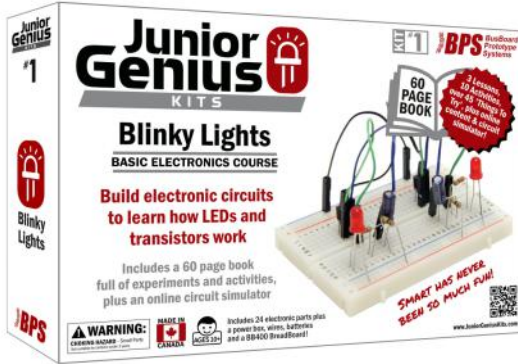# Junior Genius

KITS

SMART HAS NEVER BEEN SO MUCH FUN!

2016 FALL PRODUCT CATALOG

Junior Genius Kits #1 - Blinky Lights (JRG01-KIT)

A great introduction to the world of electronics for both students and adults!

Junior Genius Kits are built for experimentation, learning and fun! Experience the joy of seeing your first LED light up! The Blinky Lights kit leads you through 10 main activities from a simple LED circuit up to more advanced transistor LED blinky light circuits using industry-standard parts on a real-world breadboard.

Learn about voltage and current by using LEDs, resistors, capacitors, and transistors. You'll be able to build circuits using a schematic diagram - and there's plenty of help to get you there. Simple examples make it easy to grasp the basics, and 'What's Happening?' and 'Things To Try' sections encourage you to dig deeper.

Smart has never been so much fun!

FEATURES:
Includes Full-color illustrated 60-page manual • 10 core Activities plus many additional 'Things To Try' experiments • Online Club Access to additional knowledge, illustrations and activities • 24 parts plus a power box, wires, batteries and BB400 BreadBoard • Industry standard, reusable parts

Replacement Parts Bag

(JRG01-PARTS)

A complete set of electronic parts for Junior Genius Kits #1 - Blinky Lights. Electronic parts included: 4 LEDs (Red, Green), 4 Transistors (2N3904 NPN), 10 Resistors (150Ω, 330Ω, 1kΩ, 47kΩ, 100kΩ) and 6 Capacitors (10uF, 100nF).

Parts can be used with standard breadboards such as the BB400 and BB830.

Solder Kit

(JRG01-PCB)

All the parts needed to make the Junior Genius Kits #1 - Blinky Lights circuit on a solderable PCB breadboard. Learn to solder by building the same circuit you built in the breadboard kit.

Includes a circuit layout diagram, a link to the downloadable "Soldering is Easy" comic, and all of the resistors, LEDs, capacitors, transistors and wires needed to build the circuit and connect a PW-3AA battery box (not included) to the SB404 single-sided PCB.

## Expansion #1 - More LEDs (JRG01-EXP1)
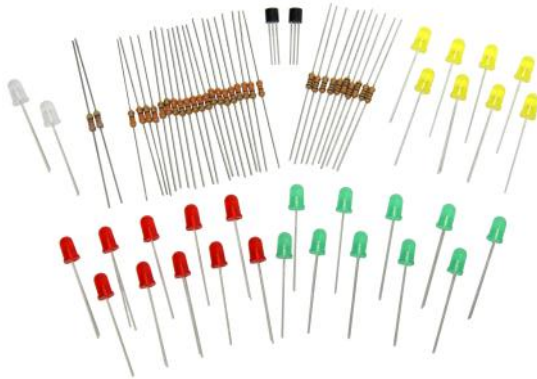
We all love lighting up lots of LEDs, so Expansion Pack #1 provides additional LEDs, resistors, and transistors to light up even more LEDs with your Blinky Lights kit! In addition to the red, green, and yellow LEDs included, bi-color LEDs are also provided to allow experimentation with LEDs that can be either red or green! The Junior Genius Club online content gets you started by showing how to switch multiple LEDs with a transistor so you can flash 5, 10 or more LEDs at a time!

