

Learning to use the Makey Makey

Teacher: Kuri DiFede

Subject: Gamemaker

Learning Goals:

- The students will understand the basics of conductivity and Makey Makey controllers by summarizing their work in a written assignment.
- The students will apply their knowledge of circuits and Makey Makey controllers by demonstrating the ability to create a basic video-game controller.

Assessment:

Students will be assessed as they work on their circuits in class. It will be clear which students are working, which students are off task, and which are struggling. I will use that information in class to help students who are struggling and to push students who are drifting off task.

Additionally, students will be doing a Challenge in the OYOclass which will require them to reflect and submit their work. I will use this work to see if there are common misconceptions about the topic to address with students next class.

CCSS Standards:

ELA-L.RST.11-12.3: Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

ELA-L..RST.11-12.9: Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

CSTA Standards:

CT.L3B-08 Use models and simulations to help formulate, refine, and test scientific hypotheses.

CT.L3B-09 Analyze data and identify patterns through modeling and simulation.

CD.L3A-04 Compare various forms of input and output.

CD.L3B-02 Identify and describe hardware

ISTE Standards:

3.A. Plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.

4.C Develop, test and refine prototypes as part of a cyclical design process.

Prerequisite Skills / Links to Past Learning:

This is the beginning of a new unit, students will need a basic knowledge of circuits which will be reviewed in the beginning of class. As the unit progresses, it will combine with the students previous unit of Scratch game design as the students will be building hardware controllers for their games that they created in Scratch.

Materials, Resources, and Technology:

- Makey Makey kits
- Bananas and other fruit, marshmallows, play doh
- Aluminum foil, coins, graphite pencils
- iPads
- Cardboard, paper, pens
- Peardeck, CodeOYO

Vocabulary

- Conductive
- Makey Makey
- Alligator Clip
- Circuit

Instructional Procedures:

- 10 mins - PearDeck Introduction
 - Students are instructed to log into the PearDeck presentation as they enter the classroom.
 - Do Now: Ask students to give an example of a way to provide input to the computer or gaming console
 - Show a demo of the Makey Makey Banana Bongos (hook to grab students attention)
 - Give students an overview of the objective of today, as well as what we have done so far, and where we are going
 - Tell students that the Makey Makey is a way to make their own input device.
 - Show students a Makey Makey, and remark how it already looks like a video game controller.
 - Ask students how they think a Makey Makey works
 - Explain to students that it works by creating a closed circuit. Go over the basic definition of a circuit with the class (a path through conductive material). Make sure to cover the definition of conductive.
 - Ask students what materials they think are conductive. After a short quiz, show them the whole list.
- 10 mins - Guided Demonstration
 - Ask students to follow along with the demonstration that is on their iPads.
 - Step 1: Check Materials
 - Step 2: Plug Makey Makey into computer with USB
 - Step 3: Connect Makey Makey Space to a Banana with an alligator clip
 - Step 4: Connect Earth to an alligator clip you keep in your hand
 - Step 5: Open makeymakey.com/bongos
 - Step 6: Play!
- 15 mins - Individual or Group Exploration

- Ask students to try to complete the controller to add another object so that they can play both bongos.
- Students may work in small groups, but each student should submit his or her own submission.
- Students should log onto mhsgamemakers.oyoclass.com to complete the challenge which includes the following three questions. These questions are included to test the understanding behind what the Makey Makey is doing.
 - Open up Microsoft Word or Google Docs on your computer. With the same setup as before, what happens when you touch the banana? Why?
 - What happens if you are not touching the clip connected to the “Earth” and try to touch the banana? What happens?
 - Why do you think you need to be connected to Earth?
- 5 mins - Wrap up / Clean up
 - Tell students to take a picture of their controllers with their iPads
 - Ask students to clean up their materials and put them into a box
 - Remind students to submit their work to the challenge

Accommodations:

My class includes 3 LEP students and 3 students with IEPs. These students benefit from individualized attention as well as written and spoken instructions. Because of this, I give all students in my class a choice of how to receive class material as well as providing individual attention when needed.

Students will be able to view the lesson both in person as well as read the instructions online. Students will be able to work in small groups to explore and discover how to create the circuits. Students will be able to receive one-on-one help from the teacher as needed.

Next Lesson:

For the next lesson, students will be exploring conductive materials and starting to brainstorm ideas for their game controller. Based on the results from today’s lesson, I would start tomorrow addressing any common misconceptions with the entire class. If it is only one or two students who are struggling, I will show the class what they need to get started creating, and work with the students individually or in small groups.