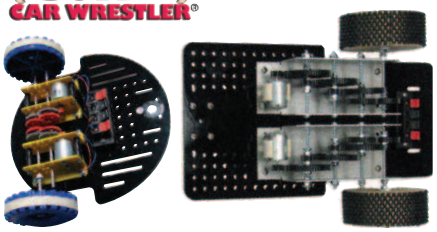
Find **KELVIN® Autonomous Vehicle** on pg. 4.



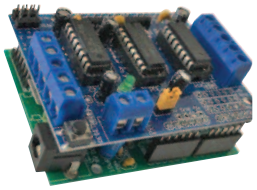
Find **Turntable and Conveyor Belt** on pg. 11.

KELVIN® SUMO CAR WRESTLER®

Find on pg. 9.



Find **Arduino® Compatible Control** on pg. 3.



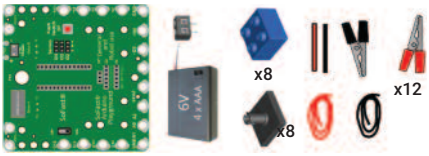
QUICK INDEX

SoFast® Playground for Arduino

Create circuits in seconds using SoFast® Playground for Arduino; designed for use with a plugged in 'Arduino Nano Every'. The Gator-Clips make connecting circuits quick and easy.

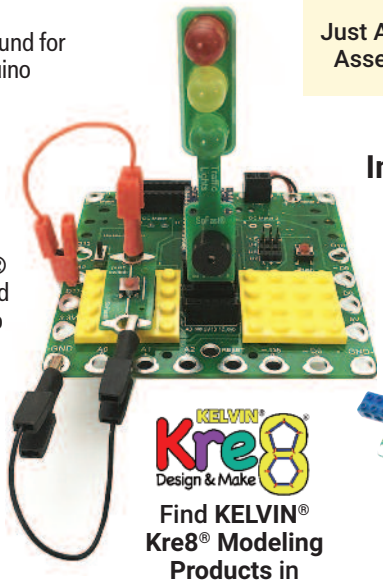
Activities can also include the Kre8® Making System, compatible toy brick kit parts and standard electronic components.

Program with popular FREE 'Arduino Create' or the offline Arduino IDE software. The SoFast® Playground for Arduino also includes dedicated connectors for plugging in: traffic lights, servo motors (up to 3), ultrasonic sensor, and addressable pixel LEDs.

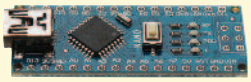


Kit includes: Arduino Nano Every Assembled, SoFast® Playground for Arduino board, [8] bricks, [8] brick-compatible tiles, battery holder and connector (6V), [12] Gator-Clips, wire, and a tube. For DC Motor Control, you will need the Add-On Robot Car Pack.

283804 Kit .....**$99.95** or **$94.95** ea./5+



Just Add Arduino to the Assembled PC Board

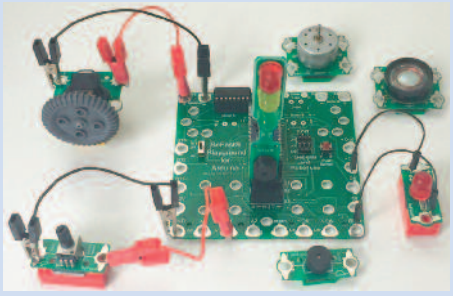


AT HEART

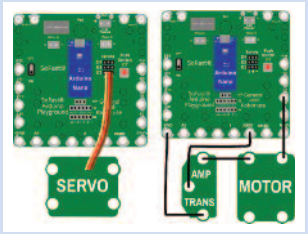
Let Your Imagination Run Wild!

KELVIN® Kre8® Design & Make

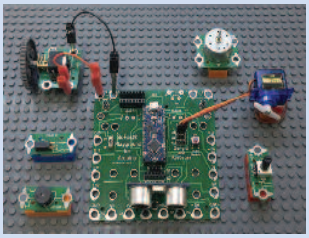
Find KELVIN® Kre8® Modeling Products in Architecture & Design on pgs. AD 2-9.



SoFast® Playground for Arduino with a few SoFast® Electronic carriers.



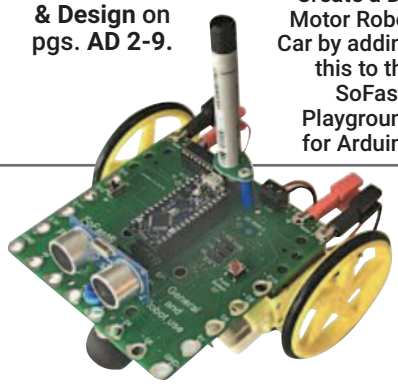
Sample connection diagrams for SoFast® Playground for Arduino



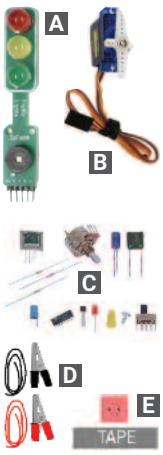
SoFast® Playground for Arduino on compatible toy brick parts.

SoFast® Playground for Arduino operating two servos via a variable resistor.

Create a DC Motor Robot Car by adding this to the SoFast® Playground for Arduino



Add-On Parts



Plug-In Traffic Light
283806 A **$9.95**

Micro Servo Motor
283807 B **$9.95**

Basic Electronic Parts
283808 C **$9.95**

Ultrasonic Distance Sensor
283811 .....**$9.95**

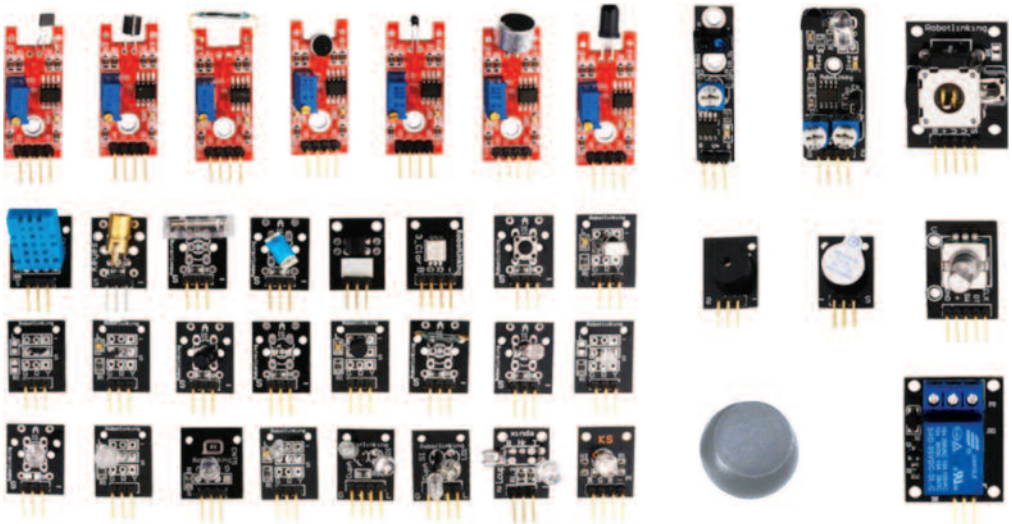
Gater-Clips w/ Wire Leads & Tube
283810 D 12/pkg. **$9.95**

Tiles & Tape Brick-Compatible
283809 E 20/pkg. **$9.95**

Robot Car w/ Motor Control

This add-on pack includes: [4] Gator-Clips, extra flexible wires, [2] DC motors, wheels, [6] brick-compatible tiles, [6] pins, front skid, pen holder, L293D driver chip and an alignment steel rod. Requires SoFast® Playground for Arduino (283204).

283805 .....**$59.95** or **$54.95** ea./5+



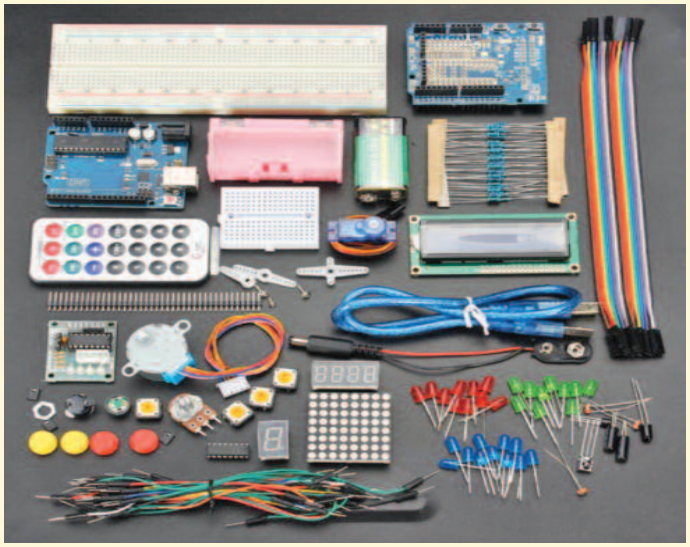
37 Modules Set Arduino® Compatible

Set includes: Active buzzer, passive buzzer, common cathode RG LED, common cathode two-color LED, RGB LED, RGB colorful LED, knock, shock switch, photo resistor, push button, tilt switch, infrared transmit, hydrargyrum switch, colorful auto flash, magnet-ring, hall, infrared receiver, analog hall, magic ring, rotate encode, light break, finger pulse, magnetic spring, obstacle avoidance, tracking, microphone, laser transmit, relay, analog temperature, 18b20 temperature, digital temperature, linear hall, flame, high sensitive voice, humidity, joystick PS2 and touch.