Expansion #2 - I.C. Chaser (JRG01-EXP2)

Take your circuits to a whole new level with Integrated Circuits! Learn how Integrated Circuits and diodes work with advanced LED chaser and flasher circuits in Expansion #2! Build three new types of circuits: 10 LED Chaser, 5 LED Back-and-Forth, and a 3 LED Traffic Light. An additional BB400 BreadBoard is included to give you more room to build circuits with the included LEDs, resistors, diodes, and male-to-male ZipWires. Basic instructions are included to get you started, with full instructions available online in the Junior Genius Club.
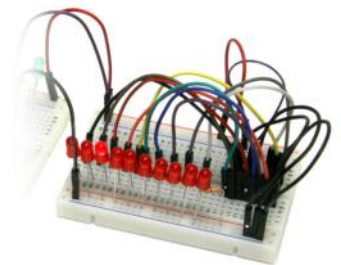
Flashing Eyes LED Pumpkin Kit (JRG-PMPKN)

Add some flash to your Halloween pumpkin with our Flashing Eyes LED Pumpkin Kit. An easy-to-use BB170 BreadBoard is provided as a base for all your connections. Self-flashing LEDs allow you to simply plug them in and go without extra electronic parts, and the battery box is ready to use with breadboard-friendly pins. Basic instructions are included to get you started, but this kit can be re-used and expanded upon with additional parts and creativity!

Blinky Lights Classrom Packs
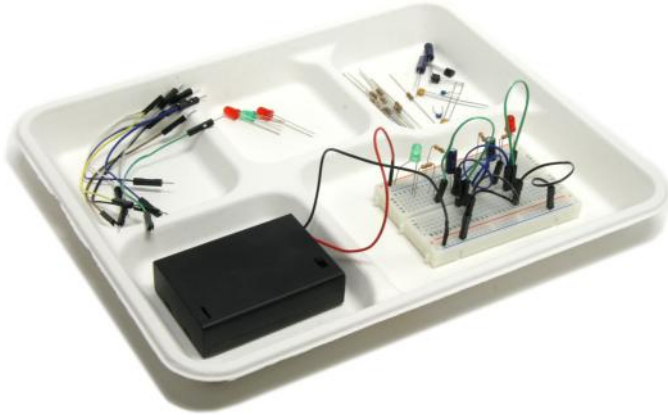
We provide the retail kit in a classroom pack for 5, 20 or 30 students that includes all the same contents: 60 page instruction guide, BB400 BreadBoard, battery box, wires, and electronic parts. But it forgoes the flashy box for a helpful parts tray. This allows students to lay out all the parts without them falling off the desk. Peel-apart ZipWires help the students easily make connections without the need to cut and strip wires. Batteries are included!

An additional instruction guide is included for the educator along with a parts bag (JRG01-PARTS).

> **JRG01-EDU5** - 5-student classroom pack
> **JRG01-EDU12** - 12-student classroom pack
> **JRG01-EDU20** - 20-student classroom pack
> **JRG01-EDU30** - 30-student classroom pack

Teacher Resources

We know you love teaching, and our cost-effective Teacher Resources help you cut down lesson prep time so that you can be a prepared and engaged teacher. A Teacher Resources Access Card is included for free in the 20 and 30 classroom kit packs giving a school-wide license to use the downloadable content. A license can be purchased separately for small classroom kit pack purchases.
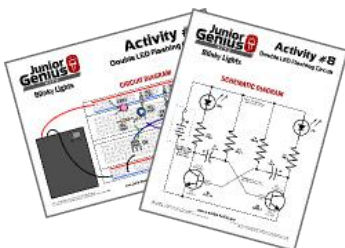
PowerPoint Files

Each core activity has a pre-made PowerPoint presentation that steps through the construction of the circuit and ends with the circuit's schematic diagram.
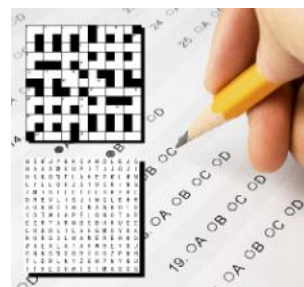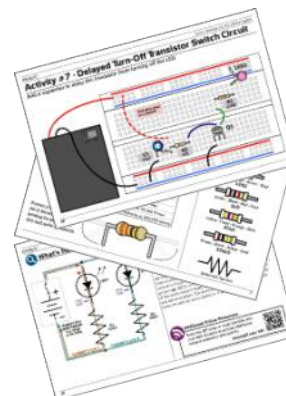
Activity Sheets

Activity sheets to use for classroom exercises including wordsearch and crossword puzzles, spot the difference, draw the wires, and more.

Printable Diagrams

We provide ready-to-print PDFs with circuit diagrams, schematic diagrams and more. Great for having at a student's desk, activity station, or as a PowerPoint replacement.

