



Electricity and Circuits

Activity 1: Insulators and Conductors

NGSS Alignment

CORE IDEAS

Core Idea PS1: Matter and Its Interactions

PS1.A: Structure and Properties of Matter

Core Idea PS3: Energy

PS3.A: Definitions of Energy

CROSS CUTTING CONCEPTS

- Patterns
- Cause and effect: Mechanism and explanation
- Scale, proportion, and quantity
- Systems and system models
- Energy and matter: Flows, cycles, and conservation**
- Structure and function
- Stability and change

PRACTICES

- Asking questions (for science) and defining problems (for engineering)**
- Developing and using models
- Planning and carrying out investigations**
- Analyzing and interpreting data**
- Using mathematics, information and computer technology, and computational thinking**
- Constructing explanations (for science) and designing solutions (for engineering)**
- Engaging in argument from evidence**
- Obtaining, evaluating, and communicating information**

Activity 1: Insulators and Conductors

Objective: In this activity students will test different object to see which ones are effective conductors of electricity and which ones are insulators.

Time

15 minutes

Materials

- 3-alligator clips and circuit wire
- 2.5 volt bulb and socket
- 1 "D" cell battery

Procedure

1. Connect the wires, light bulb and battery to complete a circuit. The light bulb should illuminate.
2. Disconnect two wires and connect them to various object to determine whether electricity flows through them (conductor) or not (insulator).
3. Make a data table in your science notebook to record which objects are conductors and which ones are insulators like the one shown below.

Conductors	Insulators

Questions:

1. What do the objects that conducted electricity have in common?
2. What do the object that were insulators have in common?
3. Why do electrical wires have a coating of plastic on them?