590467 .....**$49.95** or **$44.95** ea./5+

Find More Arduino-Comaptible Modules on pg. R3.

Kits may require soldering, assembly, shaping & sanding of wood, balsa or foam. ⚠ **Warning**: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.



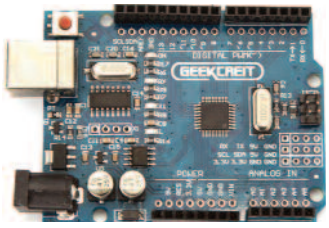
UNO R3 Basic Starter Kit Arduino® Compatible

UNO R3 board, USB cable, prototype extension board, mini breadboard, 5V stepper motor with driver board, LEDs (green, red and blue), sensors (vibration, flame and temperature), infrared receiver, photoresistors, key caps, key switches, piezo buzzer, tone generator, adjustable potentiometer, jumper cap, large breadboard, remote control, screen, servos, component box, DuPont line, breadboard line, 220ohm resistor, dot matrix display, single digit 7-segment LED bar display, four digit 7-segment LED bar display, IC 74HC595, battery holder, 1K resistor, 10K resistor, 9V battery, 40-pin header, and more.

590465 .....**$79.95** or **$74.95** ea./5+ or **$69.95** ea./10+

Find More Arduino-compatible modules on pg. R2.

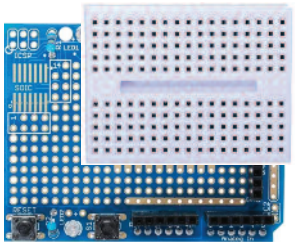
UNO R3 Arduino® Compatible



The best board to get started with electronics and coding. Features: [14] digital input/outputs (6 PWM outputs) and [6]analog inputs, 16 MHz quartz crystal, USB connection, power jack, ICSP header and reset button. Compatible with Arduino IDE. Supports ISP download function. Requires USB cable, AC/DC adapter or battery. 110 V AC. USA plug

590460 .....**$19.95** or **$18.95** ea./5+ or **$17.95** ea./10+

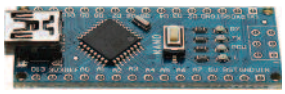
Uno R3 ProtoShield & Breadboard Arduino® Compatible



Mini breadboard is connected to the circuit board with double-sided adhesive. Parts can be soldered directly or through the mini breadboard. Comes with two LEDs and two pushbutton circuits that are ready to use, with all pins and power supplies present. Use with UNO R3 (see above).

590461 .....**$9.95** or **$9.45** ea./5+ or **$8.95** ea./10+

Nano V3 Arduino® Compatible

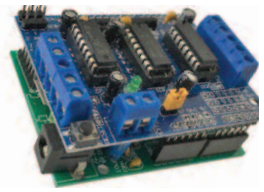


Compact board based on the ATmega 328P. Pins include 22 digital input/output (6 PWM outputs) and 8 analog inputs. Compatible with Arduino IDE. Supports ISP download function. Requires a Mini-B USB cable to get started.

590462 .....**$15.95** or **$15.45** ea./5+ or **$14.95** ea./10+

Stepper Motor Control Board

Arduino® Compatible



Assembled unit includes: motor control board, plug-on motor control shield, USB download cable, motor wires, and battery holder. Requires batteries.

842435 Assembled Unit .....**$54.95** or **$49.95** ea./5+
590484 Motor Control Board Only .....**$32.95** or **$29.95** ea./3+
590485 Plug-On Motor Control Shield Only .....**$24.95** or **$22.95** ea./5+

LCD Display

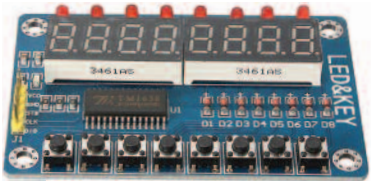
Arduino® Compatible

A low-power consumption character LCD module with a built-in controller. Can be easily interfaced with a MCU. White text, blue backlight.

590482 .....**$19.95** or **$17.95** ea./5+

LED & Key Display

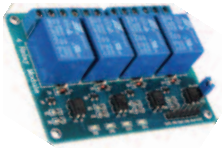
Arduino® Compatible



Gathers more than three common SCM peripheral circuits. Features 8-bits, [8] keys, [8] LEDs, [8] digital tubes, & common cathode LED digital tube.

590474 .....**$14.95** or **$13.95** ea./5+

4-Channel Relay Arduino® Compatible



Control various appliances and other equipment with a large current.

590483 .....**$13.95** or **$11.95** ea./5+

Tricolor LED Arduino® Compatible

Access the current limiting resistor to prevent burn out. The PWM modulator with three primary colors can be mixed in different colors.

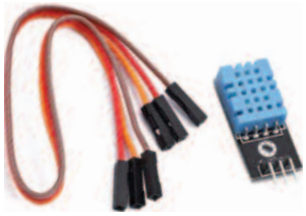
590479 .....**$8.95** or **$7.95** ea./5+

Weather Sensor Arduino® Compatible

LED lights up when it senses wet weather conditions like snow, humidity and rain. Sensitivity can be adjusted with a potentiometer.

590481 .....**$12.95** or **$11.95** ea./5+

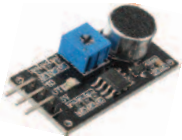
Digital Temperature & Humidity Sensor Arduino® Compatible



Pre-calibrated digital output. Easy to integrate with other applications. 20-90% humidity (+-5%), 0-50 degrees temperature (+-2 degrees). Comes with Dupont Cable.

590469 .....**$13.95** or **$11.95** ea./5+

Sound Detection Sensor Arduino® Compatible



Electronic microphone with single-channel signal output.

590480 .....**$10.95** or **$9.95** ea./5+

PS2 Game Joystick

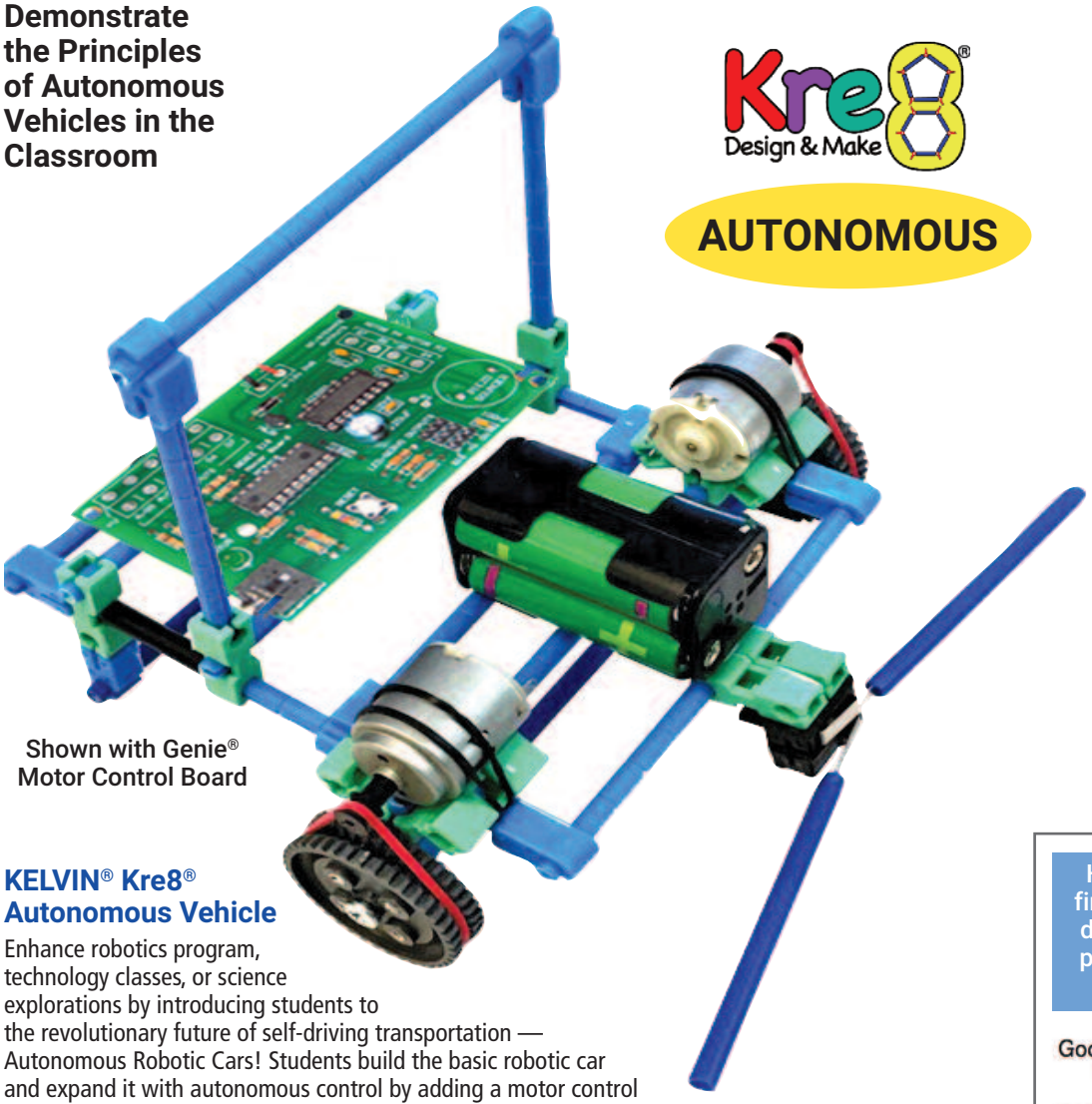
Arduino® Compatible

Connect two analog inputs and control a robot with X/Y control.

