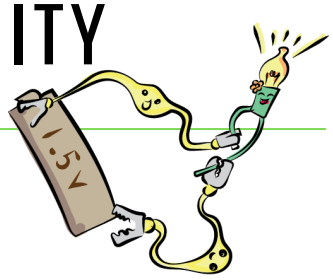
EXPERIMENT WITH ELECTRICITY

Grades K-3/ 4-8



BUILD DEVICES THAT USE ELECTRICITY

K-3 Students experiment with converting energy from one form to another.
4-8 Students will program their robots

IA ORANA
5 min

SNACK/FREEPLAY
30 min

STORY TIME
15 min

STEM TIME
50 min

Materials:

- LED lights
- Christmas lights
- Solar panels
- Alligator clips
- Batteries
- Magnets
- Motors
- Fans
- Bamboo trays (1 per student)

Ia Orana is Tahitian for hello! (pronounced ee-ah-oh-rah-na)

Greet your students. Be friendly. Use their name, ask a question, give a high five, or thumbs-up! Take roll. Mark down which students took a snack and tally how many snacks were given out.

Enjoy Free Play:

Students will have their snack and enjoy time to free play.

Read the story:

Read the story of the day. Older students may choose to read their own books.

K-3 Experiment with electricity

Students experiment building various devices that use electricity with classroom materials.

Instructions:

1. Watch the teacher prep video before conducting the lab: https://youtu.be/cSMEO1_Sxd0
2. Give each student a tray of supplies with at least 3 alligator clips and one of everything else. Students can work alone or together. Instruct your class to build different devices that convert energy (electricity) from one form to another. If necessary, you can give your students tips:

- A circuit needs to have a closed loop or no electricity can flow.
- Alligator clips: When you push on both sides of the clamp it opens to connect metal to metal. Metal is a conductor, but plastic insulates. Your circuits won't work if you connect to plastic.
- Red LED Lights: These lights have a positive and a negative end. Look at how one metal lead is longer than the other. If they don't work in your circuit then you may need to experiment with turning them around.
- Solar panels: Remember to make sure you have the pattern of red to black wires and that you attach the alligator clips to the metal and not the plastic casing.

Make sure students follow these safety rules:
Don't put anything in an electrical outlet. The electricity from outlets is too strong and can hurt you. If you feel your batteries getting hot, you've created a short circuit. This ruins batteries! Please disconnect them! Only use one battery with an LED light. The LED lights are designed to light up with 1.5 volts. One battery is 1.5 volts. If you hook up two batteries (3 volts) to an LED light it will ruin the light.

3. Ten minutes before the lab ends have students get up and walk around to see what their peers have built.

STEM TIME

50 min

Materials:

- Chromebook
- Robots
- Legos

4-8 Program Your Robot

Instructions:

STEM Coaches will go to the portal and help students with the next Edison programming lesson they are on. Students may choose to build a Lego creation on top of their robots.

Link to portal: https://www.stemexpandedlearning.com/robotics

SPORTS/GAMES

25 min

*Older students may practice their sport if they don't want to play the game.

Materials:

- Ball

Keep the Ball

Objective- Teams will work together to keep the ball in the possession of their team.

Instructions- Organize the students into two teams. Set boundaries for the students to not go out of, either with cones or within the lines of a basketball court. Teams can spread out and run around in this area. Set a timer for a set amount of time. The STEM Coach will toss the ball up into the air. At this point each team will work together to try to keep the ball in their possession. In order to do this, the players may pass the ball to their team members. There are two rules to remember. First, when a player passes the ball to a teammate, that teammate cannot pass the ball back to the player who threw the ball to them. Second, when a student catches the ball they may only have it in their possession for 5-7 seconds, then they will need to pass the ball on to someone else. The team in possession of the ball when the timer runs out wins!

HOMEWORK/ FREEPLAY

20 min

Instructions:

Allow your students some homework time. If they need help let them know you can help them. If they do not have any homework they can have some reading time, or they can have free time to go outside and play.

CLEAN UP/ DISMISSAL

5 min

Clean up/pack up/dismissal

Clean up, pack up and practice lining up.