Introduction to Electricity

Objective: Introduce students to the concept of electricity and electricity production

Activity 1: 25 minutes
Materials: Lamp, power outlet

Start with an unplugged lamp in front of the classroom. Ask the class if the lamp will turn on if you try to turn it on. Show that the lamp doesn't turn on. Ask what you should do to make it work. (Plug it in!) Plug the lamp in to the outlet.

Ask: Why did I need to plug the lamp into the wall? What is this called? (**Power outlet**)
Ask: What did the power outlet do to the lamp? (The outlet gave the lamp **electricity**!)

Ask: Who here has heard of electricity? Who here uses electricity? (Everybody here uses electricity!)

> "Electricity is an invisible force. We cannot see it or hold it, but we know when it is working. When you turn on a light switch, or a computer, or a pencil sharpener, you are turning on the electricity. When you turn it off, you turn off the electricity. " Turn lamp on and off to demonstrate.

Ask: What do we use electricity for?

> "Electricity does a lot of work for us. We use it many times each day in our homes and in our school. Electricity doesn't just light up our lightbulbs, it also turns on our TVs, computers, pencil sharpeners, and telephones. It runs our air conditioning. It keeps our food cold in the refrigerator and heats up our food in the microwave. Streetlights, traffic lights, and even the Streetcar all run on electricity! Anything that plugs into a power outlet uses electricity. Every one of us uses a lot of electricity every day!"

Ask: Can you name some things that use electricity?

Ask (optional): Have you ever been somewhere where the electricity didn't work? How about during a hurricane? What did it feel like to not have electricity?

Activity 2: 20 minutes
Materials: crayons, worksheet

Find all of the objects in the classroom that use electricity. Either have the class walk around and look for all the objects or have them point to them from their seats. Make a list on the board.

Optional (for 2nd grade and up): Use your worksheet (Energy Use at School) to count the number of power outlets, plugs, and light switches you can find in your classroom. Make an "x" over an outlet, plug, or light each time you find one. Be sure to explain that the outlets should not be touched.

Activity 3: 15 minutes
Materials: crayons, worksheet
Draw a circle around the objects that use electricity.
Ask: Can we name five more objects that you use at home or in school that use electricity?

Activity 4: 20-25 minutes
Materials: Construction paper, scissors, glue, crayons
Ask: Where does the electricity come from?

> "Electricity is made in a place called a **power plant**. Power plants can make electricity in many different ways. Most power plants make electricity by burning something called **fossil fuel**. Other power plants make electricity by using the energy of the sun and the wind. We will learn more about how power plants make electricity later. Power plants can be very far away from our houses and schools. The electricity has to travel a long way to get to us. Electricity travels through power lines that are strung up on big poles. Power lines carry the electricity from the power plant to us. You can see power lines when you walk down the sidewalk. They are so high up that birds like to sit on them. Most of us have power lines on our streets and in front of our houses. Next time you see one, you'll know that electricity is inside!"

Cut up the jumbled picture of power plant, power lines and school and glue it back together on a piece of paper. Trace a line from the power plant through the power lines to the school.

Activity 5: Pass the Electricity!: 25 minutes

Materials: Print out the picture of the light bulb or draw your own (or use a real light bulb!).

This game is similar to 'red light/green light' and 'pass the squeeze'.

Get class to stand in a line or half circle. One end of the line will be the "power plant" and one end will be the light bulb. Every student standing in the middle will represent the power line. For younger grades (K-1) this activity works best with two teachers standing at either end. For older grades, try allowing students to play the role of "power plant" and "light bulb".

The teacher or student holding the light bulb shouts "Power On!". The teacher or student at the "power plant" end will start passing the squeeze (or high five) to the person standing next to them. Continue down the power line. When the squeeze reaches the end of the line, have the person with the light bulb hold it up in the air. Try a few times to see how fast you can pass the squeeze and get the electricity to the lightbulb.

Optional: Keep passing the squeeze (in pulses) until the person holding the light bulb says "Power off"! When the power is off, everyone must freeze and stop passing the squeeze. When the person holding the lightbulb says "Power On", continue passing the squeeze.

