

Strobe Light & Sound

WARNING: Always check your wiring before turning on a circuit. Never leave a circuit unattended while the batteries are installed. Never connect additional batteries or any other power sources to your circuits.

CAUTION: Persons who are extremely sensitive to flashing lights should exercise caution when playing with this toy.

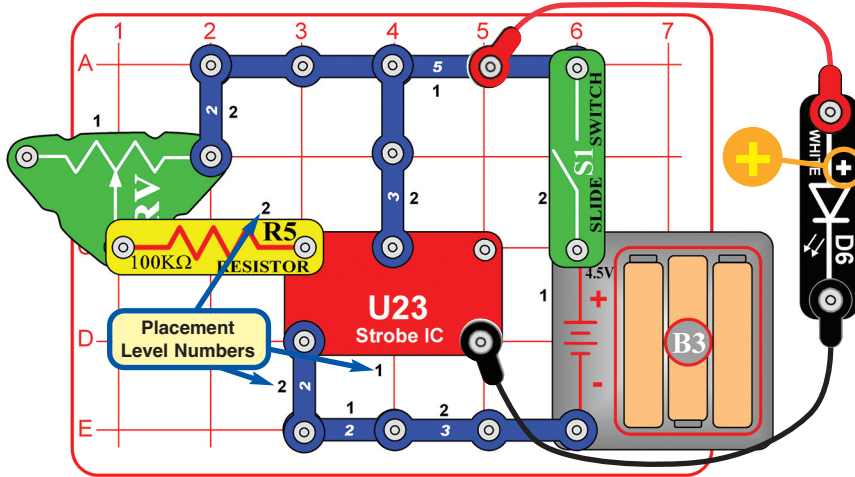
Model SCP-14

CAUTION: High intensity light. Do not look directly at the white LED (D6).



WARNING: SHOCK HAZARD - Never connect Snap Circuits® to the electrical outlets in your home in any way!

Project 1 Strobe Light



Snap Circuits® uses electronic blocks that snap onto a base grid to build different circuits. These blocks have different colors and numbers on them so that you can easily identify them. Build the circuit shown by placing all the parts with a black 1 next to them on the clear base grid first. Then, assemble parts marked with a 2. Connect the white LED (D6) using the red & black jumper wires as shown, with red wire to “+” side. Install three (3) “AA” batteries (not included) into the battery holder (B3).

Turn on the slide switch (S1). The white LED should be flashing. Move the lever on the adjustable resistor (RV) to adjust the flash rate a little.

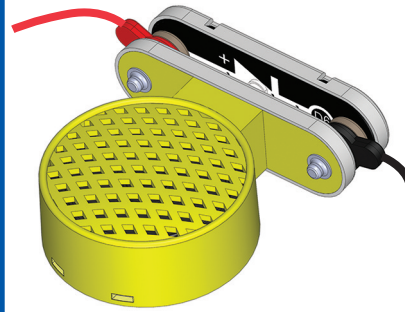
Note: In rare cases the circuit may not work at all settings of RV. If this happens, move the RV lever to the side near the strobe IC (U23), and only move the RV lever over a small range.

Project 2 Strobe Sound

Replace the white LED (D6) with the speaker (SP2); the speaker doesn't have a “+” side, so the red wire can go to either side. Turn on the slide switch (S1). You hear a clicking sound from the speaker. Move the lever on the adjustable resistor (RV) to adjust the clicking rate a little.

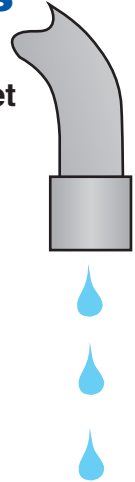
Project 3 Strobe Light & Sound

Combine projects 1 & 2 by stacking the white LED (D6) and speaker (SP2) together as shown. Remember to connect the red wire to the “+” side of the LED. This circuit is shown on the box cover.



