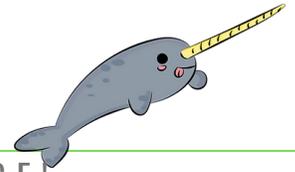




SOLAR POWER

Grades 4-8



IT'S TIME FOR A SOLAR POWER CHALLENGE!

Students will make solar panel circuits

GUTEN TAG!

10 min

STORY & SNACK

20 min

SPORTS / GAMES

30 min

Materials:

- Buckets
- Soft foam or rubber balls

Guten Tag is German for hello!

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.

Read the story:

Today's story is called Mrs. Penguins Perfect Palace. Read the story to your students outside as they sit in a circle.

Penguin Egg Relay

Students will relay race while holding a ball between their legs as they quickly move from one end of the playing field to the other to deposit their ball into the bucket without using their hands. (water balloons can also be used)

Instructions- Organize students evenly into teams with about 5 to 7 players per team. Teams will line up at one end of playing field, about 6 feet apart from other teams. At the other end of the playing field there will be a bucket waiting for each team. Each team will be given a ball. Students will play as penguins.

To play the game, the instructor says "Go!" and the first student in line from each team will put the ball between their legs and race to the other side of the playing field where they will drop the ball into the bucket without using their hands. Once they drop the ball into the bucket, they may pick it up and race back to give the ball to the next person in line and the next player may go. The game continues until everyone in the relay has had a turn to race. The team whose players make it back first wins!



STEM TIME

50 min

Materials:

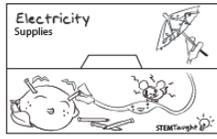
- Solar panels
- Fans
- Alligator clips

Solar Power Challenge!

In the Arctic there is no power source. Scientists need power to charge phones, instruments, and our snow mobiles also need power. Let's get to work and set up some solar power!

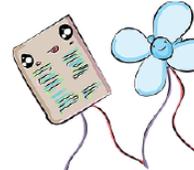


1



Get the Electricity Koa

2



Put out supplies (Motors, L.E.D.'s solar, alligator clips)

3

Lab Instructions:

- 1 Go outside to a shady/sunny place to work. (solar panels still work in the shade but will have a higher energy output in the sun)
- 2 Each student should get at least 3 alligator clips and one fan and one solar panel. Some students will choose to form groups so they can have more supplies and some students will want to work on their own.
3. Each student takes a solar panel challenge card and gets ready to be creative!

Explain:

Today we get to solve some fun challenges together. I am excited to see what you figure out. Here are some things to remember:

1. - Alligator clips: When you push on both sides of the clamp it opens. Metal is a conductor, but plastic insulates so circuits won't work if touching plastic.
2. - Solar panels: Remember to make sure you have the pattern of red to black wires. Red is positive and black is negative. Electricity flows from + to -
3. - A circuit needs to form a closed loop, or no electricity can flow.
4. - Remember to help each other!

Ask:

"How many solar panels have you connected?" "What are you discovering as you experiment?"

Instructions:

Say - "Today we got to experiment with solar power! Write a journal entry about what you figured out."

Clean up/Free play/Dismissal

Allow your students some free time. Some students may wish to finish working on their STEM project. Others may want to journal or scrapbook about their day. Other students may want to go outside to play. Clean up, pack up.

NATURE JOURNALING

15 min

CLEAN UP / FREE PLAY

25 min