Summary and introduction to upcoming lesson:

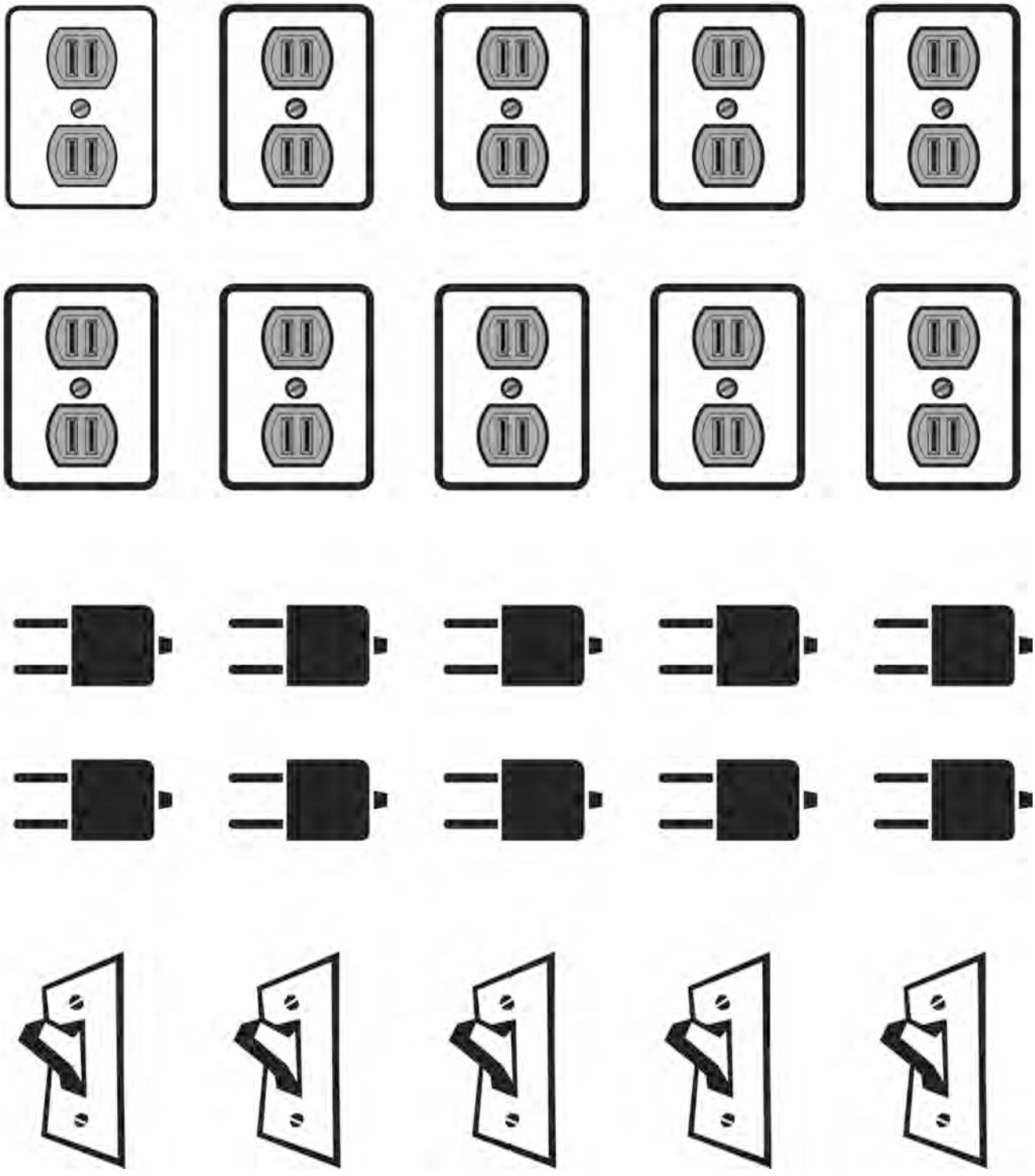
"This week we have been learning all about electricity! We learned that even though we can't see or touch electricity, we use it every day to power some of our favorite things. We learned that electricity is made in power plants and has to travel a long way to our houses and schools.

Next time, we will learn about how electricity is made, and we will even get a special chance to make electricity ourselves! We will also learn why it is important to try to save energy by using less of it when we don't need it."

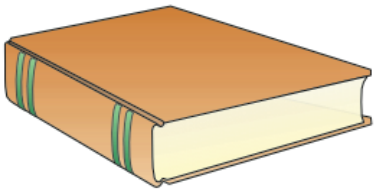
Electricity powers many of the machines we use every day.

