

Little Dancers: Building a Mini Dance Mat with Makey Makey

1. Teaching Materials Checklist

- **Core Electronics:**
 - ☐ Makey Makey Classic kit and alligator clip wires.
 - ☐ USB Cable (to connect the Makey Makey to a computer).
- **Crafting & Conductive Materials:**
 - ☐ Aluminum foil (for conductive foot pads and ankle sensors).
 - ☐ Cardboard or cardstock (for the dance mat base).
 - ☐ Conductive tape or transparent tape.
- **Software Platform:**
 - ☐ [Scratch](#) (to run or "remix" the dance game program).
- **Artistic Decorations:**
 - ☐ Colored markers, scissors, and stickers (for personalizing characters and interface design).

2. Preparation Guide

- **Conductivity Testing:** Before starting, guide students to test the conductivity of various materials (e.g., foil vs. skin). Help them understand how the human body acts as part of the circuit to complete the loop.
- **Scratch Project Selection:** Teachers should pre-select a basic dance game template from the Scratch community (containing logic for the four arrow keys). This allows students to focus on "Remixing" rather than coding from scratch.
- **Environmental Safety:** Ensure the "dance floor" area is flat and non-slip to prevent students from sliding when stepping on the foil pads.
- **Connection Stability:** Remind students to ensure alligator clips are firmly attached to the aluminum foil to avoid circuit breaks during vigorous movement.

3. Teaching Plan

Phase	Activity	Learning Objective
Phase 1: Perception & Experience	Experience classic "Dance Dance Revolution (DDR)" logic; discuss how	Develop a basic understanding of "Input/Output" and "Embodied Interaction."

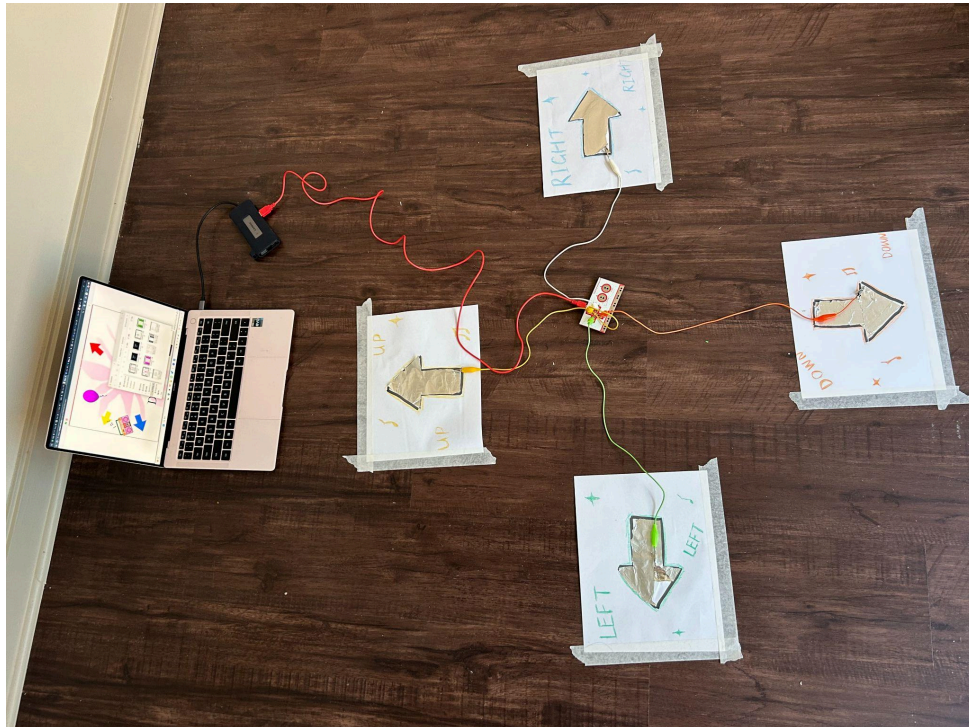
	to translate computer keys into physical leg movements.	
Phase 2: Scratch Remixing	Students find templates in the Scratch community to modify the character's visual identity, music, and overall aesthetic.	Practice computational thinking; understand code reuse and personalized expression.
Phase 3: Hardware Construction	Build four-way foot pads using foil/cardboard and create conductive ankle rings to serve as the "Earth" (ground) wire.	Master basic circuit connections; map virtual commands to physical space.
Phase 4: Performance & Sharing	Students perform on their handmade mats; observe how different materials and movements affect game feedback.	Reflect on how technology can transform the use of everyday objects (like kitchen foil).

4. [Teaching Case Study](#)

Project Name: From "Rock Boy" to "Graceful Dancer"

Case Record:

1. **Aesthetic Transformation:** A student found an existing dance game on Scratch, but the "Rock-style" aesthetic didn't match her vision of a "graceful dancer."
2. **Understanding & Remixing:** By studying the underlying code, she kept the original arrow-key logic but redrew all the character skins and backgrounds, replacing the music with a theme that matched her new concept.
3. **Embodied Challenge:** During the hardware build, she found that simply stepping on the pads was sometimes unresponsive. After debugging, she discovered that wrapping aluminum foil around her ankle and connecting it to the "Earth" wire created a much more stable closed-loop circuit using her body.
4. **Reflection:** The student realized that understanding code logic is a prerequisite for aesthetic modification. Furthermore, by turning common kitchen foil into a "game controller," she began to view the technological potential of everyday items from a new perspective.



Core Educational Philosophy:

This plan embodies "**Constructionism**" and "**Embodied Cognition.**" Through Scratch remixing, students transition from being "consumers" of code to "creators." With Makey Makey, learning is no longer an abstract set of instructions but real-time feedback generated through physical movement. This follows the principles of "Low Floor" and "Wide Walls," allowing every student to design a unique dancing system.