STEM 101
Powered by THE STEM ACADEMY

Name: _____
Period: _____

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?

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Record & Reflect:

- What causes the buzzer to sound?
  (Hint: Think about what closes the circuit.)

  _____

  _____

- 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