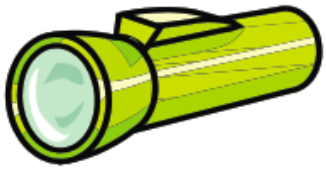
Energy Use at School

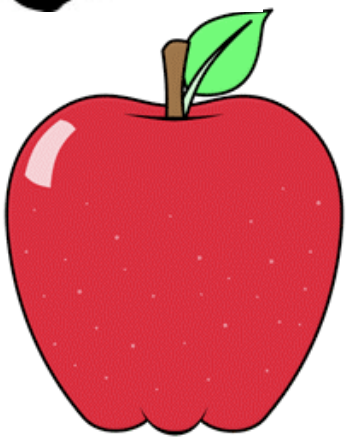
In the Classroom: Count the outlets, devices with plugs, and switches.
Make an X on the pictures below for each item.



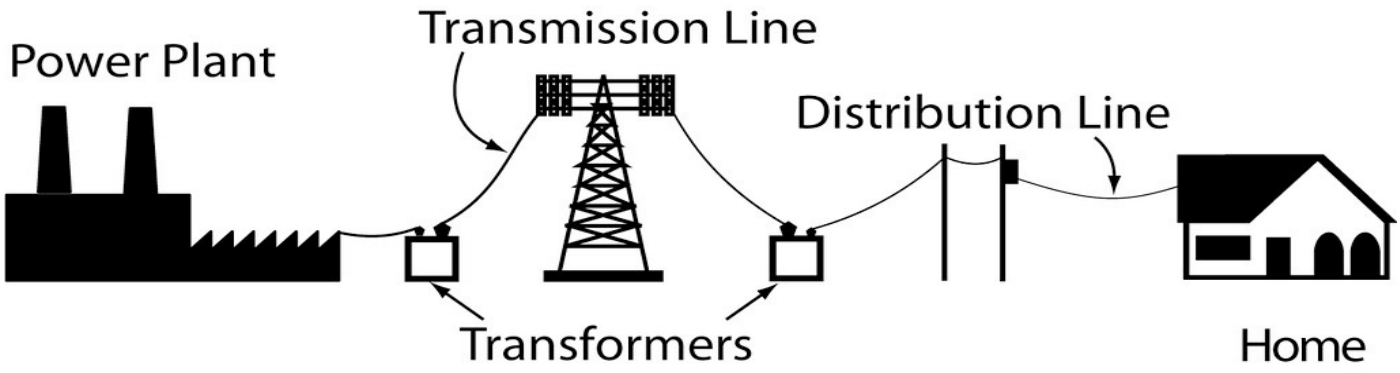
Activity 1: Draw a circle around the objects that use electricity!



