

## CAUSE & EFFECT: WHAT HAPPENS IF?

*Explore if/then conditional statements of coding by creating and following patterns through cause and effect games.*

### Big Idea

Exploring and experiencing the If/Then conditional statement of coding to learn about cause and effect as a domain of Early Coding.

### Standards

IELDS 13.B Use tools and technology to assist with science and engineering investigations.	Students will use a device with internet connection to assist with their investigation into cause and effect.
IELDS 1.A.ECa Follow simple one-, two-, and three-step directions.	Students will follow one-, two-, and three- step directions as the programmer and device.
CCSS.ELA-LITERACY.SL.K.4 Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.	Students will describe the technology that is familiar in their lives and the event of using Makey Makey with prompting and support.

### Materials

- iPad/laptop/device with internet connection
- Makey Makey
- Conductive Material (i.e. playdough, metal spoons, cans, etc.)

### Setup

On a table set up the Makey Makey station. Connect the Makey Makey board to the device with the internet. On the device pull up the Makey Makey piano or drums website. In the rest of the room make sure there is an open space for physical activity. Attach the alligator clips to the Makey Makey board on one end and a conductive material on the other end.

### Directions

1. Ask students if they've ever used a computer, tablet or smartphone and what they use it for. Use one of the examples to tell them how we (programmers) give computers instructions and the computer follows the instructions. Introduce this interaction as coding.

2. Show students a device on how pressing different buttons can make it do different things. Explain that they are going to get a chance to be a programmer and device.
3. Programmer says, “If I \_\_\_\_\_, then you \_\_\_\_\_”. (The command)
  - a. Example: If I stomp my feet, then you stomp your feet.
  - b. Repeat Process.
  - c. Invite children to be the programmer and give commands to the other devices. For older students, you can change the rules, (i.e. if I stomp, then you clap)
4. Show students Makey Makey. “If I touch this (tinfoil, playdough, etc.) then the device makes a (drum/piano) sound.”
5. Encourage students to explore the different sounds they can make with Makey Makey.

*Investigation Questions: What do you hear and see? What do you think will happen if we take away the tinfoil or playdough? How is this similar/different to what you use at home? What else could we use to control the device?*