UNIT: CIRCUITRY GAME

BUILD YOUR OWN MINI GAME CIRCUIT!

Your Mission:

Use what you’ve learned from all the stations to **design and build your own interactive game** that uses a working circuit! Your game should involve **energy transfer** (like from electrical to light, sound, or motion).

Focus: Energy Transfer & Engineering Design

Materials:

* Battery (9V or AA with holder)
* LEDs, buzzer
* Wire or copper tape
* Aluminum foil, foam board, cardboard
* Tape, glue, resistors, switches
* Scissors or paper clips

STUDENT DIRECTIONS:

**Choose a Game Type:**

Pick ONE of the following mini game designs (or invent your own):

* **Buzz Wire Game**

Guide a metal loop along a bent wire without touching it. If the loop touches, a buzzer goes off!

* **LED Maze**

Create a puzzle path. When the player completes the correct route, it closes the circuit and lights up the LEDs.

* **Pressure Pad Puzzle**

Use foil and foam to make a pad that only completes the circuit when weight is applied—triggering a light or buzzer.

**STEP 1: Plan Your Game**

* Decide which game you want to build.
* Think about how a player will interact with it.
* Sketch your circuit and layout on the template below or on a blank page.]

**STEP 2: Build the Circuit**

* Use wire, foil, or copper tape to create paths.
* Connect your components (LEDs, buzzers, switches) using a breadboard or alligator clips.
* Make sure your circuit completes only when a player makes the correct move.

**STEP 3: Test & Tweak**

* Try playing your game!
* Fix any parts that don’t work by checking your connections, battery, and component placement.
* Ask another group to test your game and give feedback.

**Sketch Your Game Circuit & Layout:**

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**Which Energy Transfers Happen in Your Game?**

(E.g., Electrical → Light, or Electrical → Sound)

**Wrap-Up Reflection:**

What surprised you most about how circuits work?
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If you had more time, what feature would you add to your game?
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Which part of the challenge helped you learn the most?
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Standards Alignment

NGSS:HS-PS3-3, HS-ETS1 STEL:STEL 1E, STEL 2E, STEL 7F, STEL 8F, STEL 11FCCSS: CCSS.MATH.CONTENT.6.SP.B.4, CCSS.MATH.CONTENT.7.EE.B.3, CCSS.MATH.CONTENT.7.RP.A.2