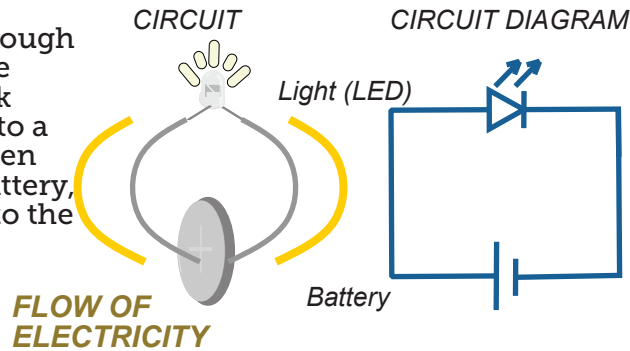




Project Design Ideas

Start by exploring: what is a circuit?

A circuit is a closed path through which electricity flows. The simplest circuit we can work with is a battery connected to a light. The light turns on when electricity flows from the battery, through the light and back to the battery.



In a circuit diagram, a battery is shown as two parallel lines and an LED as a triangle and line with arrows representing the light. NOTE: An LED has polarity, a negative and positive side. Always make sure the positive side of the battery is connected to the positive side of the LED. On Lectrify circuits red is positive and white is negative.

Once students have been introduced to a basic circuit, provide them components and craft materials to build their own. The scope and complexity of a student's project can be calibrated to fit ability and time. Below is a sample rubric with project examples.

Foundational

Proficient

Extending

Description

Students build a simple circuit to light an LED within their creation. Students explore conductivity and electricity.

Simple AND/OR logic is added to circuit to enable user to control outcome through simple actions.

Through the use of switches, students demonstrate conditional logic through circuit.

Components

Single LED
Battery

2 LEDs
2 or more switches
Battery

Multiple LEDs
Novel switches
Battery

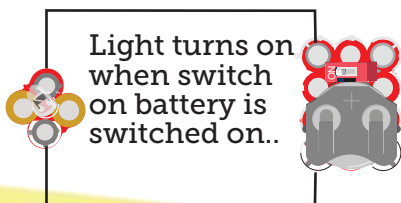
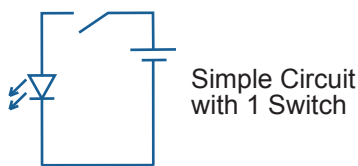
Craft Materials

Single material
(e.g. Paperclip,
pipe cleaner, etc.)

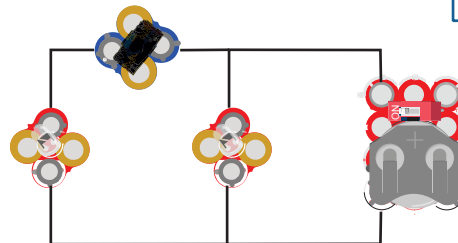
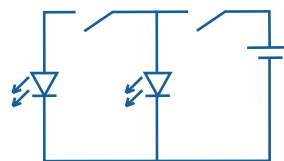
Multiple materials
(e.g. Paperclip,
pipe cleaner, etc.)

Novel materials
discovered by students.

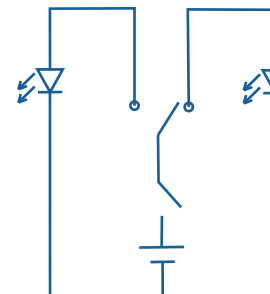
Example



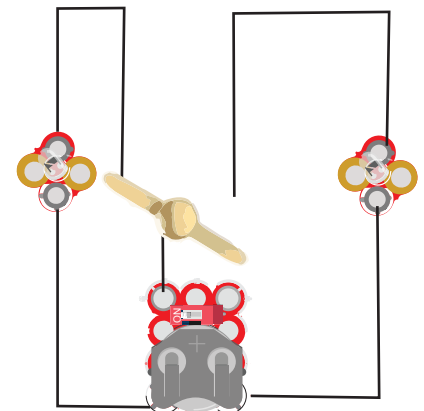
2 Switches in series
2 LEDs in parallel



First light turns on when switch on battery is switched on. Second light turns on when tilt switch is tilted AND the battery switch is on.



This circuit uses a Single Pole Double Throw switch where a single switch controls two lights.



Troubleshooting Tips:
Always make sure circuit is a closed path.
Check LED polarity (red to red, white to white)