590473 .....**$9.95** or **$7.95** ea./5+

Kits may require soldering, assembly, shaping & sanding of wood, balsa or foam. ⚠ **Warning**: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

Demonstrate the Principles of Autonomous Vehicles in the Classroom

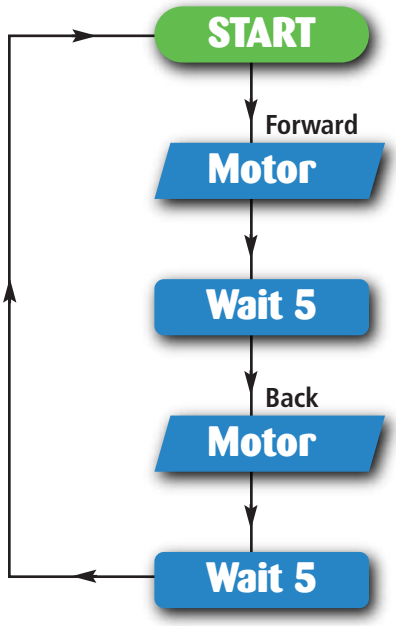


Shown with Genie® Motor Control Board

Kre8® Design & Make

AUTONOMOUS

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.



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+

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.

KELVIN® Kre8® Small Tube Cutter

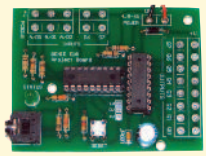
Cuts up to 6mm dia. tubes including rigid pvc tubing.
283653 .....**$7.95** or **$6.95** ea./10+ or **$6.45** ea./20+

Utility Snips

7-1/2 in. long. Style may vary.
480009 .....**$5.95** or **$5.45** ea./6+

Kits may require soldering, assembly, shaping & sanding of wood, balsa or foam. ⚠ **Warning**: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

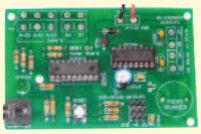
GENIE PCB218 5 Inputs & 8 Outputs



All inputs can be used as digital inputs and control any of the outputs. Three inputs can be used as analog inputs. The outputs can control a number of different devices with built-in diodes for transient suppression.

842205 Kit ★ .....**$27.95** or **$26.95** ea./5+

GENIE PCB418 5 Inputs & 5 Outputs



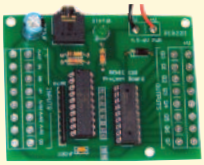
All inputs can be used as digital inputs and control any outputs. Three inputs can be used as analog inputs. They can be used to measure an analog signal and control an output. Outputs drive two small project motors and three servo motors at the same time.

842211 Kit ★ .....**$34.95** or **$32.95** ea./5+

Optional Microcontroller for 842205 / 842211

590444 .....**$9.95** or **$8.95** ea./5+

GENIE PCB220 8 Inputs & 8 Outputs

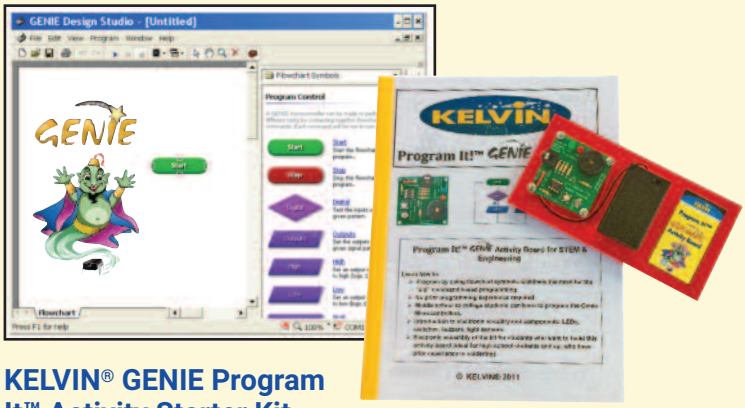


All inputs can be used as digital inputs and control any of the outputs. Four inputs can be used as analog inputs. They can be used to measure an analog signal and control an output. Outputs can control a number of different devices through a driver IC.

842207 Kit ★ .....**$29.95** or **$28.95** ea./5+

Optional Microcontroller for 842207

590443 .....**$8.95** or **$7.95** ea./5+



KELVIN® GENIE Program It™ Activity Starter Kit

With the help of amazingly easy to use software, program the GENIE Program It™ board to blink two LEDs in a specific sequence, respond to a switch or changing light conditions, or play a tune. After creating the program, send it to the GENIE Program It™ board via the USB cable and it will start running. Programs are stored in internal memory and will continue operating even if you turn the GENIE Program It™ board is turned off or batteries replaced.

Kit includes: small printed circuit board (with programmable IC, [2] LEDs, switch, light sensor, buzzer/speaker), Battery Holder with on/off switch, CD with Genie programming software and demo programs, Manual with instructions and many simple programs., USB Download Cable. and a see-through Storage Pouch. Assembly and soldering required or order assembled demo board.

842291 Kit (No Base & Requires Soldering) **$24.95**
842292 Bulk Pack for 10 (No Base & Requires Soldering).....**$15 Per Kit $150**
842294 Assembled Demo Board w/ Mounted Acrylic Base **$75**
780080 USB Download Cable (Additional).....**$29.95**

Find KELVIN® Kre8® Modeling Products in Architecture & Design on pgs. AD 2-9.

Kre8® Design & Make

KELVIN® Kre8® Curiosity Rover

Like the real Mars Rover, the front excavator and vision arms can be moved; steer it right, left, forwards and backwards. Powered by two motors and controlled with included remote controller. Requires AA battery.

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

KELVIN® Kre8® Mars Rover

This easy-to-build model of the NASA Mars Rover is steerable with included remote controller: right, left, forward, and backward. Comes with necessary parts. Requires AA battery.

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

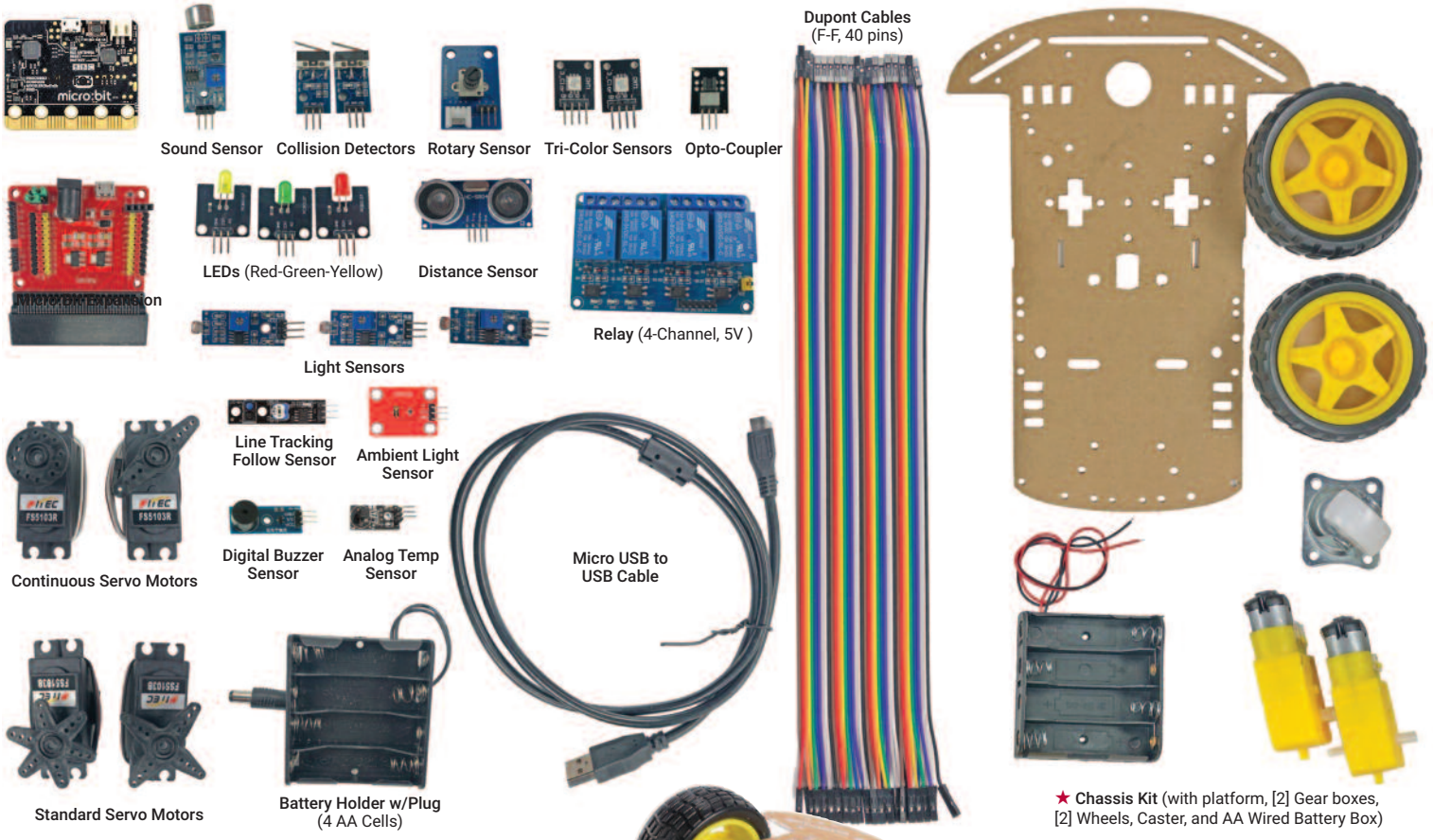
Kre8® kits can be assembled in regular classrooms. Optional Kre8® cutter (283653, pg. 2) can be used to score and snap tubes to length. Use snips (480009, pg. 2) to cut sheet materials and light blue tubes. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a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

Kits may require soldering, assembly, shaping & sanding of wood, balsa or foam. ⚠ **Warning**: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

KELVIN® is partnering with NSF, ITEEA and ExCITE to introduce students to engineering careers. Students design, construct and experience programming as well as robotics. Ideal project for home or school learning.

