



Clay Circuit

Can you illuminate an LED with clay? Sculpt a design to make an LED shine as you explore circuitry and electrical engineering.

TEKS:

SCI 4.8.B: The student is expected to identify conductors and insulators of thermal and electrical energy.

SCI 4.8.C: The student is expected to demonstrate and describe how electrical energy travels in a closed path that can produce light and thermal energy.

SCI 5.8.A: The student is expected to investigate and describe the transformation of energy in systems such as energy in a flashlight battery that changes from chemical energy to electrical energy to light energy.

SCI 5.8.B: The student is expected to demonstrate that electrical energy in complete circuits can be transformed into motion, light, sound, or thermal energy and identify the requirements for a functioning electrical circuit.

Materials:

- 9V battery
- 9V battery clip with wires (like [this](#))
- 5mm LED (like [this](#))
- Play-Doh®

How To:

1. Read through the STEM Explanation below to learn more about circuits!
2. Attach the 9V battery to the 9V battery clip. Notice which wire from the clip is positive and which wire is negative.
3. See if you can make the LED illuminate using Play-Doh®!
 - a. Safety note: Never directly connect the LED to the 9V battery or the wires.
4. Can you turn your clay circuit into a cute sculpture? What if you made the LED the nose of a reindeer? Or, can you add a second LED and create a frog with glowing eyes? The possibilities are endless!

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STEM Explanation:

A circuit is a path that conducts electricity. In a closed circuit, the power source—often a battery—provides electrical current to an object, like an LED. If these two objects were to come in direct contact with each other, the LED would light up automatically. Materials that allow electricity to flow through them are called conductors, and they keep electricity flowing through the circuit. Play-Doh® is a conductor! Electricity flows through the salt ions in Play-Doh®. As electricity left the battery, it traveled through the Play-Doh®, into the LED, and back to the battery, creating a closed circuit. This is what caused the LED to light up!

Career:

Electrical engineers work with electricity in many forms, from constructing small-scale circuits to building large electrical systems. They create wireless communication systems, develop the latest media displays like HDTV, design computer processors and other hardware, and work in robotics.

Resource:

https://www.sciencebuddies.org/science-fair-projects/project-ideas/Elec_p073/electricity-electronics/squishy-circuits-project-1

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