Graphic Files

Graphics of electronic components, circuits, and diagrams used in the instruction guide are provided to aid in the creation of custom materials for your classroom. Make circuits, PowerPoint presentations or handouts with ease.
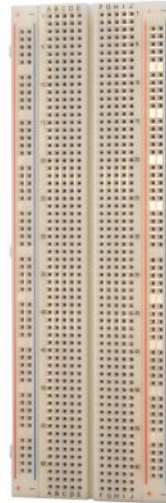
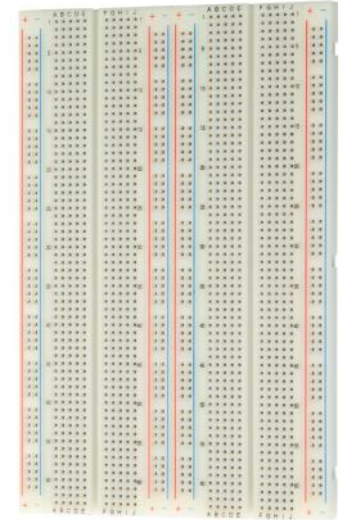# Plug-in BreadBoards & Solderable PCB BreadBoards

RoHS COMPATIBLE

Build & Test... Solder & Keep!

170-point breadboard
BB170™ - White
BB170C - Colored
(multiple color options)

300-point breadboard
BB300™ - White

400-point breadboard with
four power rails
BB400™ - White
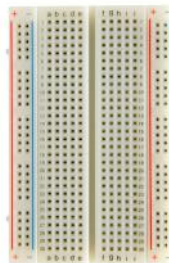**BB400T™** - Transparent

830-point breadboard with
four power rails
BB830™ - White
BB830T™ - Transparent

1660-point breadboard with
eight power rails
BB1660™ - White
BB1660T™ - Transparent

SB300™
Matches the layout
of the BB300

SB400™
Matches the layout
of the BB400

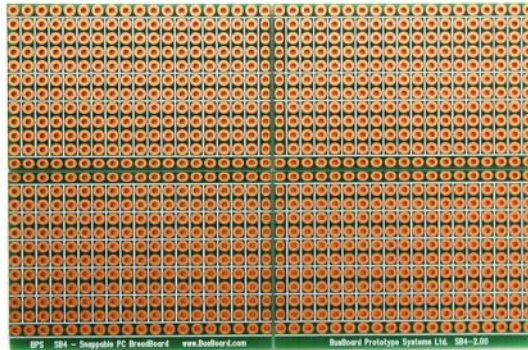**SB404™**
Matches the layout
of the BB400

SB830™
Matches the layout
of the BB830
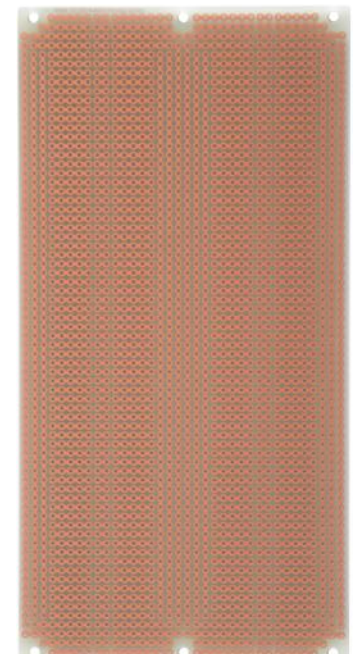
SB1660™
Matches the layout
of the BB1660

www.JuniorGeniusKits.com

Snappable PCB BreadBoards
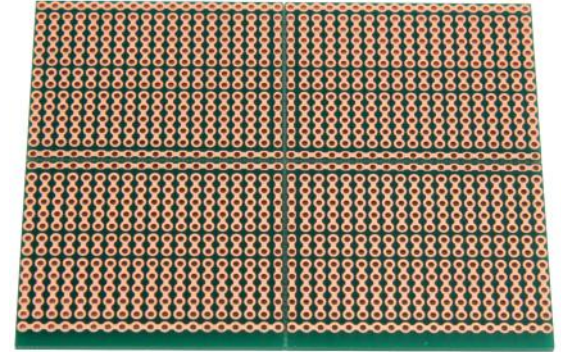
RoHS COMPATIBLE
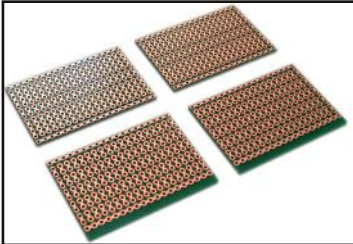
A versatile PCB BreadBoard that snaps into the size you need for smaller projects!