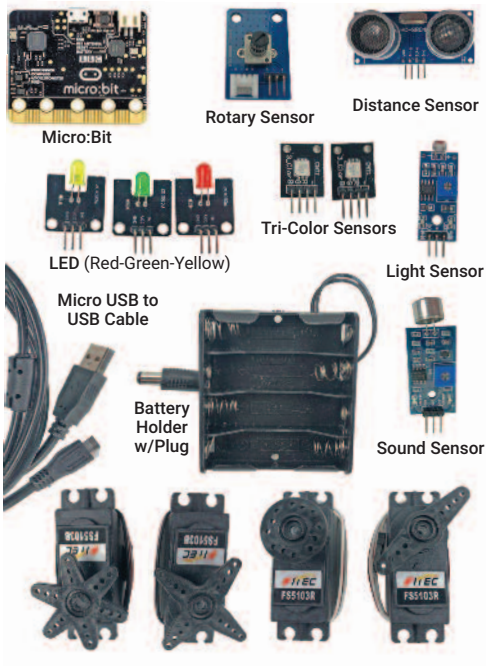
EXPLORING COMPUTATION INTEGRATED INTO TECHNOLOGY AND ENGINEERING
An NSF Funded Partnership between Hofstra University and ITEEA, Award 1923552

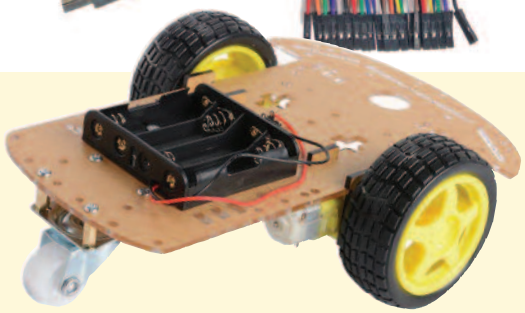
Premium ExCITE Robotic Control Pack



★ **Chassis Kit** (with platform, [2] Gear boxes, [2] Wheels, Caster, and AA Wired Battery Box)

Economy ExCITE Robotic Cntrl Pk





KELVIN® ExCITE Robotic Control Packs w/ Micro:Bit Controller

These innovative packs include the parts needed for valuable hands-on learning experience with engineering, robotics, computer control and electronics. Programs are written using Snap! to control real-world devices like motorized vehicles, lights, robotics, and mechanical systems. Grades 7-12.

283819 Economy ExCITE Pack.....**$125** or **$115** ea./5+
283816 Premium ExCITE Pack.....**$185** or **$175** ea./5+

KELVIN® Robotic Control Packs w/ Arduino® Controller (not used by Excite Project)

283820 Economy Pack .....**$125** or **$115** ea./5+
283818 Premium Pack.....**$185** or **$175** ea./5+

KELVIN® ExCITE Robotic Control Packs	Economy	Premium
Micro:Bit	1	1
Distance Sensor	1	1
Rotary Sensor	1	1
Light Sensors	1	3
Sound Sensor	1	1
Tri-Color Sensors	2	2
Red LED	1	1
Yellow LED	1	1
Green LED	1	1
Continuos Servo Motors	2	2
Standard Servo Motors	2	2
Battery Holder w/ Plug	1	1
Micro:Bit Expansion		1
Chassis Kit ★ See Above		1
Relay		1
Collision Detectors		2
Opto-Coupler		1
Line Tracking Sensor		1
Ambient Light Sensor		1
Digital Buzzer Sensor		1
Analog Temp Sensor		1
Dupont Jumper Cables		40
Micro-USB To USB Cable	1	1

Kits may require soldering, assembly, shaping & sanding of wood, balsa or foam. ⚠ **Warning**: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

Wood Wheels

1-1/2 in. thick, Fits 11/64 in. dia. axle.

2-3/4 in. dia.

282347 ..**$2.75** or **$2.45** ea./10+ or **$2.25** ea. 100+

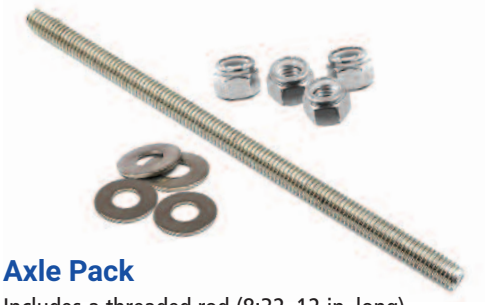
3-3/4 in. dia.

283020 ..**$3.75** or **$3.45** ea./10+ or **$3.25** ea. 100+

Traction Material

Add to wood wheels for better grip. Cut to fit.

851308 12 in. W x 4ft. L **$15.95**



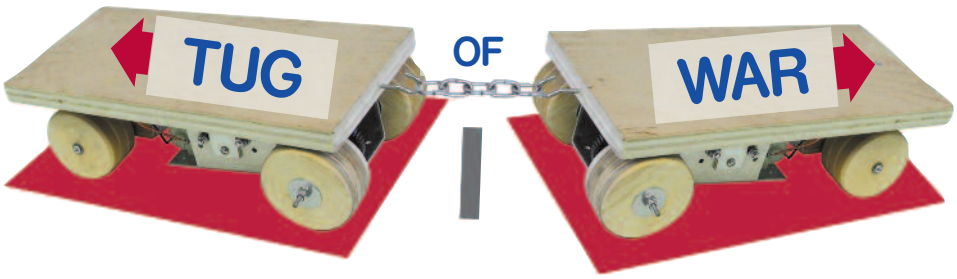
Axle Pack

Includes a threaded rod (8:32, 12 in. long), [4] flat washers (#10), and [4] nylon lock nuts (8:32).

842535 .....**$4.95** or **$4.45** ea./10+

Washers Flat, steel-plated. #6 size.

390045 100/Box **$2.50**



The first team that pulls the other over the line wins!

KELVIN® Tug-of-War Competition Vehicle Starter Pack

By altering gear ratios, vehicle weight, traction systems and wheel sizes, students build vehicles with the greatest pulling power. They can try to move the greatest weight or pull another vehicle across the threshold. A fun learning experience.

Pack includes: [2] reusable vehicle kits, connecting chain and instructions. Each reusable vehicle kit comes with: car platform (12 x 48 in.), [8] traction bands, [4] wood wheels (1-1/2 x 2-1/2 in.), gear box kit, motor, wires and hardware (screws, nuts, etc). Requires one power supply (842639) per vehicle.

842600 Starter Pack w/ [2] Reusable Vehicles Kits & Chain **$125**

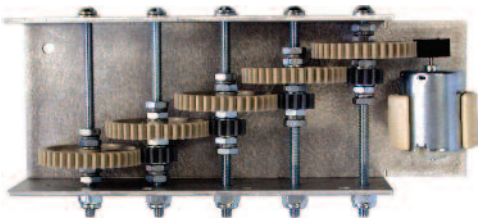
283123 Reusable Vehicle Kit .....**$45.95** or **$42.95** ea./4+

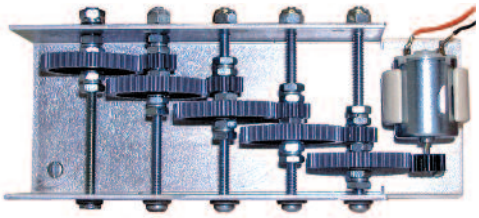
842639 Variable Power Supply w/ Polarity Box, 0-30 V / 0-5 A **$145**

Variable Power Supply

KELVIN® Robotic Gear Box Kits

Build a gear box for robots or where a gear reduction or gearing change is needed. Kits include a pre-punched U-shaped bracket, motor, axles, gears, attachment hardware and instructions. Box measures 2.5 x 6.7 x 1.70 in. Wheels sold separately (see left). Students must enlarge holes in the gears to fit.





Gear Box for 1 Wheel

Connects to 1 Wheel. Ideal for multiple directional changes. Two gear boxes are required to transmit power to each wheel.

282360 Kit .....**$29.95** or **$27.95** ea./4+

Gear Box for 2 Wheels

Connects to 2 Wheels. Suitable for forward and backward motion with both wheels being driven by the same gear box.

