Name: _____

Period: _____

## UNIT: ELECTRICAL CIRCUITS

# FINAL CHALLENGE: BUILD YOUR RESCUE BASE SYSTEM!

**OBJECTIVE:**

Design and build a rescue system that uses at least two types of energy (light, sound, or motion) to keep people or animals safe in the jungle!

**MATERIALS:**

- ✓ LED lights
- ✓ Buzzers or motors
- ✓ Battery packs
- ✓ Alligator clips, wire, foil strips
- ✓ Switches, mirrors, pressure plates, fans, or paper sensors
- ✓ Green paper, cardboard, foam, tape

**STUDENT DIRECTIONS:**

**Step 1: Plan It Out**
- Think about what you learned from the other activities:
  - o Lights can signal or light a path.
  - o Buzzers can alert or warn others.
  - o Motors or fans can cause motion to scare or signal.
- Decide what your rescue base will do:
  - o Help people find their way?
  - o Warn animals to stay away?
  - o Send a sound or light signal when someone arrives?

**Step 2: Choose Your Energy Types**

Pick at least TWO types of energy for your system:
- Light (LEDs or reflected mirrors)
- Sound (buzzers or alarms)
- Motion (motors, fans, moving parts)

**Step 3: Build It**

- Sketch your system first on the template below. Label each part.
- Then, using your materials, connect your components with batteries and switches.
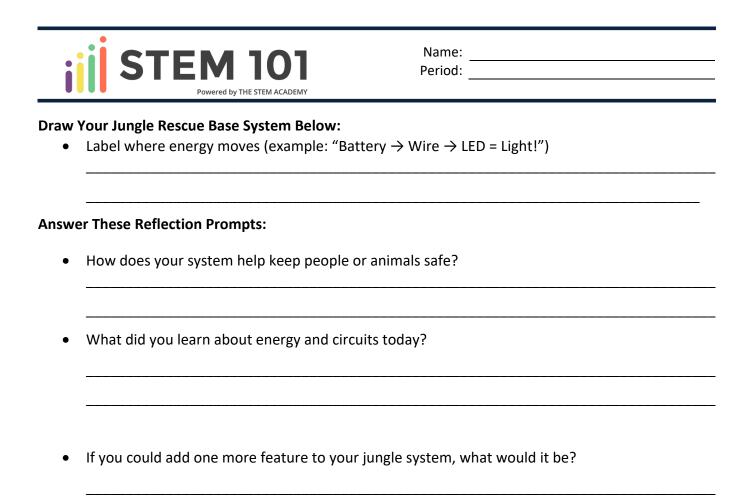- Test each part. Does it light up, buzz, or move when activated?

*(Drawing area below: system layout with labeled parts)*
*Example labels: LED, motor, buzzer, switch, battery*

- *Use arrows like: Battery → Wire → Buzzer = Sound!*

**Step 4: Test & Improve**

- Does everything turn on at the right time?
- Can you combine switches (like a pressure plate + button)?
- Is the system clear and safe?

**Draw Your Jungle Rescue Base System Below:**

- Label where energy moves (example: "Battery → Wire → LED = Light!")

_____

_____

**Answer These Reflection Prompts:**

- How does your system help keep people or animals safe?

_____

_____

- What did you learn about energy and circuits today?

_____

_____

- If you could add one more feature to your jungle system, what would it be?

_____

_____

**STANDARDS ALIGNMENT**

**NGSS:** 4-PS3-2, 4-PS3-4 **STEL:** STEL 1A, STEL 2A, STEL 3A, STEL 4A, STEL 5A, STEL 6A, STEL 7A, STEL 8A **CCSS:** CCSS.MATH.CONTENT.3.MD.D.8, CCSS.MATH.CONTENT.4.G.A.1, CCSS.MATH.CONTENT.4.MD.A.3, CCSS.MATH.PRACTICE.MP1, CCSS.MATH.PRACTICE.MP4, CCSS.MATH.PRACTICE.MP5, CCSS.MATH.PRACTICE.MP7