

From Click to Code to Change

Educate to Innovate · 60 minutes · Grades 7–11 teachers

Presenters: Jasmine Coleman (STEM Transformational Teacher Lead) and Danielle Serna (Humanities Transformational Teacher Lead), ASU Preparatory Academy – Casa Grande.

Run of show

0–4 min	Mystery artifact	Hold up the music IC. Do not explain it. "What is this? What is inside it?" Take guesses, write none of them down, move on.
4–10 min	CLICK	Tables complete the circuit that is missing one wire. Name input → path → output out loud.
10–25 min	CODE	micro:bit guitar build. Circulate; do not rescue. Announce the hard stop at minute 20 and again at 24.
25–30 min	THE PIVOT	"How many devices like this are already on you right now?" Count out loud. Shift from the device in hand to the systems around it.
30–38 min	TRACE	Supply chain on sticky notes: materials → places → people → disposal. Danielle leads the historical and human thread.
38–46 min	IMAGINE	Circular economy loop. What would a responsible version of this device look like?
46–53 min	NAME IT	Reveal Action-Oriented Pedagogy and Principled Innovation, then name Arizona semiconductor entry points.
53–58 min	TRANSFER	Teachers pick a grade band and write one CLICK, one CODE and one CHANGE move on the planning card.
58–60 min	CLOSE	"You just lived the arc. Your students can too." Point to the QR code and end on time.

Protect the pivot. Every minute CODE runs long is taken from CHANGE, which is the part teachers cannot get from any other session on the program.

Say it out loud

Into CLICK. "Nobody explain anything yet. Just make it work, then tell me what path the electricity took."

CLICK → CODE. "This chip plays what its designer decided. The next one plays what you decide."

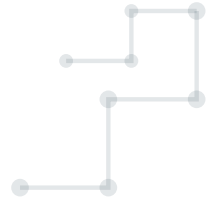
The hard stop. "Stop where you are, even mid-debug. What you did not finish is not the point of this hour."

THE PIVOT. "Count the devices on your body right now. Every one of them holds a chip like the one you just held."

Into TRACE. "So where did it come from? And when it breaks, where does it go?"

Into CHANGE. "Career-connected learning is not preparing students to enter an industry. It is preparing them to shape it."

Close. "You did not just watch a lesson. You lived the arc. That arc is Action-Oriented Pedagogy."



Setup, safety and packing

Do the pre-build the night before, not in the room

Setup

- Print station cards in color; one per table group. Print planning cards, one per teacher.
- Pre-build 2–3 Snap Circuits stations, each with ONE snap wire pulled out and set beside it.
- Pre-tape 30 paper circuit cards so teachers only add the battery and clip (saves 6 minutes).
- Pre-build the Brick Circuits plates with a starting tile pattern; leave the ink pads closed until minute 30.
- Flash the guitar starter program onto every micro:bit before the session. Do not flash live.
- Bring one bright incandescent or halogen lamp for the solar cell — conference lighting is too dim.
- Put fresh AA batteries in the Snap Circuits holders. Test every station the night before.
- Tape the QR code to each table so nobody has to ask for the link.

Safety

- **Coin cells.** Button batteries cause serious internal injury if swallowed. An adult hands them out and collects them. Never leave loose cells on a K–5 table. Keep them bagged until the moment of use.
- **Fan blade.** Leave the fan blade off the Snap Circuits motor, or point it away from faces. The flying-fan builds launch it.
- **Ink.** Use washable ink pads. Wipe plates before tiles dry together.
- **Volume.** The micro:bit speaker and Snap Circuits alarm IC are loud. Warn the room before the first tone.

Pack list

- ☐ Station cards (3, color) + planning cards (30)
- ☐ Snap Circuits kit + loose snap wires
- ☐ Fresh AA batteries (8+)
- ☐ Paper circuit cards (35), LED stickers (40)
- ☐ Copper tape roll, binder clips (40)
- ☐ CR2032 coin cells (35) in a labeled bag
- ☐ micro:bits (8–10) + USB cables + battery packs
- ☐ Crocodile clip leads (30), foil, cardboard, glue sticks, scissors
- ☐ Brick Circuits boxes (8), ink pads, wipes, wafer worksheets (35)
- ☐ Bright lamp + extension cord
- ☐ Sticky notes (2 pads), markers (10)
- ☐ Printed QR codes for tables (8)
- ☐ Backup: laptop with MakeCode open offline

If you fall behind

- **Running long in CODE?** Demo the guitar at the front and have tables watch. Keep the pivot on time.
- **Not enough Snap Circuits stations?** Run paper circuits as the whole-room CLICK and keep one Snap Circuits sound build up front for the chip bridge.
- **No time to stamp in TRACE?** Stamp one plate at the front and pass the wafer sheet around.
- **Room has no outlets near tables?** Skip the solar cell station; use the lamp demo only.
- **Under 20 participants?** Merge to two tables per station and add 2 minutes to TRANSFER.