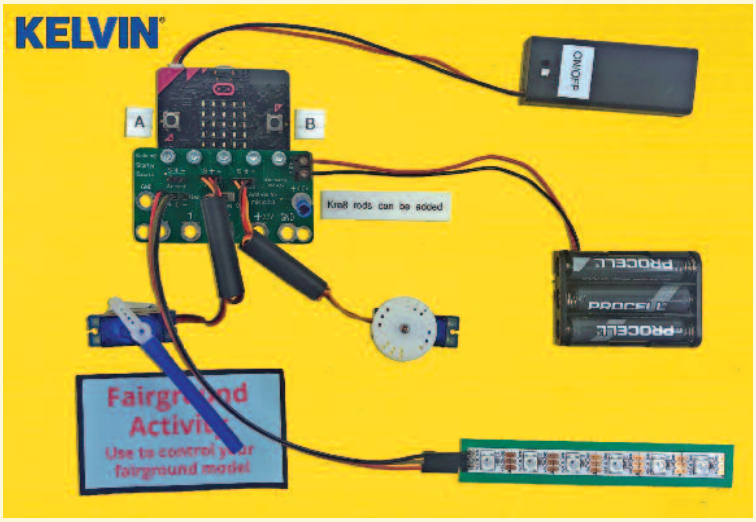
283122 Kit .....**$29.95** or **$27.95** ea./4+

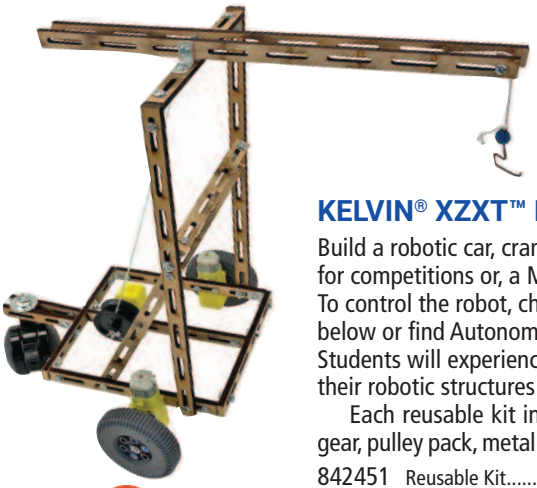
Find ExCITE Robotic Control Packs on pg. PR 6.

KELVIN® Fairground Micro:Bit Programmable Control Elem - MS - HS

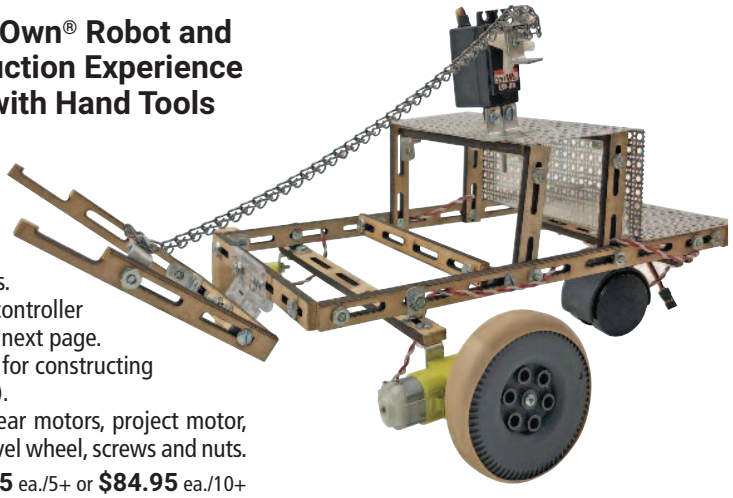
Introduce students to programming using a block-based computer language. Kit includes: Micro:Bit microprocessor, Micro:Bit expansion board, micro servo motor, micro servo 360 motor, LED strip, USB cable, battery holder, corrugated plastic base, and demo program. Software is a FREE download.

283821 Starter Kit.....**$59.95** or **$57.95** ea./3+





Build Your Own® Robot and Get Construction Experience Working with Hand Tools



KELVIN® XZXT™ Robot

Build a robotic car, crane, SUMO Car Wrestler® for competitions or, a Mars rover for remote tasks. To control the robot, choose a wired or wireless controller below or find Autonomous Motor Control on the next page. Students will experience using school hand tools for constructing their robotic structures (with teacher supervision).

Each reusable kit includes: frame parts, [3] gear motors, project motor, gear, pulley pack, metal chain, [2] side wheels, swivel wheel, screws and nuts.

842451 Reusable Kit.....**$95** or **$89.95** ea./5+ or **$84.95** ea./10+

Add WIRELESS Remote Control to Class Robotics Projects

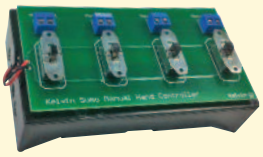
KELVIN® 4+2 WIRELESS Remote Controller

Reusable and shareable. Each controller pair (transmitter and receiver) controls 4 project motors and 2 servo motors. Two of the motors are used for moving the car and the other two are available for other purposes. Includes: [2] transmitters, [2] receivers and [2] LiPo rechargeable batteries with charger.

842584 Remote Controller.....**$155** or **$145** ea./2+

220155 Quick Charger w/ [4] AA Batteries **$49.95**

Add WIRED Remote Control to Class Robotics Projects



KELVIN® WIRED Hand Controller

Controls 4 motors. Includes: [4] directional switches and 15 ft. long cable. Requires D batteries or variable power supply (842639).

842306 Assembled .....**$39.95** or **$34.95** ea./10+

220014 D Alkaline Battery .....**$2.95** or **$2.75** ea./10+

Servo Motor

Lightweight motor outputs 44 to 57 oz. of torque per inch. 4.8-6V DC. Futaba S3003. Works with wheel below, see 391460.

851878 .....**$14.95** or **$12.45** ea./5+

Robot Wheels Set

Includes: [2] wheels, [2] rubber bands and screws. Fits Servo Motor (851878) with screws.

391461 .....**$3.95**

Caster

White caster, 3/4 in. dia., comes with metal attachment plate, [4] screws and [4] nuts.

840389 .....**$3.95**

Caster

Black caster, 3/4 in. dia., comes with metal attachment plate, [4] screws and [4] nuts.

390959 .....**$3.95**

Caster with Brake

Black plastic caster, 3/4 in. dia. with threaded rod and nut.

391401 .....**$4.95**

KELVIN® Build Your Own® Robot Parts

Gear Box Motor

1:48. Double axis. 3-6V DC. Works with wheel below, see 391458.

391457 .....**$7.95** or **$7.45** ea./10+

Economy Gear Box & Inline Motor

1:120, 100 RPM. 3-6V DC. Works with wheel below, see 391458.

282396 .....**$7.95** or **$7.45** ea./10+

Tire w/Wheel

2.6 in. dia. Rectangular axle hole fits Gear Box Motor (391458) or Gear box & Inline Motor (282396) above.

391458 2/pkg. **$7.95**

Project Wire

Stranded. Stripped at both ends 10 in. L. 22 AWG.

391489 [20] Total - [10] Black & [10] Red **$4.95**

Wood Struts 10 in. long. Cut to Size

391490 10/pkg. .....**$19.95** or **$15.95** ea./4+

Machine Screws

Binding head. 6-32. 3/8 in. L. 100/pkg.

390012 .....**$3.95**

Nuts

Steel. 6-32. 1/4 x 3/32 in. 100/pkg.

390034 .....**$6.95**

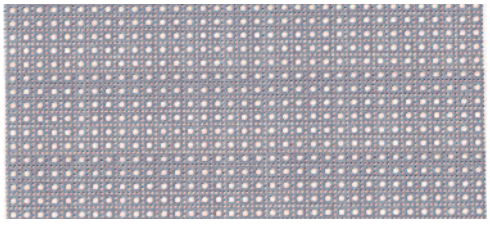
Angle Brackets

390124 20/pkg.....**$16.95**

Sprocket Chain Cut to Size

Measures 1/4 x 36 in. long. 5 links per inch. Chain works with KELVIN® gears on pg. 66.

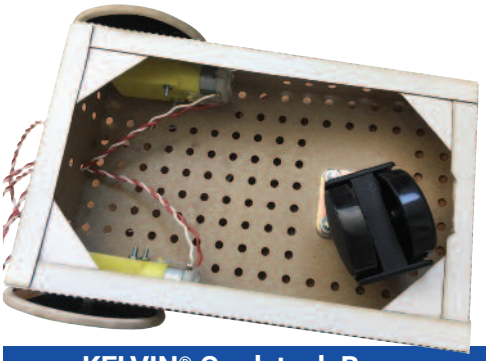
750113 .....**$5.95** or **$5.45** ea./3+



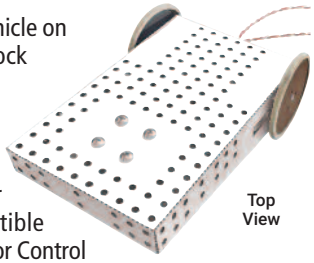
Metal Sheet Cut to Size, Perforated

391441 5 x 10 in. **$3.95**

Kits may require soldering, assembly, shaping & sanding of wood, balsa or foam. ⚠ **Warning**: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.



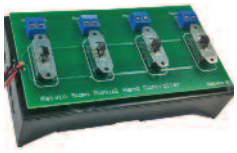
KELVIN® Cardstock Base for Robotic Vehicles



Build a robotic vehicle on top of the cardstock base and add control with the Wired Hand Controller (842306, below) or Arduino®-Compatible Autonomous Motor Control Board (842435, below). Kit includes cardstock, [2] assembled gear motors, wires, a front wheel and [2] back wheels. Requires folding and hot glue gun assembly. Grades 6-12.