SB4™

Snaps into 4 smaller boards - two with 4-hole strips and two with 2-hole strips, each with power rails. Double-sided, plated holes, top side silkscreen.
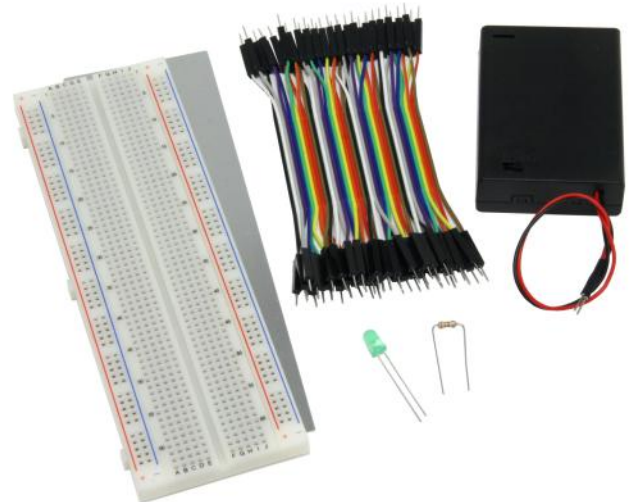
SB5™

Snaps into 4 smaller boards with a 5-hole strip breadboard pattern, each with power rails. Double-sided, plated holes, top side silkscreen.

BreadBoard Starter Kits

RoHS COMPATIBLE

BB400-KIT

BB830-KIT

BreadBoard Starter Kits are available with either a BB400 or BB830 BreadBoard. Each kit includes a BreadBoard, 40 Male-to-Male 10cm ZipWires, and a 3AA Battery Box with switch and 15cm wires with breadboard pins. An LED and resistor are provided for a basic electricity lesson and as a circuit power indicator... a perfect kit to get started with!
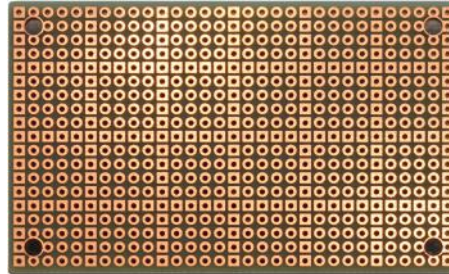
Thru-hole ProtoBoards

RoHS COMPATIBLE

- 1oz/ft2 copper • anti-tarnish coating • 0.037" holes on 0.1" centers
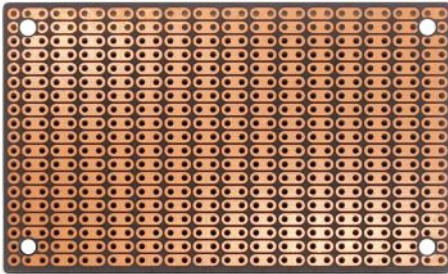
ProtoBoard
Convenient 2-hole ProtoBoard pattern provides an easy way to connect parts while maximizing useable area.
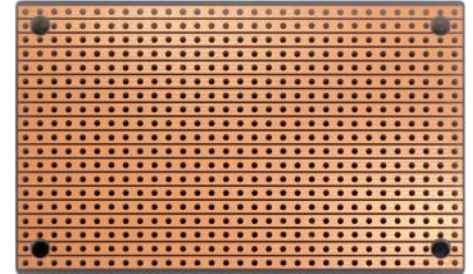
SIZE **1** SIZE **2**

PadBoard
Pad-per-hole with a square pad every 5th hole for easy alignment. Double-sided, plated holes.
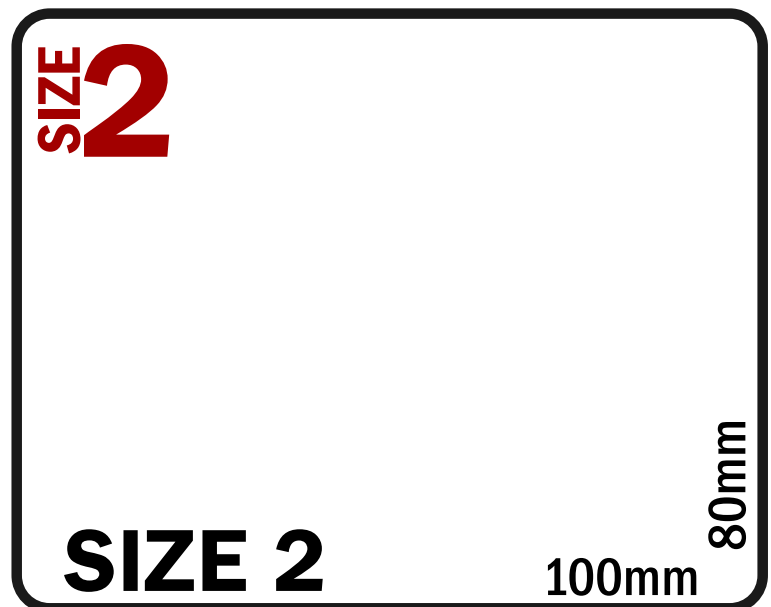
SIZE **1** SIZE **2**

StripBoard
Standard stripboard pattern running the length of the board.

