

CIRCUITRY MADNESS

MONKEY CITY
Creative Expression



THE ADVENTURE:

Electricity is all around us – powering everything from the lightbulb in your room to the fridge in your kitchen. Electricity flows through wires and different circuit elements to deliver power to different appliances.

Use playdough to explore how electricity travels through different circuit elements. Connect conducting and insulating doughs to a battery to create a working circuit of your own.

PLAN:

- Do you want to do this adventure indoors, outdoors or at camp?
- What do you know about electricity and circuits?
- What parts make up a circuit? Use a simple circuit to guide you.
- What does a conductor do? What types of materials do you think conduct electricity?
- What does an insulator do? What types of materials insulate?
- How will you make your groups of two or three?

DO:

Activity #1: Test the dough

- Look at your two balls of playdough. One is a conductor and the other is an insulator. How can you test them to find out which is which? How can you tell them apart?
- Use wires, a battery and an LED light to figure out which playdough is the conductor and which one is the insulator.
- How will the conductor effect your circuit? The insulator?

Activity #2: Circuit Investigations

- What happens when you connect the LED and battery to two pieces of conducting playdough that are touching? What about two pieces of insulating playdough?
- What happens when you change the shape of the playdough to make it thinner or thicker?

Activity #3: Circuit Creatures

- Use your conducting and insulating playdough to design a creature that lights up! How many lights do you want to use? What other electrical components could you use?

REVIEW:

- What do you know now that you did not know before?
- What did you learn about electricity?
- How did you figure out which playdough was the conductor? The insulator?
- How can you use this technique in camp?
- What do you want to know more about?
- What elements of STEM were in this adventure? Science? Technology? Engineering? Mathematics?
- What did you like about this adventure? What did you not like about the adventure? How would you do this adventure differently?

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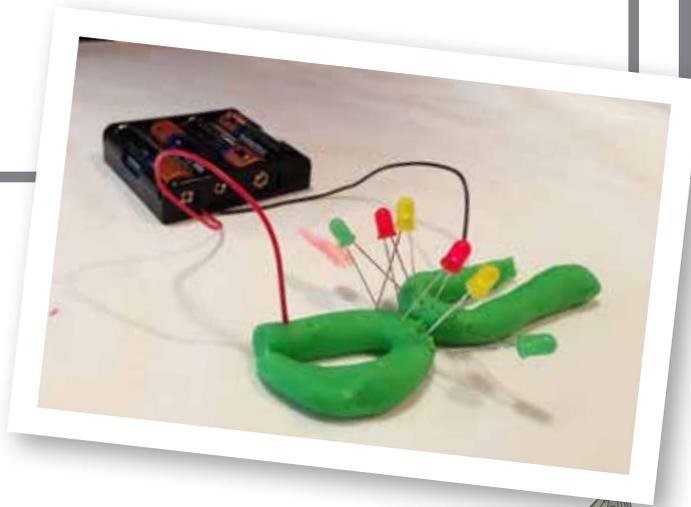


It starts with Scouts

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MATERIALS:

- 9V batteries and holders with wire leads (one per Cub)
- LED bulbs (2-3 per Cub)
- Conducting playdough (makes enough for two or three Cubs)
 - 250 mL flour
 - 60 mL salt
 - 5 mL vegetable oil
 - 250 mL water
 - Food colouring
- Insulating playdough (makes enough for two or three Cubs)
 - 250 mL flour
 - 125 mL sugar
 - 15 mL vegetable oil
 - 125 mL water
 - Food colouring



SAFETY TIP:

- Connecting electrical components, such as the LED lights, directly to the battery pack can damage them, as too much electricity will flow through the components. Elements with too much current will also become very hot.

ONLINE RESOURCES:

- [Squishy Circuits Project Page](#)
- [Electric Play Dough](#)
- [Electricity](#)
- [Conductors and Insulators](#)