

Motion Detector

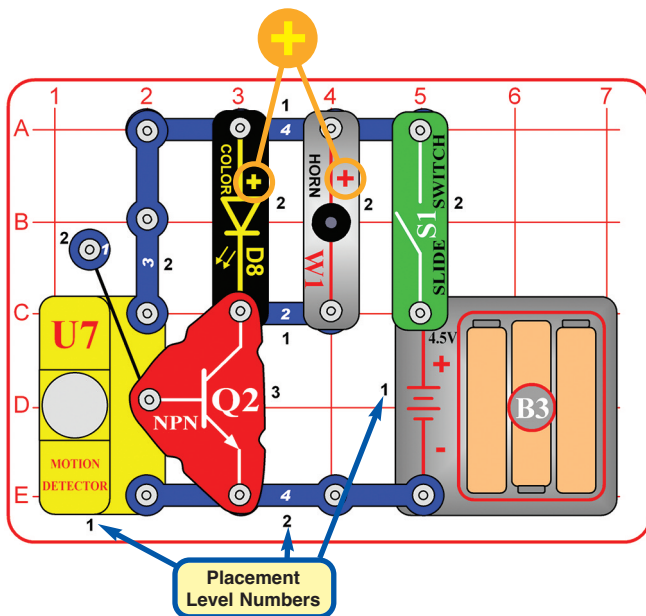
Model SCP-13

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.

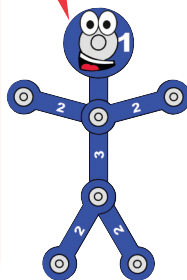


WARNING: SHOCK HAZARD - Never connect Snap Circuits® to the electrical outlets in your home in any way!

Project 1 Motion Detector



This circuit is pictured on the front of the box, use that picture to help in building it.



Project 2 Silent or Noisy Motion Detector

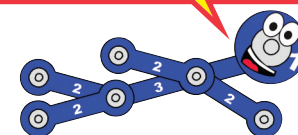
Use the circuit from project 1, but remove the horn (W1). The circuit works the same, except no longer makes any noise. If desired, try placing the egg on the color LED (D8), but it may not fit tightly enough to stay on when the circuit is placed in the blue stand.

Next, replace the color LED (D8) with the horn. Now the circuit makes noise but not light.

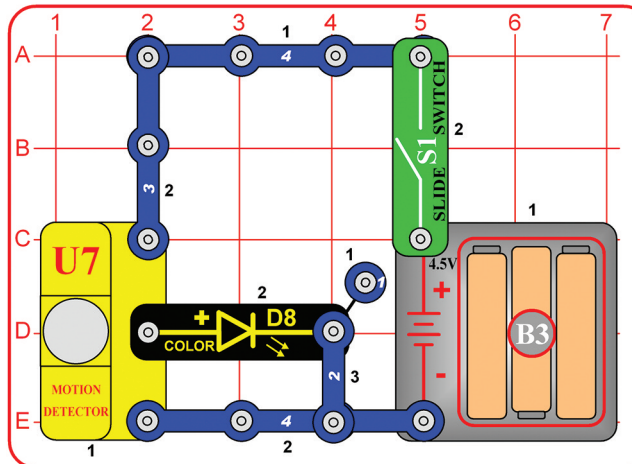


Objects that generate heat, including people and animals, also produce infrared radiation. Infrared radiation cannot be seen with our eyes, but can be detected.

The motion detector (U7) is designed to detect changes in infrared radiation, especially the type emitted by people. The NPN transistor (Q2) acts as an amplifier, helping the motion detector turn on the color LED and horn.



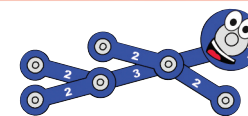
Project 3 Low Power Motion Detector



Place the base grid into the blue stand (with either the battery holder or the 2-snap wire closest to the stand) and carefully stand it up. Position it near the edge of a table, facing across a room.

Turn on the slide switch (S1). The color LED (D8) lights for a few seconds on start-up, and then whenever the circuit detects motion in the room.

The color LED will not be as bright as it was in projects 1 & 2, because this circuit does not have the NPN transistor (Q2) as an amplifier. This circuit uses less electricity than projects 1 & 2, so your batteries will last longer.



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. Then, assemble the part marked with a 3. Install three (3) "AA" batteries (not included) into the battery holder (B3). Place the base grid into the blue stand (with either the battery holder or the NPN transistor (Q2) closest to the stand) and carefully stand it up. Position it near the edge of a table, facing across a room.