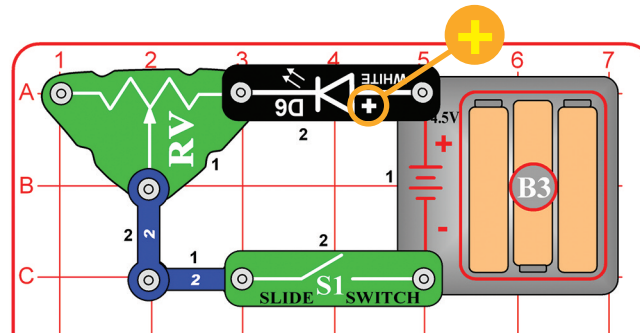
Project 4 Suspended Raindrops

Faucet



Use the circuit from project 1. Go to a water faucet and adjust the faucet so water is dripping at a steady rate. Dim the room lights and hold the white LED so it shines on the dripping water. Try to set the lever on the adjustable resistor (RV) so that the dripping water drops appear suspended in mid-air. You may need to adjust the drip rate on the faucet to make this work.

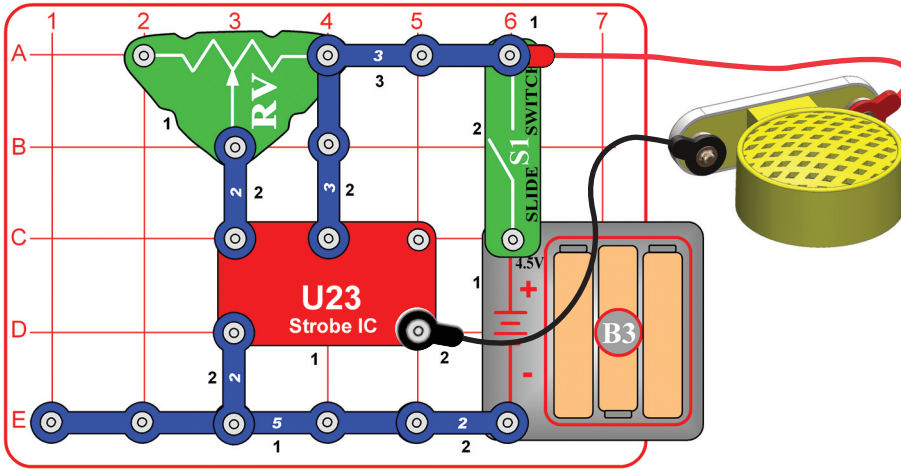
Project 5 Adjustable Light



Turn on the switch (S1) and move the lever on the adjustable resistor (RV) to change the brightness of the white LED (D6).

If you have any problems, contact Elenco®

Project 6 Buzz & Tone

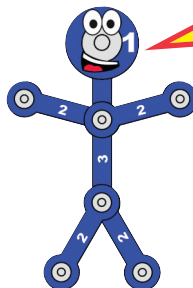
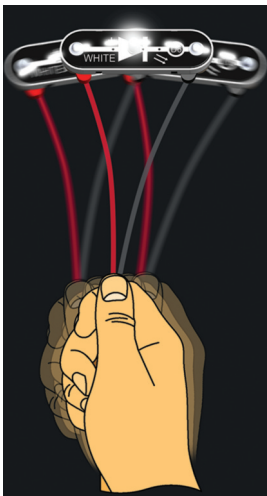


Build the circuit, connecting the speaker (SP2) with the red & black jumper wires as shown. Turn on the switch (S1) and adjust the tone of the sound using the adjustable resistor (RV). Most of RV's range will produce a buzzing sound, but part of it will produce an interesting tone. Try to make music with it.

Project 7 Persistence of Vision

Use the circuit from project 6, but replace the speaker (SP2) with the white LED (D6); connect the red wire to the "+" side of the LED. Turn on the switch (S1) and adjust the flash rate of the LED using the adjustable resistor (RV). At some RV settings the LED will appear to be on continuously.

Take the circuit into a dark room and wave the white LED around with your hand. Try it with the lever on the adjustable resistor at different settings. The light from the LED will appear to separate into short segments or dashes of light.

