Electric Tag

KINDERGARTEN SCIENCE

PHYSICAL SCIENCE

Standards: K.PS.2: Some objects and materials can be made to vibrate and produce sound.

Overview:

Students will observe the transformative nature of energy and how energy can move from one object to the next.

Outcome:

Students will have fun pretending to be energy atoms and coming to understand that energy is "contagious."

Plan:

- Clear a space in the room or yard for students to play a game of tag.
- Explain to students that energy moves in waves and that a preceding bit of energy touches the next bit to transfer its power, like a relay race.
- Give students the rules to Electric Tag. A jumping student must tag another student for them to jump and continue tagging the next student until all the students are jumping.

REAL WORLD CONNECTIONS

1. *Students will experience the difference between the two basic forms of energy, potential and kinetic, or in binary terms, off and on.*
2. *Students will demonstrate how energy is moved along, such as a current surging through a wire.*

Lightening Strikes

KINDERGARTEN MATH

EARTH SCIENCE

Standards: K.ESS.1: Weather changes are long-term and short- term.

Overview:

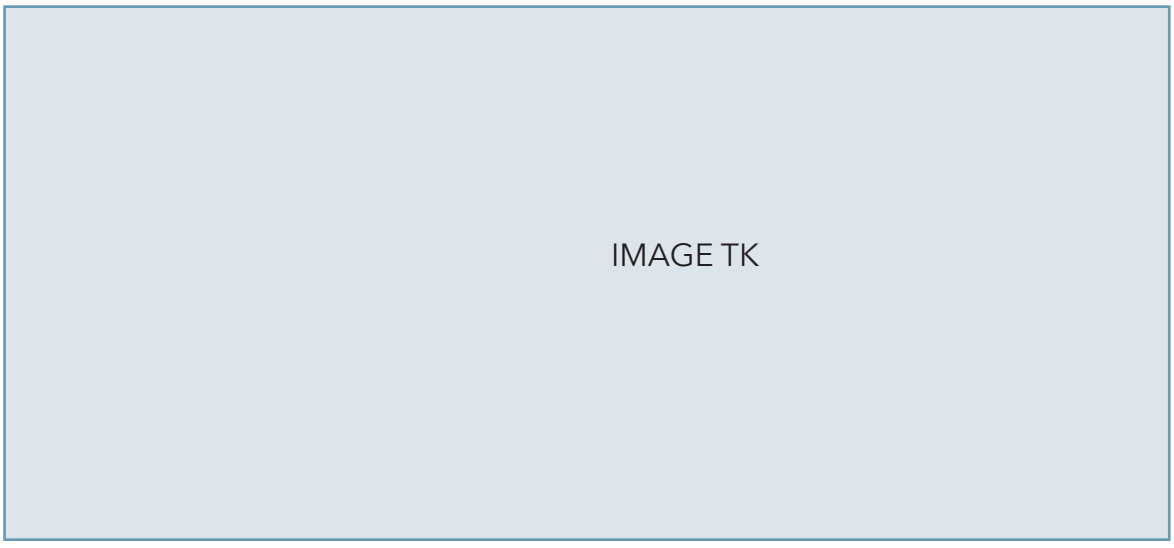
Students will rub balloons or charged clothing to produce static electricity.

Outcome:

Students will understand the how lightning is formed by the friction of clouds.

Plan:

- Explain to students that everything is made up of atoms and particles that are smaller than atoms such as electrons, protons, and neutrons. When negatively charged electrons rub against each other and separate, they produce static electricity. In a similar way, when the charged electrons in clouds separate, they can produce lightning.
- Use blown-up balloons or, if balloons aren't available, articles of clothing made of wool or polyester.
- Rub the two articles together until they seem to cling to each other.
- Separate them quickly and observe the action of the sudden release of electrons. Explain that when this happens in clouds, we get lightning.
- For fun, have students draw what happens to their hair or how it feels to have the slight electric shock.



Bouncing Light Beams

KINDERGARTEN MATH

EARTH SCIENCE

Standards: K.ESS.2: The moon, sun and stars can be observed at different times of the day or night.

Overview:

Students will understand how light from the sun can bounce off the surface of the moon allowing us to see it, and because Earth is between the sun and the moon, we sometimes see the shadow of Earth on the moon which we call lunar phases.

Outcome:

Students will describe how energy travels as waves or beams.

Plan:

- Explain to students that light is an energy beam, That the light from the sun radiates all around, and that when we see the light on the moon it is a reflection of the sun.
- In a darkened room, demonstrate the reflective nature of light by using a flashlight aimed at a mirror.
- Put object in front of the light to obscure parts of it as a demonstration of how Earth blooks some of the moon's reflective light.
- Have students draw a picture of their observations.