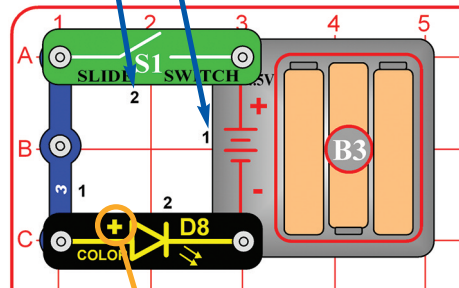
Turn on the slide switch (S1). The color LED (D8) lights and the horn (W1) sounds for a few seconds on start-up, and then whenever the circuit detects motion in the room.

This circuit will work in the dark, but be careful not to hurt yourself moving around a room in the dark.

If you have any problems, contact Elenco®

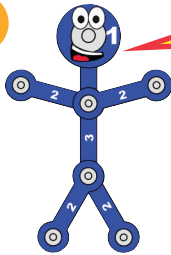
Project 4 Color Light

Placement Level Numbers



Build the circuit as shown, and turn on the slide switch (S1). The color LED (D8) is changing colors in a repeating pattern. If desired, place the egg on the color LED. For best effects, place the circuit in a dimly lit room.

Egg
(place on
color LED)



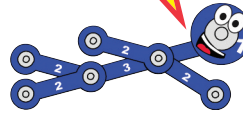
The color LED is a light emitting diode, which converts electrical energy into light; the color of the light emitted depends on the characteristics of the material used. The color LED actually contains separate red, green, and blue light emitting diodes, with a micro-circuit controlling them. LEDs are more energy efficient than normal light bulbs.

Project 5 Horn

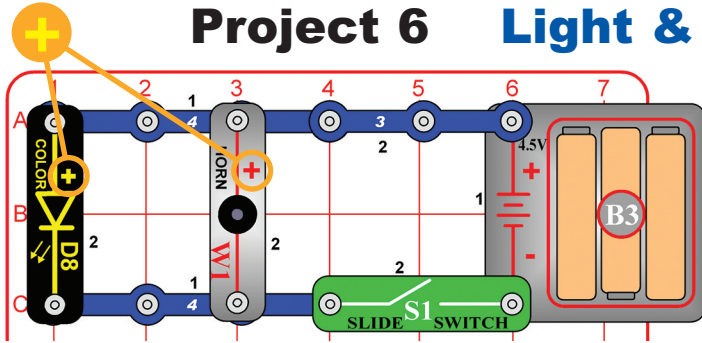
Use the circuit from project 4, but replace the color LED (D8) with the horn (W1, "+" on left). Turn on the switch (S1) to hear the horn.



The horn converts electricity into sound by making mechanical vibrations. These vibrations create variations in air pressure which travel across the room. You "hear" when your ears feel these air pressure variations.

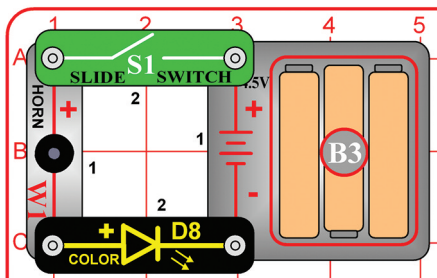


Project 6 Light & Sound



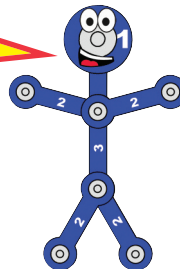
Turn on the switch (S1) to see light and hear sound. If desired, place the egg on the color LED (D8).

Project 7 Low Light & Sound

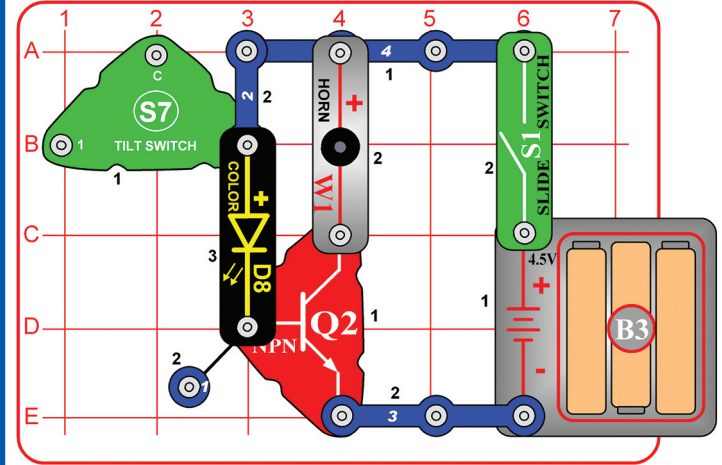


This circuit has the color LED and horn connected in a series (not in parallel, as in project 5). This arrangement makes the LED dimmer and the sound less loud, but makes the batteries last longer.

Turn on the switch (S1) to see light and hear a buzzing sound. The buzzing is synchronized with the changing light.



