Name: _____ Hour: _____ Date: _____

Building Circuits Squishy Circuits Exploration

In this activity, you will explore and play with an unconventional conductive material and non-conductive material to make circuits.

Objectives

- Create simple circuits using conductive and insulating dough material.
- Compare and contrast both qualitatively and quantitatively the conductive material using the open-ended question:
  How does diameter or length affect conductivity?

Materials (one set per team of 4 students)

- Conductive dough and insulating dough
- LEDs
- Double (AA) battery pack with wire leads
- 2 AA batteries
- Paper towels or plastic placemats

Procedure/Discussion:

1. Explore the materials and try different ways of lighting the LED(s).
2. What arrangements worked and which didn't. Why did some arrangements work and some did not?
3. What type of material must each dough be (conductor or insulator)?

Apply:

1. <u>Data collection for diameter:</u>
    a. Roll the conductive playdough into different diameter snake-sized pieces making sure the length of each remains the same and only the diameter is different.
    b. Measure and record the diameter of each in the data table below.
    c. Attach the LED lights to the different diameter pieces of conductive dough and record what you observe.
    d. Measure the voltage across each side of the circuit and record your amount of voltage.
2. <u>Data collection for length:</u>
    a. Roll the conductive playdough into snake-sized pieces making sure the diameter of each remains the same and only the lengths are different.
    b. Measure and record the length of each in the data table below.
    c. Attach the LED lights to the different diameter pieces of conductive dough and record what you observe.
    d. Measure the voltage across each side of the circuit and record your amount of voltage.

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Diameter Data Table:

Diameter	Observations	Voltage

Length Data Table:

Length	Observations	Voltage

Results and Questions:

Did changing the diameter make a difference in the voltage across the LED light? What pattern or trend did you notice?

_____

_____

_____

_____

Did changing the length of the dough affect the voltage across the LED light? How?

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