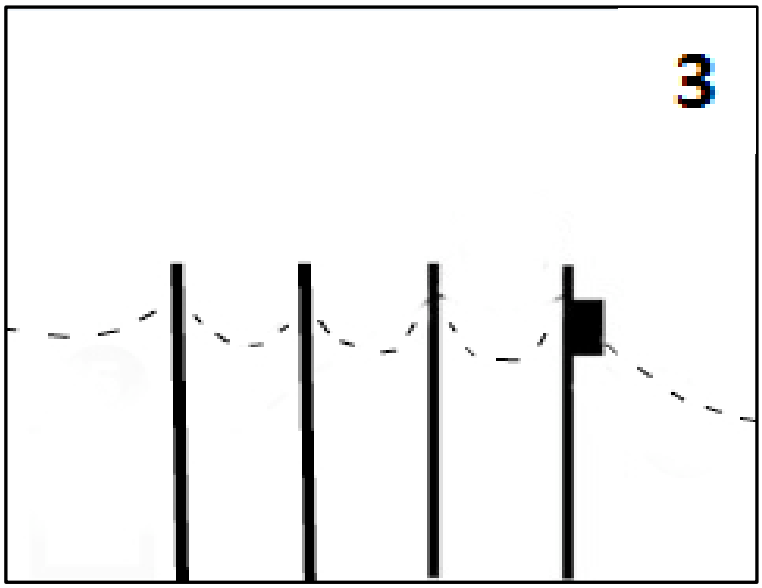


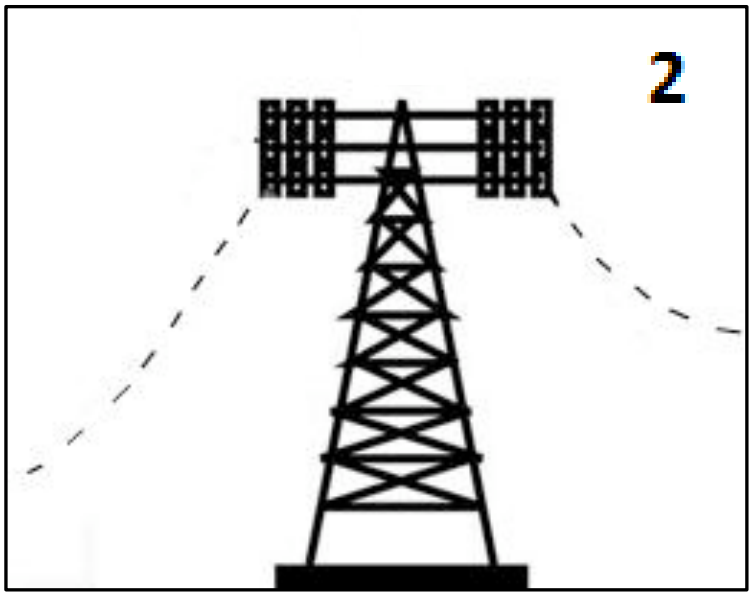


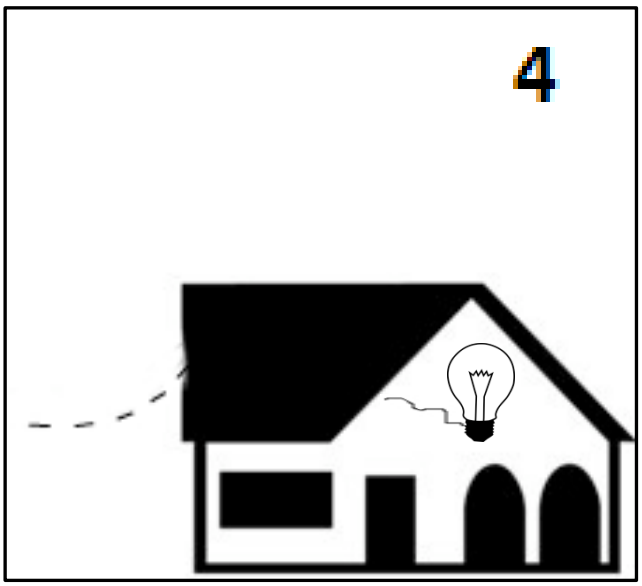
Transporting Electricity

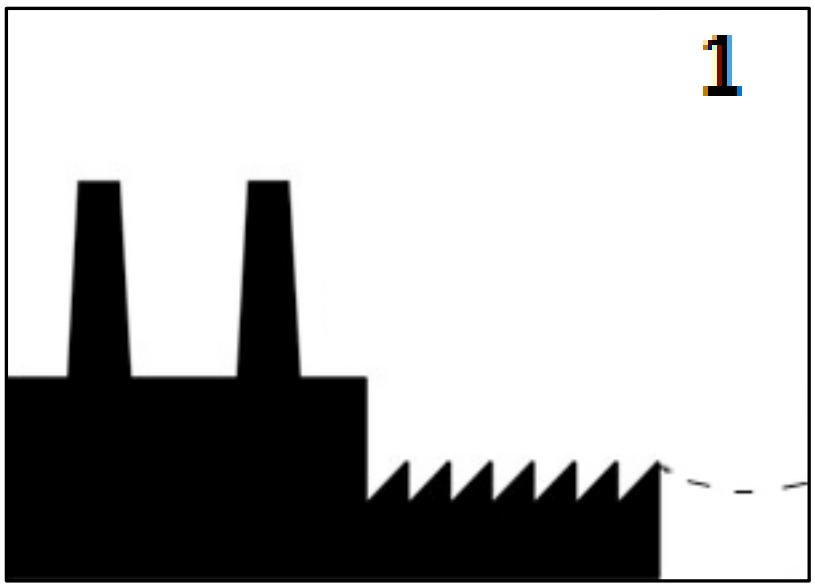


Electricity has to travel a long way to get to our light switch!









Energy Scramble

Cut out the pictures and unscramble them. Trace the **electricity** from the **power plant** to the **light bulb**!