**🛠️ Station 1: Make It Shine!**

**NGSS Standard: 4-PS3-2**
**Focus:** Energy transfer using electric circuits.

**Materials:**

* 2 AA batteries + holder
* Alligator clip wires
* LED light
* Paper and tape
* Battery switch (optional)

**Student Directions:**

**STEP 1: Build Your Circuit:**

* Attach the **battery holder wires** to your **alligator clips**.
* Clip one wire from the **positive (+) end** of the battery holder to one leg of the **LED**.
* Clip another wire from the **negative (–) end** of the battery holder to the other leg of the LED.

**STEP 2: Test It Out!**

* **Does your LED light up?**
	+ Yes: Great job!
	+ No: Flip the LED around — it only works in **one direction!**

**STEP 3: Tape It Down:**

* Once it lights up, **tape the LED** to a **sheet of paper** to start your **game board** design.

**STEP 4: Decorate the Flow:**

* Use arrows to **show the path of the electricity**:
**Battery ➝ Wire ➝ LED ➝ Wire ➝ Back to Battery**

**STEP 5: Design Your Game:**

* Add fun decorations!
Example: "Touch the button to light the treasure!" or “Complete the circuit to unlock the safe!”

**🖊️ Draw & Label Your Circuit Below:**

* Include: battery, wires, LED, and direction of current (arrows!)

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**NGSS Standard:** 4-PS3-2 – *Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.*

**✅ ITEEA STEL Standards – Elementary Level**

**STEL 1A** – *The study of technology uses knowledge and skills from other subject areas.*
→ Students apply concepts from science and art (e.g., energy, creativity) to create working circuits.

**STEL 2A** – *Technological systems are designed to meet needs and wants.*
→ The circuit is a functional system designed to produce light, simulating a need (e.g., for a game or tool).

**STEL 7A** – *Energy is the capacity to do work.*
→ Students directly observe energy transfer (from battery to LED as light).

**STEL 8A** – *Design is a creative process for meeting human needs and wants.*
→ Students design and decorate their own working light circuits for a themed game.

**STEL 9A** – *Modeling helps convey ideas and communicate solutions.*
→ Drawing the circuit with labels and arrows models how energy flows through the system.

**✅ Common Core Math Standards – Elementary Level**

**CCSS.MATH.CONTENT.3.MD.B.4** – *Generate measurement data by measuring lengths using rulers and show the data by making a line plot.*
→ Students may measure wire lengths or distances between components for accuracy.

**CCSS.MATH.CONTENT.4.MD.A.1** – *Know relative sizes of measurement units and express measurements in a larger unit in terms of a smaller unit.*
→ Students might compare battery voltages or understand basic circuit measurements in volts and millimeters.

**CCSS.MATH.CONTENT.4.G.A.1** – *Draw and identify lines and angles, and classify shapes by properties.*
→ Drawing circuit diagrams with clear lines, direction arrows, and labeling supports spatial reasoning.

**CCSS.MATH.PRACTICE.MP5** – *Use appropriate tools strategically.*
→ Students use tools like wires, batteries, and LEDs intentionally to build a functioning circuit.

**✅ Summary:**

This elementary circuit activity blends creative design with science and early systems thinking. It aligns with **ITEEA STEL standards** for understanding systems, energy, and design, while also reinforcing **Common Core Math** skills through spatial reasoning, measurement, and modeling.