STEM 101
Powered by THE STEM ACADEMY

Name: _____
Period: _____

UNIT: ELECTRICAL CIRCUITS

TIGER-REPELLING MOTOR TRAP

OBJECTIVE:

Build a working motor-powered scare trap to protect your jungle base from sneaky monkeys using a spinning fan!

MATERIALS:

- ✓ 1 small motor
- ✓ 1 battery + battery holder
- ✓ Wire leads (or foil strips)
- ✓ Paper fan or pinwheel
- ✓ Straw (for fan support or motor mount)
- ✓ Tape
- ✓ Paper cup or cardboard base

STUDENT DIRECTIONS:

Step 1: Test Your Motor

- Connect one wire from the positive battery terminal to one motor terminal.
- Connect another wire from the negative terminal to the other side of the motor.
- Does the motor spin? If not, double-check your connections or try switching wires.

Step 2: Build the Spinner

- Tape a paper pinwheel or cut paper blades to the motor shaft (the part that spins).
- Make sure the fan is balanced and can spin freely. You may need to adjust where you place it.

Step 3: Create Your Trap Setup

- Tape the motor securely to your cardboard base or inside a paper cup.
- Angle it so the fan is visible and facing outward like a real scare device.
- Test it again by connecting the circuit — does the fan spin rapidly?

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Observe & Record:

- What kind of energy is being created (from → to)?
  (Hint: Is it going from battery power to motion?)

  _____

  _____

- What happens when the wires are connected and disconnected?

  _____

  _____

Jungle Survival Connection:

- How could this "spinning scare trap" help the rescue mission?
  (Hint: Think about motion, noise, or flashing movement.)

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- How could you improve your monkey-repelling fan trap?

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  _____

STANDARDS ALIGNMENT

NGSS: 4-PS3-4 **STEL:** STEL 1A, STEL 2A, STEL 4A, STEL 5A, STEL 6A, STEL 7A, STEL 8A **CCSS:** CCSS.MATH.CONTENT.3.MD.A.2, CCSS.MATH.CONTENT.4.MD.A.1, CCSS.MATH.CONTENT.4.MD.B.4, CCSS.MATH.PRACTICE.MP2, CCSS.MATH.PRACTICE.MP4, CCSS.MATH.PRACTICE.MP5