842433 Kit .....**$29.95** or **$25.95** ea./10+

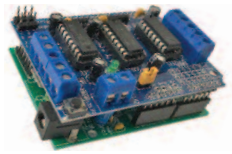
KELVIN® Wired Hand Controller



Works with SUMO Car Wrestler® Cardstock Base (842433) and other kits. The assembled wired controller includes: [4] directional switches and 15 ft cable. Requires D batteries or variable power supply (842639).

842306 Assembled.....**$39.95** or **$34.95** ea./10+
220014 D Alkaline Battery ....**$2.95** or **$2.75** ea./10+

Autonomous Motor Control



Arduino® Compatible

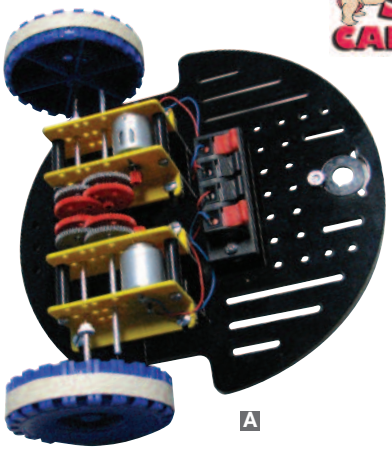
Add this to a SUMO Car Wrestler® vehicle and make it autonomous. Assembled unit includes: motor control board, plug-on motor control shield, USB download cable, motor wires, and battery holder. Requires batteries.

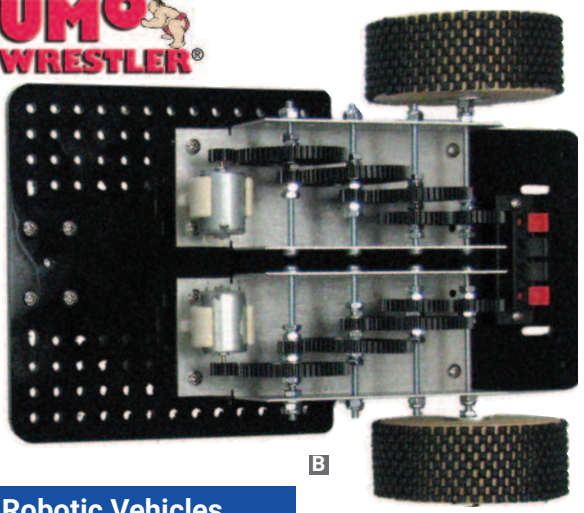
842435 Assembled Unit....**$54.95** or **$49.95** ea./5+

Wireless Controller Kit

Use for wireless ground control of up to [4] motors. Kit includes: receiver, servo motors, rechargeable battery, battery charger, and PC board. Requires assembly and soldering.

842078 Kit **$295**





KELVIN® Plastic Bases for Robotic Vehicles

Small Plastic Base Kits Gr. 7-12

Kits include 7-1/2 in. plastic base, motors, plastic gear boxes, gear sets, wheels, traction bands, tether control, axles, washers, nuts and instructions.

842069 A Circular Kit ....**$49.95** or **$44.50** ea./10+
842071 Rectangular Kit ..**$49.95** or **$44.50** ea./10+

Large Plastic Base Kits Gr. 9+

Kits include 10-1/2 in. bases, motors, larger metal gear boxes, gear sets, pre-punched U-shape gear bracket, wheels, traction bands, tether control, axles, washers, nuts and instructions.

842073 Circular Kit.....**$69.95** or **$64.95** ea./10+
842075 B Rect. Kit .....**$69.95** or **$64.95** ea./10+

Whisker Sensors Kit

Take your robotic vehicle designs further by adding on whisker sensors. Kit includes: [2] lever switch sensors, whisker extenders, screws and wire to connect the robot controller (sold separately). Does not include plans or plastic vehicle base.

842277 .....**$19.95** or **$17.95** ea./3+

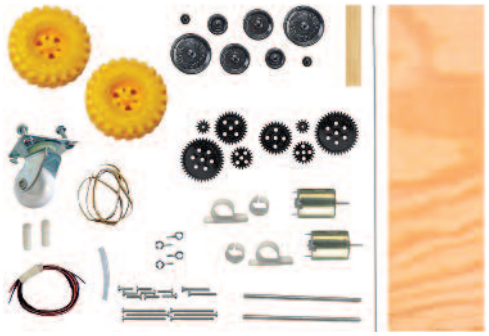
CAR 1 Wheels | CAR 1 Flippers | CAR 2 Wheels | CAR 2 Flippers

KELVIN® 4 x 2 SUMO Car Wrestler® Wired Controller

Two Control Boxes & Two Dual Joysticks! Each joystick operates up to four motors each – two for flippers and two for wheels – on two student-designed robotic cars.

840896 Control Box w/ 2 Dual Joysticks.....**$685**
841265 Replacement Dual Joystick Only **$39.95**

KELVIN® Wood Bases for Robotic Vehicles

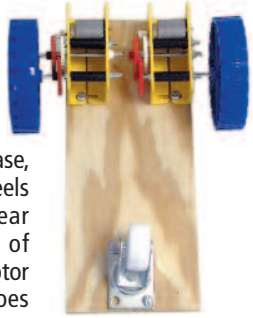


Basic Wood Base Kit

Includes motors, pulleys, gears, wheels and vehicle platform. No plans or electric parts are included; students must design and plan their own vehicle.

840847 Kit w/ [2] Motors..**$24.95** or **$22.95** ea./5+
840919 Kit w/ [4] Motors..**$29.95** or **$26.95** ea./5+

Advanced Wood Base Kit



Kit includes: [2] gear boxes with adjustable gear ratios (requires assembly), bass wood base, caster wheel, [2] big wheels and screws. Change gear ratio for manipulation of torque without servo motor batteries or receiver. Does not include electrical parts.

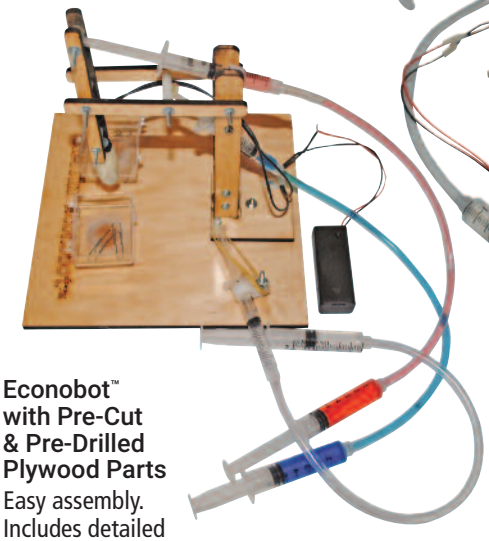
841293 Kit .....**$29.95** or **$26.95** ea./5+

Kits may require soldering, assembly, shaping & sanding of wood, balsa or foam. ⚠ **Warning**: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

KELVIN® Econobot™ Robotic Arm

The robotic arm moves on three joints - each controlled by water filled syringes. An electromagnet grabber is used to gather magnetic materials for a pick and place challenge.

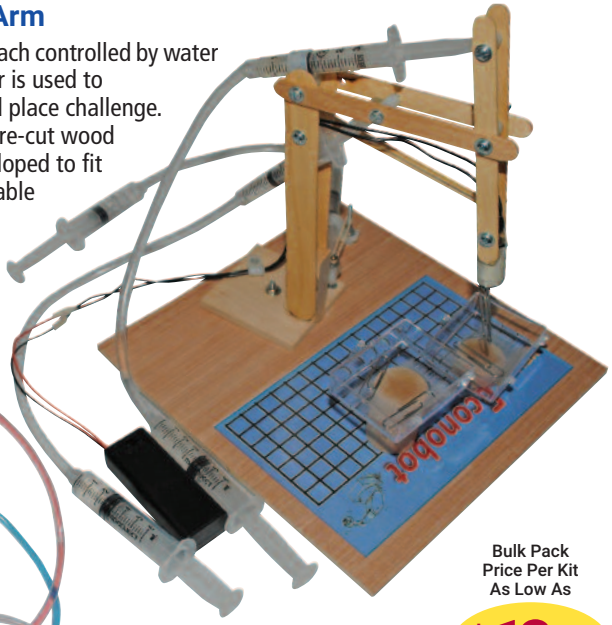
Using craft sticks or pre-drilled and pre-cut wood parts, the Econobot™ is specifically developed to fit a limited budget and still provide a valuable hands-on experience for your students.



Econobot™ with Pre-Cut & Pre-Drilled Plywood Parts

Easy assembly. Includes detailed instructions and background material. Requires AA batteries for operation.

842425 Kit.....**$35** or **$29.95** ea./3+



Bulk Pack Price Per Kit As Low As **$19.95**

DRILLING REQUIRED

Econobot™ with Craft Sticks

Wood parts **require drilling** (950301) in addition to cutting and assembly. Kits include detailed instructions and background material. Requires AA batteries for operation.