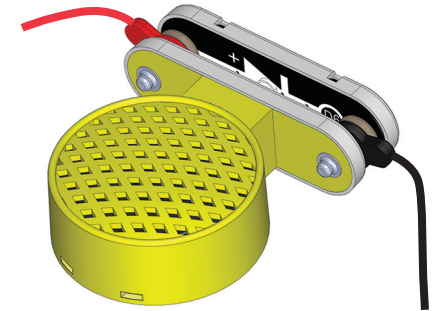


"Persistence of Vision" works because the light is changing faster than your eyes can adjust. Your eyes continue seeing what they have just seen.

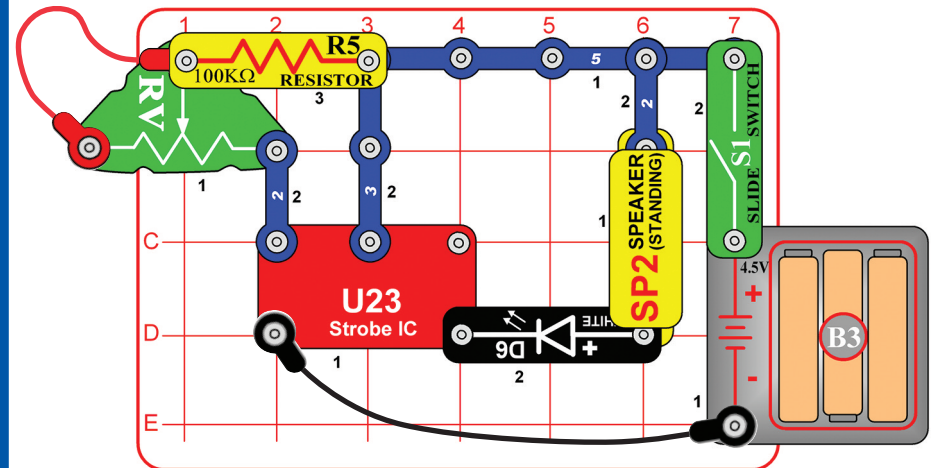
In a movie theater, film frames are flashed on the screen at a fast rate (usually 24 per second). A timing mechanism makes a light bulb flash just as the center of the frame is passing in front of it. Your eyes see this fast series of flashes as a continuous movie.

Project 8 Strobe & Tone

Combine the projects 6 & 7 circuits by stacking the white LED (D6) and speaker (SP2) together as shown. Remember to connect the red wire to the "+" side of the LED.



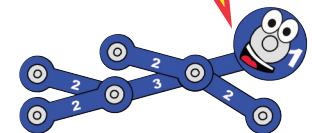
Project 9 Light & Sound



Turn on the slide switch (S1). The white LED should be flashing and you hear sound from the speaker (SP2). Move the lever on the adjustable resistor (RV) to adjust the flash rate and sound.

Note: In rare cases the circuit may not work at all settings of RV. If this happens, move the RV lever to the side near the strobe IC (U23), and only move the RV lever over a small range.

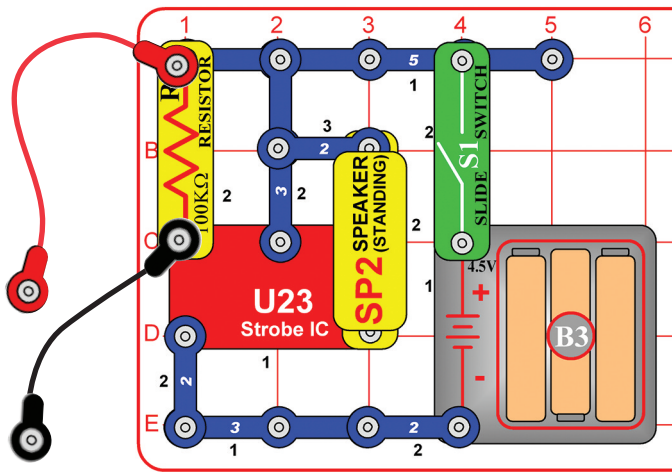
This circuit is not as loud or as bright as project 3, but won't drain your batteries as fast.



