UNIT: Electrical Circuits

Jungle Sound Beacon

Objective:

Create a hidden sound beacon that activates when someone steps on a pressure plate.

Materials:

* 2 foil squares
* 1 small sponge or thin soft cardboard
* 1 buzzer
* Battery + holder
* Alligator clip wires (or foil strips)
* Tape
* Paper labeled “LEAVES” to hide the trap

STUDENT DIRECTIONS:

**Step 1: Build the Pressure Plate**

* Tape one foil square to the top of the sponge.
* Tape the second foil square to the bottom of the sponge (or soft surface).
* The goal: when someone steps on it, the sponge compresses and the foil squares touch!

**Step 2: Make the Circuit**

* Connect one foil square to one side of your buzzer using a wire.
* Connect the other foil square to the other side of the buzzer.
* Complete the circuit by attaching the buzzer to the battery holder with wires.
* Test it! The buzzer should only sound when the foil pieces press together.

**Step 3: Disguise Your Beacon**

* Place the sponge + foil sandwich under a piece of paper labeled “LEAVES”.
* Try stepping on it gently—can you hear the alarm?

**Record & Reflect:**

* What causes the buzzer to sound?

*(Hint: Think about what closes the circuit.)*

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* Why would this be helpful in an emergency or jungle rescue?

*(Hint: Could rescuers find someone who stepped on it?)*  
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**Optional Challenge:**

* Can you design your beacon to only work at night or when the person is really heavy? Brainstorm an upgrade!  
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Standards Alignment

NGSS: 4-PS3-2 STEL: STEL 1A, STEL 2A, STEL 4A, STEL 5A, STEL 6A, STEL 7A, STEL 8A CCSS: CCSS.MATH.CONTENT.3.MD.B.3, CCSS.MATH.CONTENT.4.MD.A.1, CCSS.MATH.PRACTICE.MP1, CCSS.MATH.PRACTICE.MP5, CCSS.MATH.PRACTICE.MP7