842410 Kit .....**$24.95** or **$22.95** ea./3+

842419 Bulk Pack of 10 .....**$19.95 Per Kit** **$199.50**

KELVIN® Drill Press w/ Hand Drill

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

950301 ...**$295** or **$285** ea./3+

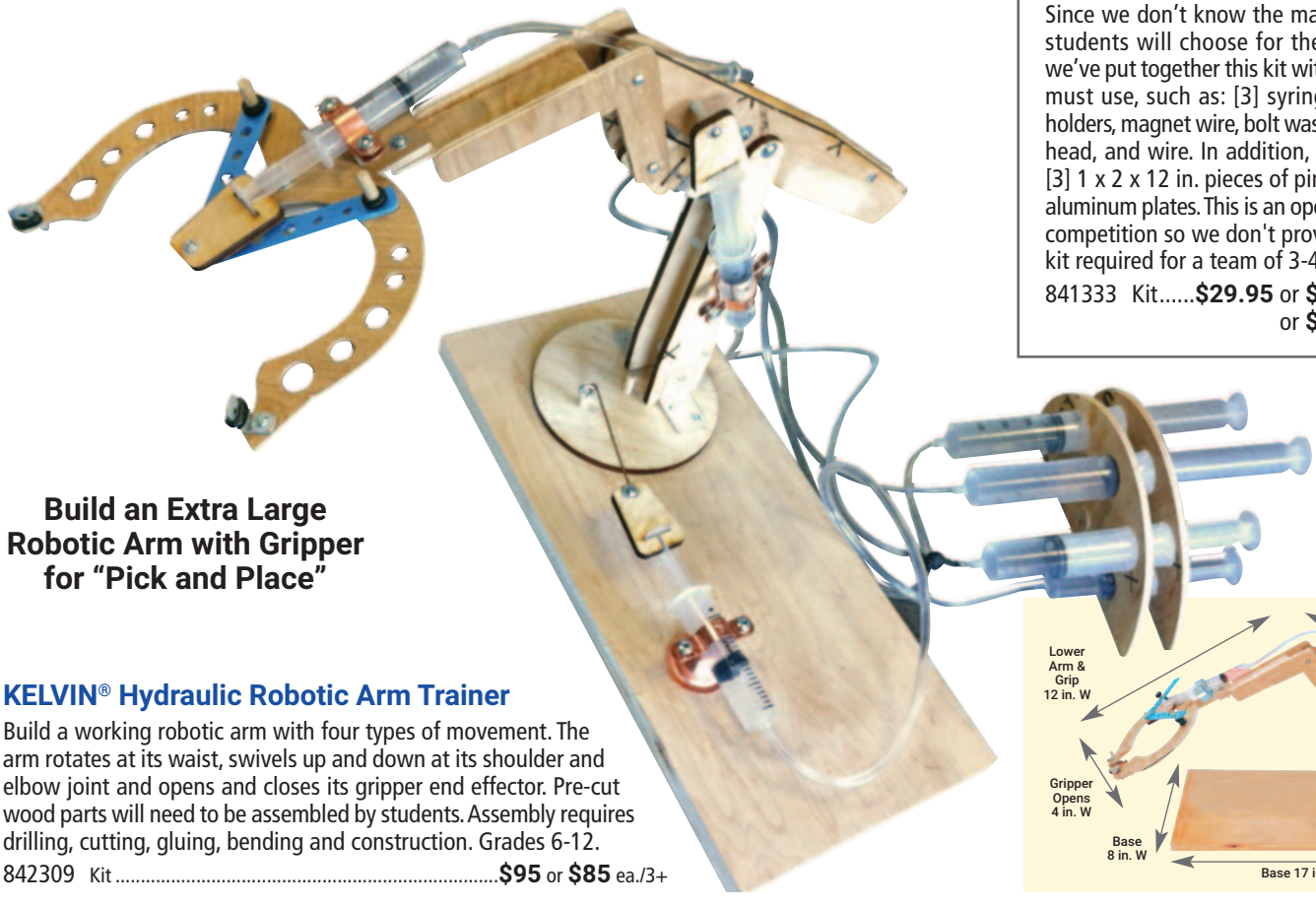
Hand Drill Only w/ [3] Drill Bits

950311 .....**$49.95**

KELVIN® Build Your Own™ Robotic Arm Essential Parts

Since we don't know the material or design students will choose for their robotic arm, we've put together this kit with the parts they must use, such as: [3] syringes, [3] syringe holders, magnet wire, bolt washers for magnet head, and wire. In addition, we have added [3] 1 x 2 x 12 in. pieces of pine and [2] small aluminum plates. This is an open-ended design competition so we don't provide plans;. One kit required for a team of 3-4 students.

841333 Kit.....**$29.95** or **$27.95** ea./10+ or **$24.95** ea./20+

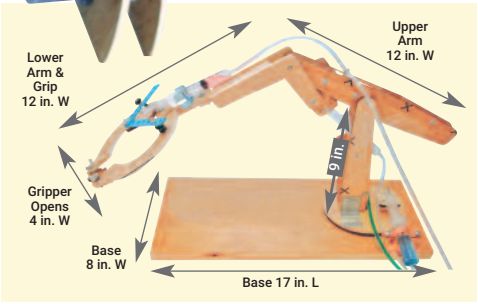


Build an Extra Large Robotic Arm with Gripper for "Pick and Place"

KELVIN® Hydraulic Robotic Arm Trainer

Build a working robotic arm with four types of movement. The arm rotates at its waist, swivels up and down at its shoulder and elbow joint and opens and closes its gripper end effector. Pre-cut wood parts will need to be assembled by students. Assembly requires drilling, cutting, gluing, bending and construction. Grades 6-12.

842309 Kit .....**$95** or **$85** ea./3+



Kits may require soldering, assembly, shaping & sanding of wood, balsa or foam. ⚠ **Warning**: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

  • Prices shown are for educational institutions.

KELVIN® Kel-Botics™ Robotic Arm System

The robotic arm is easy to program and control for PAUSE, REPEAT and GO TO using the included interface box.

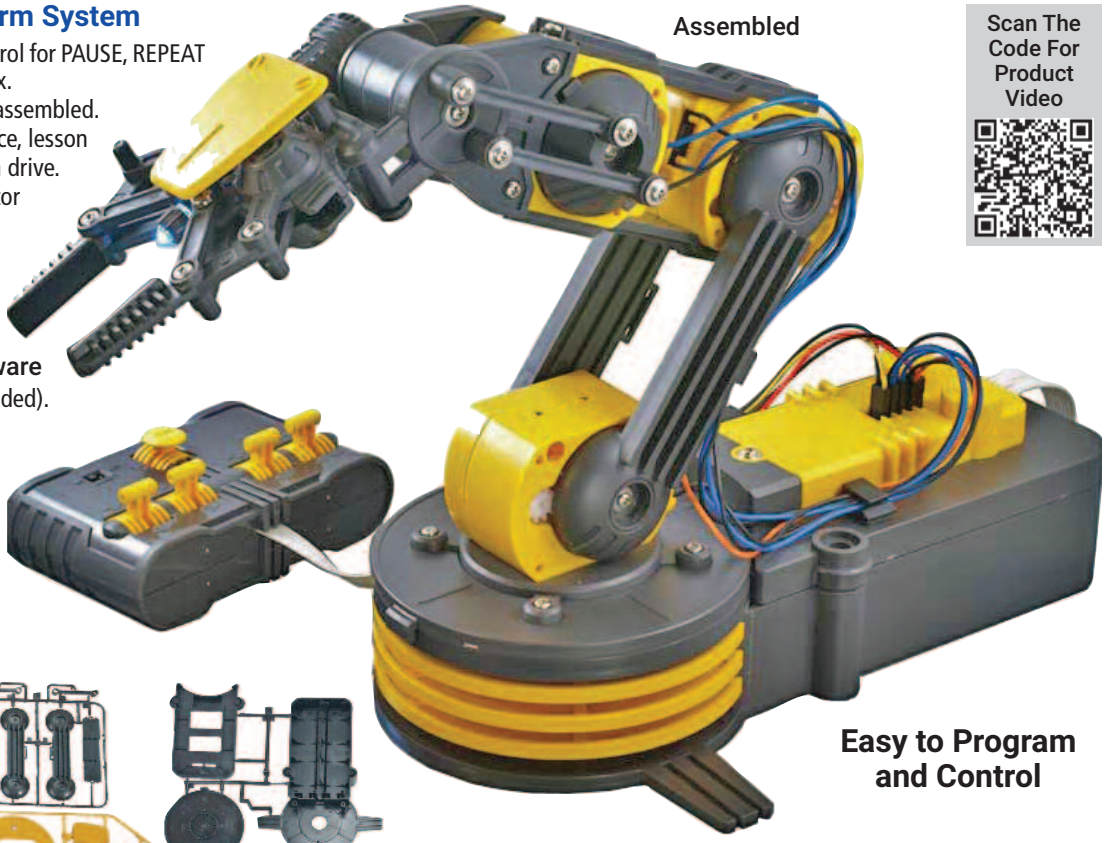
The robotic arm is available as a kit or assembled. Both versions include a Kel-Botics™ interface, lesson guide and operating instructions on a flash drive. Requires [4] D batteries or Battery Eliminator (220119, see below). Win, USB.