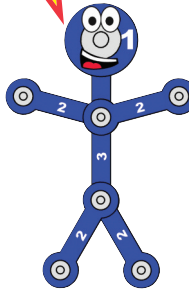
Project 10 Fast Light & Sound

Use the circuit from project 9, but replace the 100kΩ resistor (R5) with a 3-snap wire.

Project 11 Musical Shapes

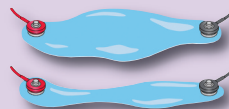


Long, narrow shapes have more resistance than short, wide ones, so different sounds are produced. The black core of pencils is graphite, the same material used in your resistors (R5 & RV).



Build the circuit as shown; note that the speaker (SP2) is a tight fit on the strobe IC (U23), but does fit. Turn on the switch (S1). Make your parts using either the water puddles method (A), the drawn parts method (B), or the pencil parts method (C). Touch the metal in the jumper wires to your parts and hear the sound. See how the sound changes for different shapes.

Method A (easy): Spread some water on the table into puddles of different shapes, perhaps like the ones shown here. Touch the jumper wires to points at the ends of the puddles.



Method B (challenging): Use a SHARP pencil (No. 2 lead is best) and draw shapes, such as the ones here. Draw them on a hard, flat surface. Press hard and fill in several times until you have a thick, even layer of pencil lead. Touch the jumper wires to points at the ends of the drawings. You may get better electrical contact if you wet the metal with a few drops of water. Wash your hands when finished.



Method C (adult supervision and permission required): Use some double-sided pencils if available, or VERY CAREFULLY break a pencil in half. Touch the jumper wires to the black core of the pencil at both ends.



Project 12 Human & Liquid Sounds

Use the preceding circuit but touch the metal in the jumper wires snaps with your fingers. Wet your fingers for best results. Your fingers will change the sound, because your body resistance is less than the 100kΩ resistor (R5) in the circuit.

Next, place the loose ends of the jumper wires in a cup of water, make sure the metal parts aren't touching each other. The water should change the sound.

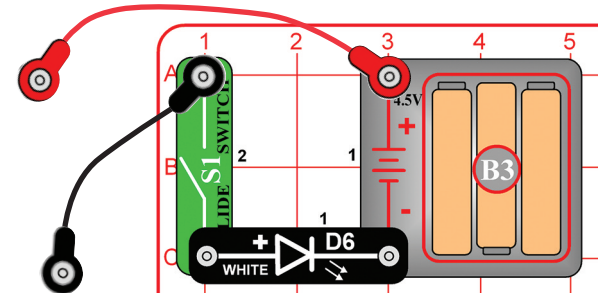
Now add salt to the water and stir to dissolve it. The sound should have higher pitch now, since salt water has less resistance than plain water.

Don't drink any water used here.

Project 13 Liquid Strobe Light

Repeat projects 11 & 12 but replace the speaker (SP2) with the white LED (D6, "+" side to the 2-snap wire).

Project 14 Make Your Own Parts



Build the circuit as shown, with the red & black jumper wires initially hanging loose. Turn on the switch (S1); the white LED (D6) will be off, because the air separating the ends of the jumper wires has very high resistance to electricity. Touch the loose ends of the jumper wires together and the LED will be very bright. Next, connect the loose ends of the jumper wires to the resistors (RV & R5) and the speaker (SP2), and see how bright the LED is.

Now make your parts using either the water puddles method (A), the drawn parts method (B), or the pencil parts method (C). Touch the metal in the jumper wires to your parts and see how bright the LED is. Compare the LED brightness for different

shapes, and see how they compare to the R5 and RV resistors.

Next, touch the metal in the jumper wires snaps with your fingers. Wet your fingers for best results. The LED should be dim, because your body has moderate resistance.