Project 8 Super Light & Sound

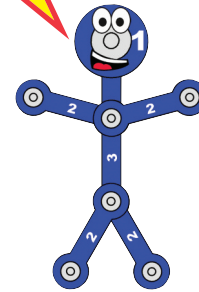


Turn on the switch (S1) to see light and hear the horn (W1). The horn is synchronized with the changing light from the color LED (D8). As a variant, try swapping the locations of the color LED & horn. The tilt switch (S7) is used as a spacer here, and is not electrically connected.

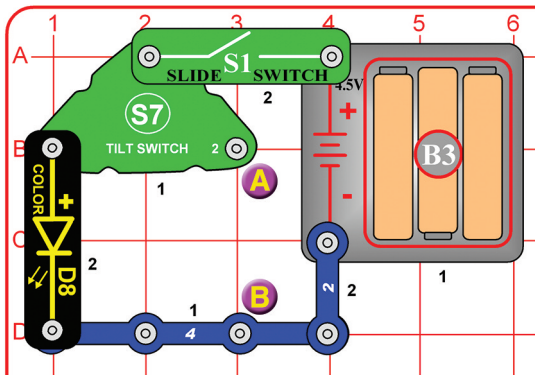
The NPN transistor (Q2) can be used as an electronic switch, allowing one circuit to control another.

When the color LED changes colors, the electric current through it also changes. The NPN transistor uses this changing current to control the electric current through the horn, which changes the sound it produces.

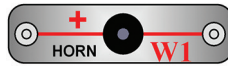
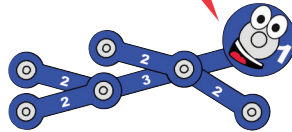
When you swap the locations of the color LED & horn, the electric current through the horn is now controlling the electric current through the color LED. The horn current is not changing like the LED current was, so now both the horn and color LED just operate normally.



Project 9 Motion & Tilt Sensor



The tilt switch (S7) has a rolling ball sensor mounted inside and can detect tilt, vibration, or acceleration.



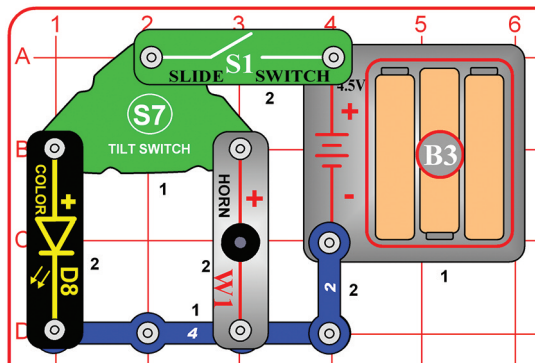
Turn on the slide switch (S1). There will be light if the circuit is moved or tilted in some directions. In some cases the circuit may detect tilt even if laying on a flat surface; tilt it slightly to make it turn off.

Next, remove the color LED and place it across the points marked A & B ("+" to point A). Now the color LED activates when the circuit is tilted in different directions.

Next, replace the color LED with the horn (W1). The circuit works the same, except makes sound instead of light.

Note that the actual tilt switch component may be mounted inside its case, and may not be visible from the outside.

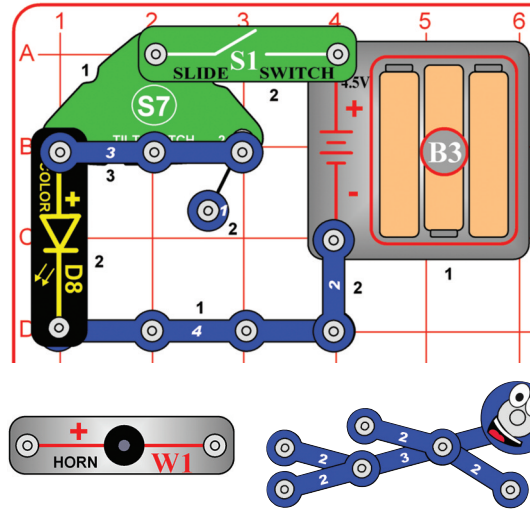
Project 10 Super Motion & Tilt Sensor



Place the circuit on a level surface and turn on the switch (S1). There will be light or sound if the circuit is tilted or moved. As a variant, try swapping the locations of the color LED (D8) and horn (W1).

If the circuit does not shut off when left alone, then tilt it slightly so it turns off.

