



TITLE: EXPLORING ELECTRICAL CIRCUITS AND INPUTS WITH MAKEY MAKEY

GRADE LEVEL: 6TH TO 8TH GRADE

STEAM AREAS: TECHNOLOGY, ENGINEERING, SCIENCE

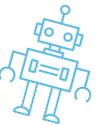
MATERIALS NEEDED:

- Makey Makey invention kit,
- USB cable,
- computer with internet access,
- variety of everyday objects (e.g., aluminum foil, bananas, vegetables, Play-Doh),
- wristwatch or bracelet,
- aluminum arrows (optional)



OBJECTIVES:

1. Students will learn about open and closed circuits.
2. Students will understand and apply the concept of conductivity.
3. They will learn to use the Makey Makey kit to transform everyday objects into computer input devices.
4. Students will become familiar with programming basics through the application of interactive animations.



PROCEDURE

1. Start by explaining to the students what Makey Makey is - an invention kit that turns everyday objects into computer keys. Discuss the co-inventors and its creation at the MIT Media Lab. Makey Makey is an innovative invention kit created by Erik Rosenbaum and Jay Silver at MIT Media Lab. It allows you to transform ordinary objects into functional computer keys. This educational tool provides students with a hands-on experience in circuit design and conductivity. By understanding its co-inventors and origin, students can appreciate the creative possibilities of Makey Makey and its potential to bridge the gap between everyday objects and technology.
2. Demonstrate the setup of the Makey Makey kit, explaining the role of each component including the arrow keys, spacebar, and the earth bar. Cover safety tips such as ensuring the device is not connected to power while setting up. The arrow keys allow users to input directional commands, while the spacebar can be used for specific interactions. Emphasize the importance of safety during setup. One essential safety tip is to ensure that the Makey Makey device is not connected to power while setting it up. This helps prevent any accidental electrical shocks or damage to the kit. To demonstrate the setup process, explain the following steps: first, plug the Makey Makey into the computer using the provided USB cable. Check if the power indicator light is on, indicating a successful connection to the board. Close any pop-ups or alerts that may appear on the computer screen.



PROCEDURE

- Makey Makey has the incredible ability to transform everyday objects into functional keyboard keys. For example, you can use aluminum foil shaped arrows to act as the arrow keys, and a banana can serve as the space bar. The conductivity of these objects enables them to function as keys. When the aluminum foil arrows or the banana come into contact with the alligator clips connected to the Makey Makey board, they complete the circuit, allowing the flow of electricity and signaling to the computer that a specific key has been pressed. This innovative use of conductivity empowers users to unleash their creativity and interact with technology in a unique and exciting way.
- To connect Makey Makey to the computer, start by explaining that it requires no software installation. Demonstrate the process by guiding students through the steps. Firstly, they need to plug the Makey Makey into the computer using the provided USB cable. Then, emphasize that they should ensure the power indicator light is on, indicating a successful connection to the board. Next, instruct them on connecting everyday objects to Makey Makey using alligator clips. Show them how to connect the desired object, such as aluminum foil or a banana, by attaching an alligator clip to the corresponding port on the Makey Makey board. This allows the object to function as a keyboard key. Encourage them to explore and experiment with various objects to discover the wide range of possibilities.
- To engage students, have them create a simple animation that can be controlled by their Makey Makey keys. Explain that the motion of the animation can be controlled by interacting with the Makey Makey keys. Model by touching the aluminum arrow key and banana space bar, and encourage students to observe the corresponding movement in the animation. This hands-on activity will allow them to see the direct connection between their actions and the control of the animation, fostering a deeper understanding of how Makey Makey can be used to bring their creations to life.
- In order to encourage collaboration and active learning, break students into groups or pairs and provide each group with a Makey Makey kit. As they work together, encourage them to connect their chosen everyday objects to control the animation. Be available as a facilitator, ready to answer questions and provide troubleshooting assistance when needed. This group activity fosters teamwork and problem-solving skills while allowing students to experiment and explore the creative possibilities of Makey Makey in a supportive environment.

ASSESSMENT

Assess student learning through observation during the activity and a follow-up discussion. Students complete a reflection writing assignment explaining the process they went through, their understanding of circuits and conductivity, and the function of Makey Makey.

REFERENCES

- Rosenbaum, E., & Silver, J. (n.d.). Makey Makey - An Invention Kit for Everyone. Retrieved from www.makeymakey.com.
- https://www.youtube.com/watch?v=-X3hb__YynM