Robotic Arm (Assembled)
Win, USB. 110 V AC. USA plug.
841046 .....**$195**

Robotic Arm Kit w/ Interface & Software
Requires advanced assembly (manual included).
841915 Gr. 7 & up **$295**

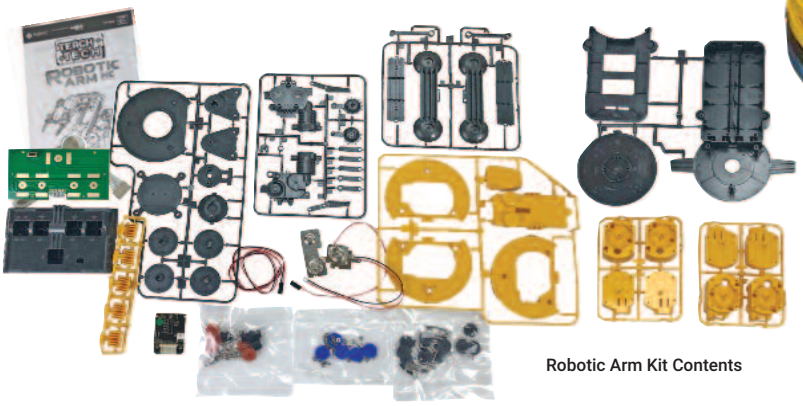
Robotic Arm (Assembled) w/ Interface & Software
110 V AC. USA plug. Grades 3 & up.
841916 .....**$395**

Battery Eliminator
220119 Replaces [4] D Batteries ..**$36.95**



Scan The Code For Product Video

Easy to Program and Control

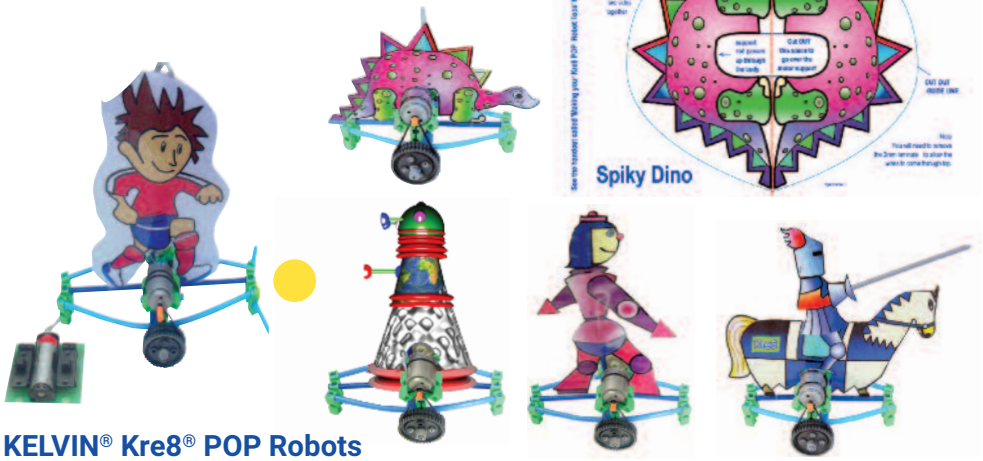

Robotic Arm Kit Contents


Inside of Interface Box

Interface Box

Kre8 Design & Make

Find KELVIN® Kre8® Modeling Products in Architecture & Design on pgs. AD 2-9.



KELVIN® Kre8® POP Robots

Make the basic frame and then decide which top you want or design your own. Robots can move with wired manual controller. Kit includes: wired manual controller, parts needed, printouts for 5 types of robots, bag, and sand paper. Require AA battery.

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

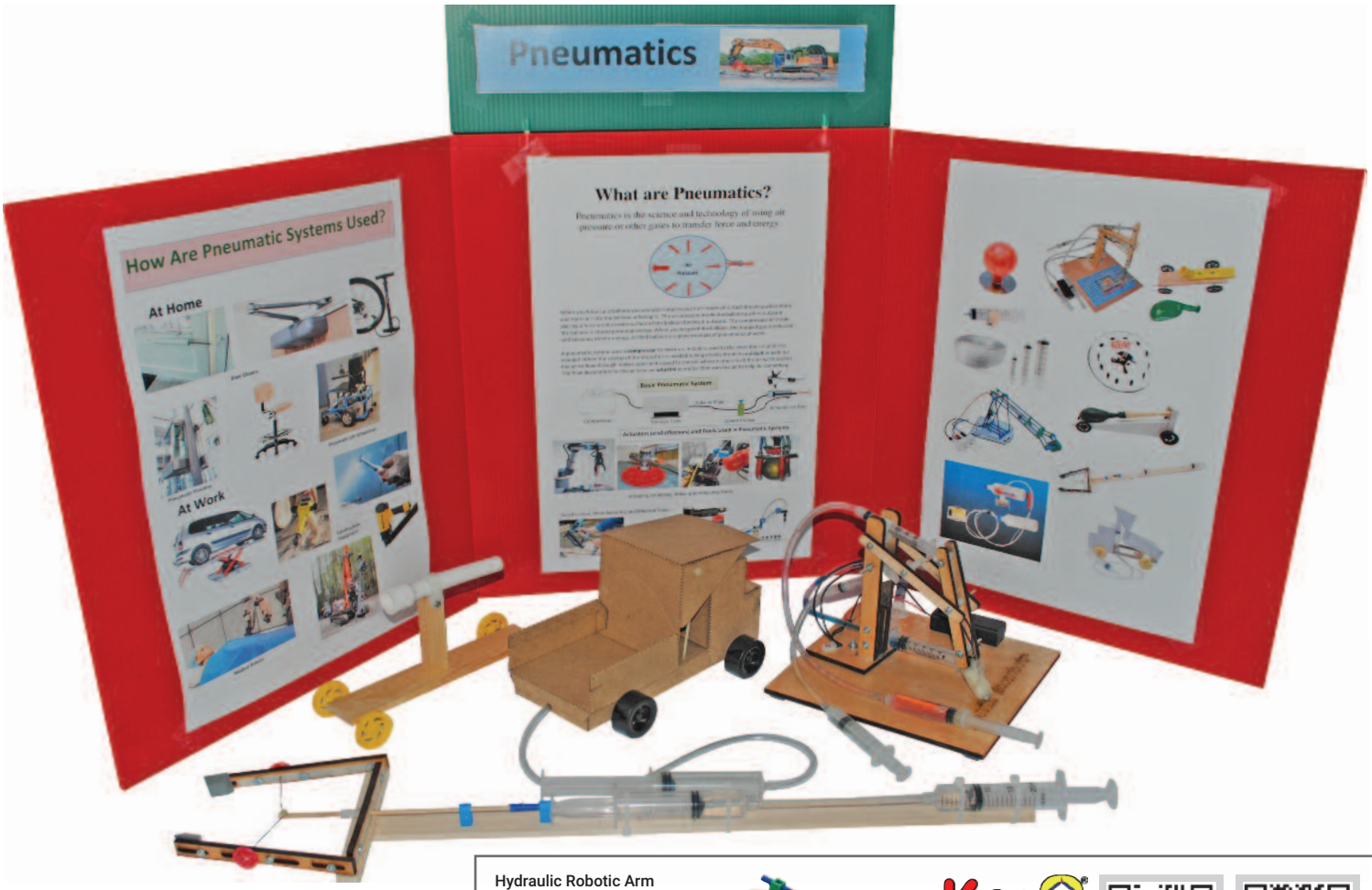
KELVIN® Kre8® Sumo Wrestler

Each kit comes with two different tops so you have a match with a friend.

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

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

Kits may require soldering, assembly, shaping & sanding of wood, balsa or foam. ⚠ **Warning**: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.



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

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

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

Basic Lab

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

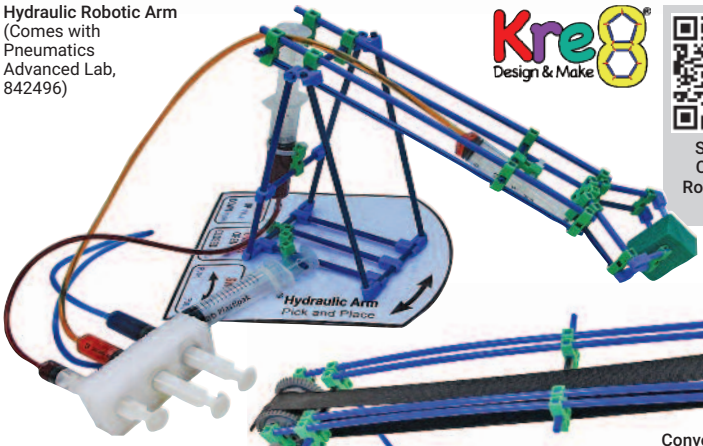
842495 [18] Kits, Extra Parts & Manual **$155**

Advanced Lab

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

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

Hydraulic Robotic Arm (Comes with Pneumatics Advanced Lab, 842496)



Kre8® Design & Make

Scan The Code For Robotic Arm Video

Scan The Code For Conveyor Belt Video

Kre8® A Robotics Manufacturing Unit

KELVIN® Kre8® Hydraulic Robotic Arm

Assemble a hydraulic robotic arm, with teacher help, to explore construction, operation and control.

283767 Kit - Grades 6+ ....**$39.95** or **$35.95** ea./3+ or **$32.95** ea./10+

KELVIN® Kre8® Conveyor Belt

Construct a conveyor belt to demonstrate motion, speed ratios, gravity and compound gears. Changes angles. Kit includes switched battery holder. Requires [2] AA batteries.

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

Find KELVIN® Kre8® Modeling Products in Architecture & Design on pgs. AD 2-9.

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

Kits may require soldering, assembly, shaping & sanding of wood, balsa or foam. ⚠ **Warning**: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.