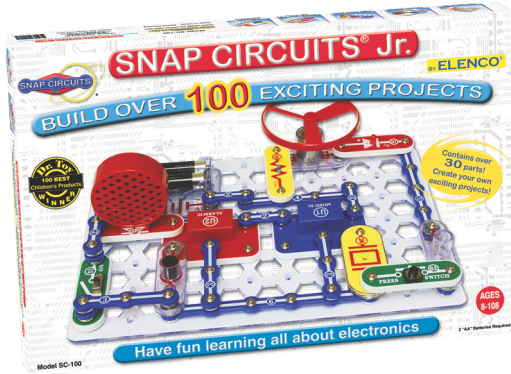
Next, place the loose ends of the jumper wires in a cup of water, make sure the metal parts aren't touching each other. The water should change the LED brightness.

Now add salt to the water and stir to dissolve it. The LED should be brighter now, since salt water has less resistance than plain water.

Don't drink any water used here.

OTHER SNAP CIRCUITS® PRODUCTS!

Contact Elenco® to find out where you can purchase these products.



Snap Circuits® Jr. Model SC-100

Build over 100 projects, contains over 30 parts.



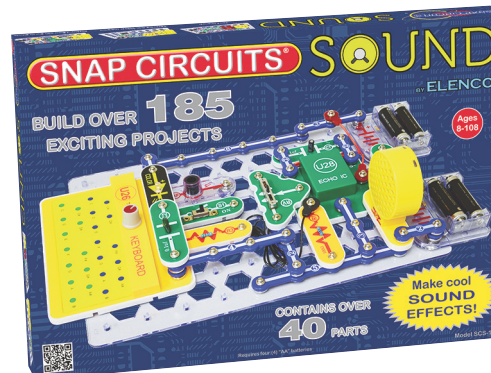
Snap Circuits® Light Model SCL-175

Build over 175 projects, contains over 55 parts.



Snap Circuits® Green Model SCG-125

Build over 125 projects, contains over 40 parts.



Snap Circuits® Sound Model SCS-185

Build over 185 projects, contains over 40 parts.

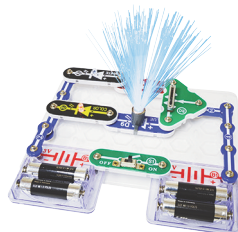


Flying Saucer Plus Basic Electricity

Model SCP-09

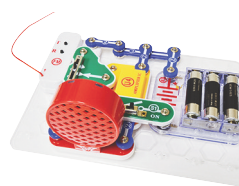


Model SCP-10



LED Fun

Model SCP-11



FM Radio

Model SCP-12



Motion Detector

Model SCP-13

PARTS LIST

Qty.	ID	Name	Part #
□ 3	2	2-snap wire	6SC02
□ 2	3	3-snap wire	6SC03
□ 1	5	5-snap wire	6SC05
□ 1	B3	Battery holder	6SCB3
□ 1		Base grid	6SCBGMF
□ 1	D6	White LED	6SCD6
□ 1		Black jumper wire	6SCJ1
□ 1		Red jumper wire	6SCJ2
□ 1	R5	100kΩ resistor	6SCR5
□ 1	RV	Adjustable resistor	6SCRV
□ 1	S1	Slide switch	6SCS1
□ 1	SP2	Speaker	6SCSP2
□ 1	U23	Strobe IC	6SCU23

Important: If any parts are missing or damaged, **DO NOT RETURN TO RETAILER.** Call toll-free (800) 533-2441 or e-mail us at: help@elenco.com.
Customer Service • 150 Carpenter Ave. • Wheeling, IL 60090 U.S.A.

You may order additional / replacement parts at our website: www.snapcircuits.net

BATTERIES:

- Use only 1.5V AA type, alkaline batteries (not included).
- Insert batteries with correct polarity.
- Non-rechargeable batteries should not be recharged. Rechargeable batteries should only be charged under adult supervision, and should not be recharged while in the product.
- Do not mix alkaline, standard (carbon-zinc), or rechargeable (nickel-cadmium) batteries.
- Do not mix old and new batteries.
- Remove batteries when they are used up.
- Do not short circuit the battery terminals.
- Never throw batteries in a fire or attempt to open its outer casing.
- Batteries are harmful if swallowed, so keep away from small children.