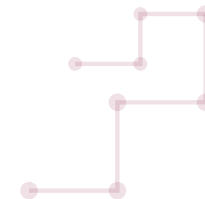


STATION 1

CLICK

How does electricity make something happen?

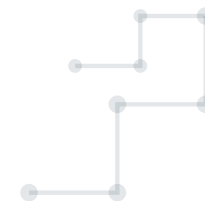
Core idea: A complete path makes something happen: input → path → output.



STATION 2

CODE

What changes when I can program the response?



Core idea: Code gives you control over how a device responds.

K-5 Human Robot Grid (unplugged)

1. Put a LEGO brick on one corner of the 6×6 plate. Put a target marker on another square.
2. Lay out arrow cards in a row: ↑ ↓ ← →. That row is your program.
3. A partner is the robot. They follow your arrows **exactly**, one square per card. No guessing.
4. If the brick lands somewhere wrong, do not start over — find the one card that sent it there.
5. Change that card. Run the program again.

Claim: My code worked after I changed ____.

Then ask: Where was your bug? How did you find it?

The "robot follows exactly" rule is the whole lesson. Resist fixing their program for them.

6-8 micro:bit blocks (MakeCode)

1. Open makecode.microbit.org and start a new project.
2. From **Input**, drag out **on button A pressed**.
3. From **Basic**, drop **show icon** inside it. Pick any icon.
4. Add **on button B pressed with play tone** (Music) inside it.
5. Plug in the micro:bit, click **Download**, and drag the file onto the MICROBIT drive.
6. Press A. Press B. Then change one thing and download again.

Claim: When ____ happens, my program ____.

Then ask: What input did you choose, and why that one?

micro:bit V2 has a built-in speaker. On V1, clip headphones to pin 0 and GND.

9-12 micro:bit guitar (touch tunes)

1. Cut a guitar body from cardboard. Glue three foil strips across it, not touching.
2. Clip crocodile leads from **pin 1**, **pin 2** and **GND** to the three foil strips.
3. In MakeCode, use **on pin P1 pressed → start melody**, and **on pin P2 pressed → a different melody**.
4. Download to the micro:bit.
5. Hold the GND foil with one finger. Touch the pin 1 foil with another — you complete the circuit through your own body.
6. Swap the melodies. Add an icon so the screen shows which tune is playing.

Claim: My device responds to ____ by ____.

Then ask: What else could this program control?

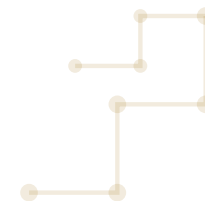
Full project + starter code: microbit.org → Make it: code it → Guitar 1, touch tunes.

Facilitator: HARD STOP at minute 25, even mid-debug. Unfinished code is fine — the bigger question is the point of the hour. Say so out loud before you start.

STATION 3

CHANGE

What responsible future is possible?



Core idea: Understanding a device comes with deciding how it should be made and used.

K-5 Brick Circuits (lithography stamp)

1. On the 6×6 plate, place smooth tiles to make a pattern. Tiles are the raised parts; bare plate is the gaps.
2. Press the whole plate firmly into the ink pad.
3. Stamp it onto the Wafer Worksheet. Lift straight up.
4. Wipe the tiles. Rearrange them into a **second** pattern.
5. Stamp again on top of the first print. Chips are built in layers, exactly like this.

Claim: Chips are made by ____, step by step.

Then ask: What is one way to make a better device?

Accuracy: the stamp stands in for the mask. Real chips are patterned with LIGHT through a mask onto a light-sensitive coating (photoresist) — not by stamping.

6-8 Supply chain trace

1. Put the chip from the CLICK station in the middle of the table.
2. On sticky notes, answer in this order: **What is it made of?**
3. **Where** did those materials come from? Name places on a map.
4. **Who** did each step — mining, refining, fabricating, assembling, shipping, selling?
5. **Where does it go** when the device breaks?
6. Lay the notes in a line. That line is the supply chain.

Claim: This device depends on ____ in ____.

Then ask: Who does each step, and what is that work like?

Arizona is a live example: fabs here, materials from elsewhere. Local relevance is the hook.

9-12 Principled Innovation

1. Pick one real decision a chip company faces (water use, siting a fab, who gets trained, what gets built).
2. Ask in order — **Can we?** What is technically possible?
3. **Should we?** What values are at stake?
4. **Who benefits?** Name specific people, not "society."
5. **What future?** Describe the outcome you would want in one sentence.
6. Name one informed action a student could actually take this year.

Claim: The fairest choice is ____ because ____.

Then ask: Who bears the cost, and what should change?

Entry points to name: Semiconductor Technician Quick Start (Maricopa CCs, 10 days, free to AZ residents), AZ CTE semiconductor programs, engineering pathways.

Facilitator sequence: Question (the pivot) → Trace → Imagine → Act. Bring back the chip from CLICK here — the object that opened the hour closes it.