Project 11 Motion & Tilt Light



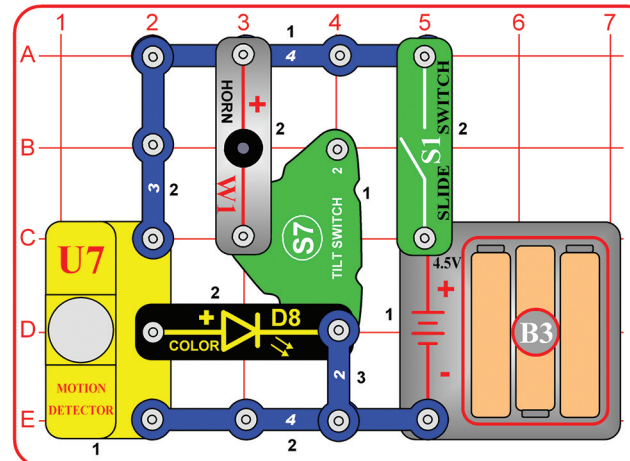
Place the circuit on a level surface and turn on the switch (S1). There will be light if the circuit is tilted or moved. As a variant, try replacing the color LED (D8) with the horn (W1); you hear buzzing when tilt is detected.

If the circuit does not shut off when left alone, then try tilting it slightly so it turns off.

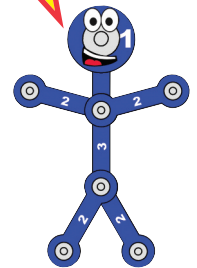
It is more difficult to get this circuit to turn off than it was for project 10, because in project 10 the color LED and horn indicate different directions of tilt.

Project 12

Motion Detector with Touch Alarm



This circuit could be used as a security system. It lights if it detects someone moving across the room, and sounds an alarm if someone tries to move the circuit out of their path.

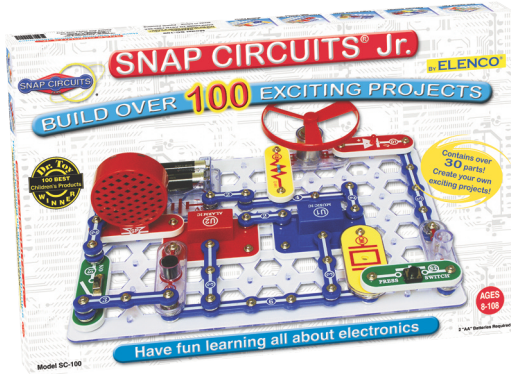


Turn on the slide switch (S1). Place the base grid into the blue stand, oriented so that there is no sound (usually this will be with the 2-snap wire or the battery holder closest to the stand). Position it near the edge of a table, facing across a room.

The color LED (D8) lights whenever the circuit detects motion in the room. The horn (W1) makes noise if the circuit is moved or tilted in some directions.

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.



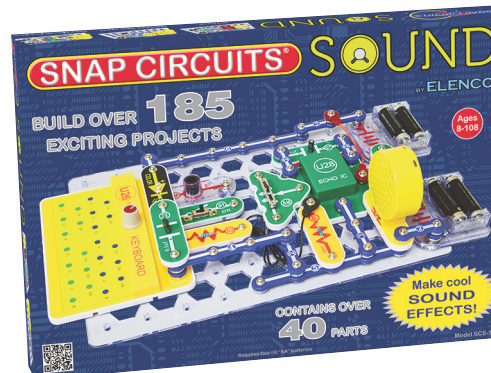
Snap Circuits® Light Model SCL-175

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.

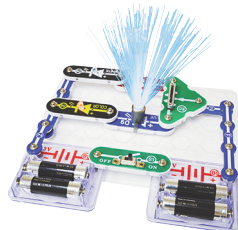


Flying Saucer Plus Basic Electricity

Model SCP-09

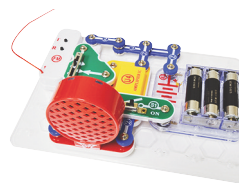


Model SCP-10



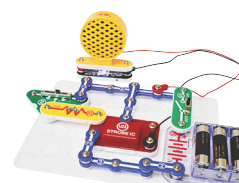
LED Fun

Model SCP-11



FM Radio

Model SCP-12



Strobe Light & Sound

Model SCP-14

PARTS LIST

Qty.	ID	Name	Part #
<input type="checkbox"/>	1	1-snap wire	6SC01
<input type="checkbox"/>	1	2-snap wire	6SC02
<input type="checkbox"/>	1	3-snap wire	6SC03
<input type="checkbox"/>	2	4-snap wire	6SC04
<input type="checkbox"/>	B3	Battery holder	6SCB3
<input type="checkbox"/>	1	Base grid	6SCBGM
<input type="checkbox"/>	D8	Color LED	6SCD8
<input type="checkbox"/>	1	Egg	6SCEGG
<input type="checkbox"/>	Q2	NPN transistor	6SCQ2
<input type="checkbox"/>	S1	Slide switch	6SCS1
<input type="checkbox"/>	S7	Tilt switch	6SCS7
<input type="checkbox"/>	U7	Motion detector	6SCU7
<input type="checkbox"/>	W1	Horn	6SCW1
<input type="checkbox"/>	1	Stand	626100

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.