SIZE **1** SIZE **2**

Overview of Sizes *(to scale)*

SIZE **2**

SIZE **1**

SIZE 1 50mm 80mm

SIZE 2 80mm 100mm

ZipWires™

Multi-color ribbon cables of 40 unzippable wires in the 10 standard electrical colors to color-code your connections. PVC insulated cable with tinned contacts in black plastic housings. Color-code power, ground and other signal types to keep your circuit organized. Use as individual wires or keep wires together to group parallel connections.

10cm ZipWire Cables

ZW-MM-10 - Male to Male, great for small spans on breadboards
ZW-MF-10 - Male to Female, great as extension wires or with square post headers
ZW-FF-10 - Female to Female, great with square post headers
KIT-ZW-10x3 - Multi-pack that includes one of each 10cm ZipWire type

20cm ZipWire Cables

ZW-MM-20 - Male to Male, great for large spans on breadboards
ZW-MF-20 - Male to Female, great as extension wires or with square post headers
ZW-FF-20 - Female to Female, great with square post headers
KIT-ZW-20x3 - Multi-pack that includes one of each 20cm ZipWire type

Wires & Clips With Pins For BreadBoards

Alligator-Clips

CA-M-20 - Male ends

20cm long wires are soldered to the alligator clip. Machined male pins for breadboard use with strain relief heatshrink tubing.
6 colors per pack.

J-Clips

CJ-M-20 - Male ends
CJ-F-20 - Female ends

20cm long wire soldered to the J-clip. Machined male pins for breadboard use with strain relief heatshrink tubing. 2 colors per pack. Securely grab 0.1 " header pins without touching adjacent pins.

Adhesive Standoffs

Low profile adhesive standoffs with a 0.120" or 0.180" height for 0.125" diameter PCB holes. Offset, square (0.6 x 0.6") base allows use when holes are close to PCB edge. 3M adhesive tape backing for mounting.
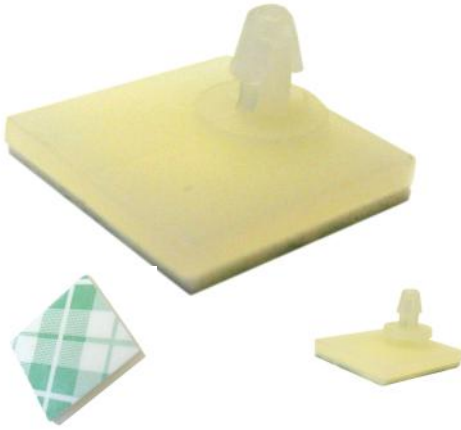
0.120" Height	0.180" Height
SA120x8 - 8 pack	SA180x8 - 8 pack
SA120x24 - 24 pack	SA180x24 - 24 pack
SA120x100 - 100 pack	SA180x100 - 100 pack
SA120x500 - 500 pack	SA180x500 - 500 pack
SA120x1000 - 1,000 pack	SA180x1000 - 1,000 pack

Power - Battery Holders With BreadBoard Pins

3AA Battery Box (PW-3AA)

The PW-3AA battery box has breadboard pins designed to plug into your breadboard. The machined male breadboard pins with strain relief heatshrink tubing provide a reliable long-lasting connection (as opposed to tinned wires that fatigue and break).

The battery box holds 3 AA batteries to provide 4.5 Volt power for your projects. A built-in slideswitch turns power on and off.

3 x AA battery box (4.5 Volts) with switch, 15cm - 26AWG stranded wires. Machined pins provide a reliable and rugged connection to breadboards.

Contact Information

BusBoard Prototype Systems Ltd.
#612-500 Country Hills Blvd NE, Suite 140,
Calgary, Alberta, T3K 5K3
CANADA

Phone: 1-403-567-3752
Fax: 1-402-567-9329

info@juniorgeniuskits.com