Jumping Power

KINDERGARTEN MATH

EARTH SCIENCE

Standards: K.PS.1: Objects and materials can be sorted and described by their properties.

Overview:

Students will understand that an amount of energy can be quantified—or counted.

Outcome:

Students will demonstrate that energy works in different ways.

Plan:

- Explain to students that energy can work in different ways. For example, if you jump higher you may not be able to make more than a few jumps before getting exhausted, or, if you want to make a lot of little jumps, you may not be able to make those jumps go higher.
- Divide students into two groups of jumpers. The High and Slow Group and The Short and Fast Group.
- Have both groups start to jump and count the difference between how many jumps the High and Slow Group make compared to the Short and Fast Group.

IMAGE TK

IMAGE TK

Electric Animals

KINDERGARTEN MATH

EARTH SCIENCE

Standards: K.LS.1: Living things have specific characteristics and traits.

Overview:

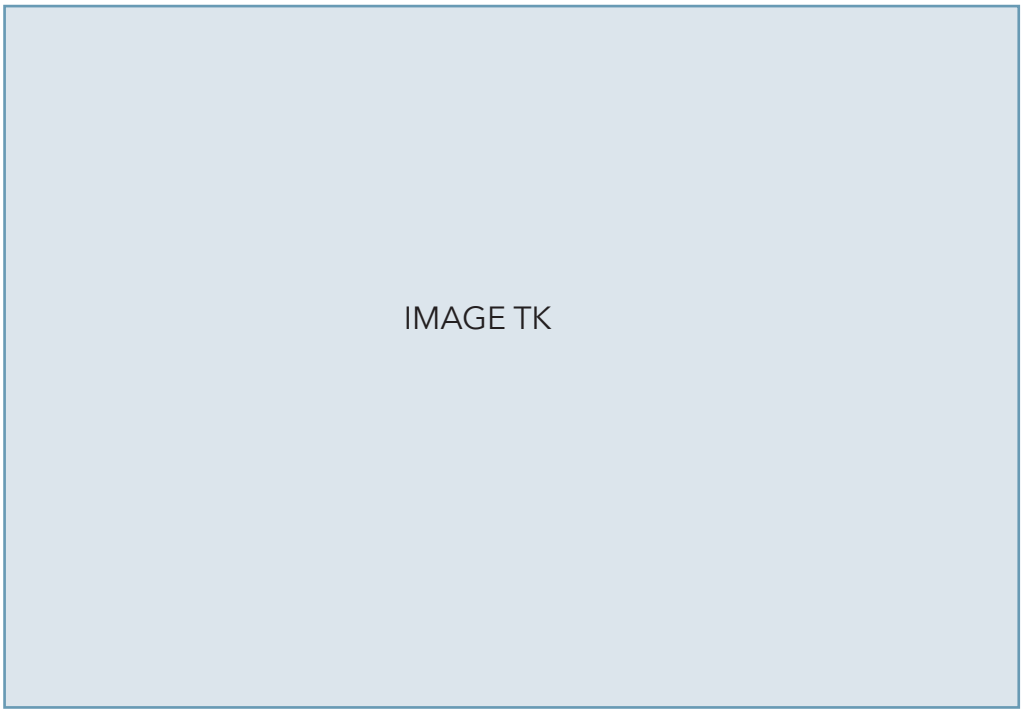
Many animals produce their own electrical charges.

Outcome:

Students will become familiar with several species that produce electricity.

Plan:

- Explain to students that all animals make electricity, although most of it is very weak and comes from nerves and the contracting of muscles. Lightning bugs produce their light not from electricity but from a different process known as bioluminescence. But some species produce stronger amounts of electricity because they have cells in their bodies called electrolytes (eels) or because they can make static electricity with their wings (bees).
- Distribute the worksheets. Ask students to color what they think electricity looks like in the sample animals on the sheet.



Brain Light

KINDERGARTEN MATH

LIFE SCIENCE

Standards: K.LS.2: Living things have physical traits and behaviors, which influence their survival.

Overview:

Students will understand that our brains use electricity to control the body.

Outcome:

Students will see that human beings make use of electricity to help our bodies survive.

Plan:

- Explain to students that our brains create electricity by the flow of small particles called "ions" across the brain cells. We create enough electricity every day to keep a lightbulb on.
- Pass out the worksheet of the human brain and the lightbulb.
- Have students color in both drawings, then cut out the lightbulb and paste it on the brain.

IMAGE TK

IMAGE TK