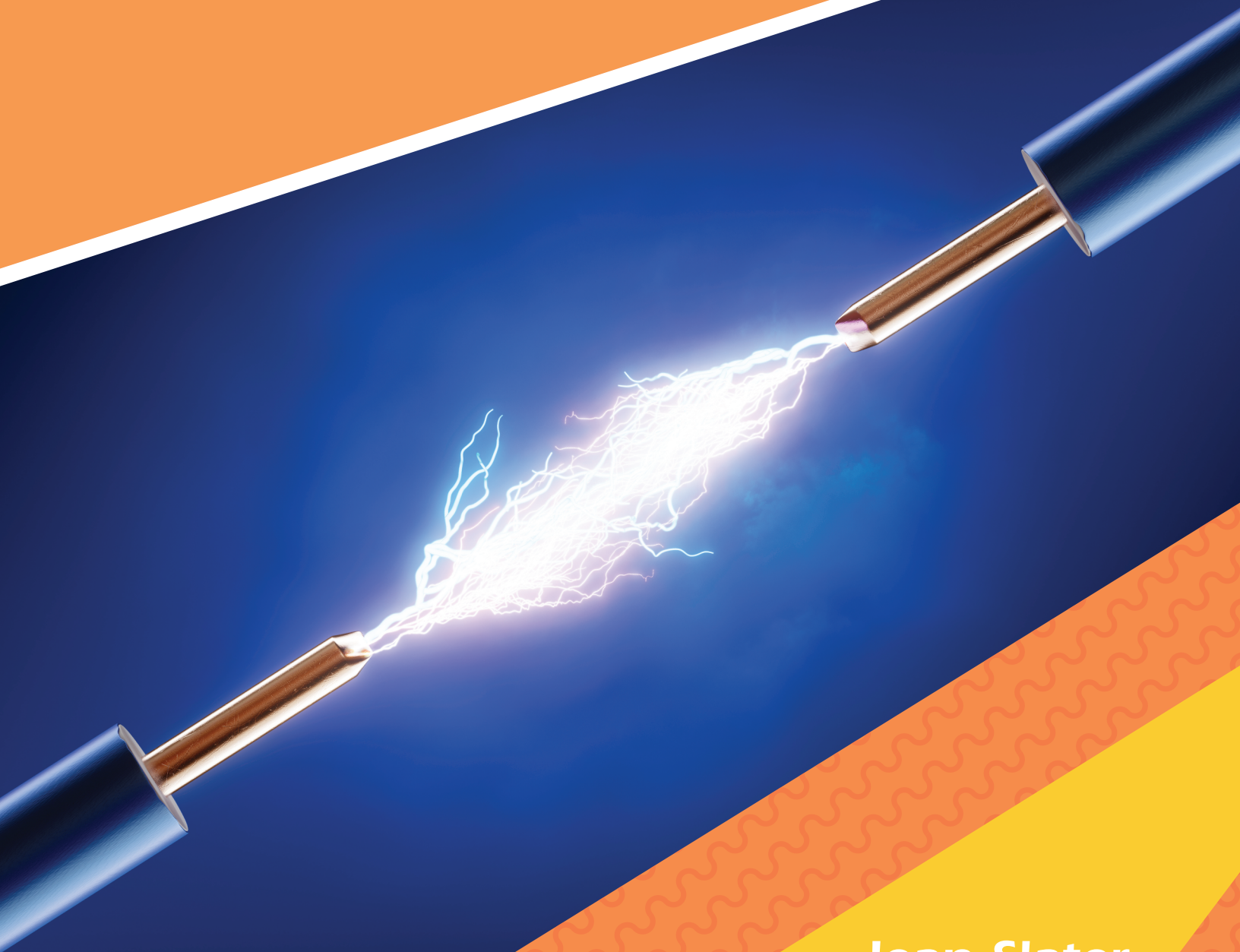


Attainment's  
**Simply Physical Science**



Jean Slater

# Attainment's **Simply Physical Science** **Student Book**

By Jean Slater

Edited by René Zelt

Cover Design by Josh Eacret

An Attainment Company Publication

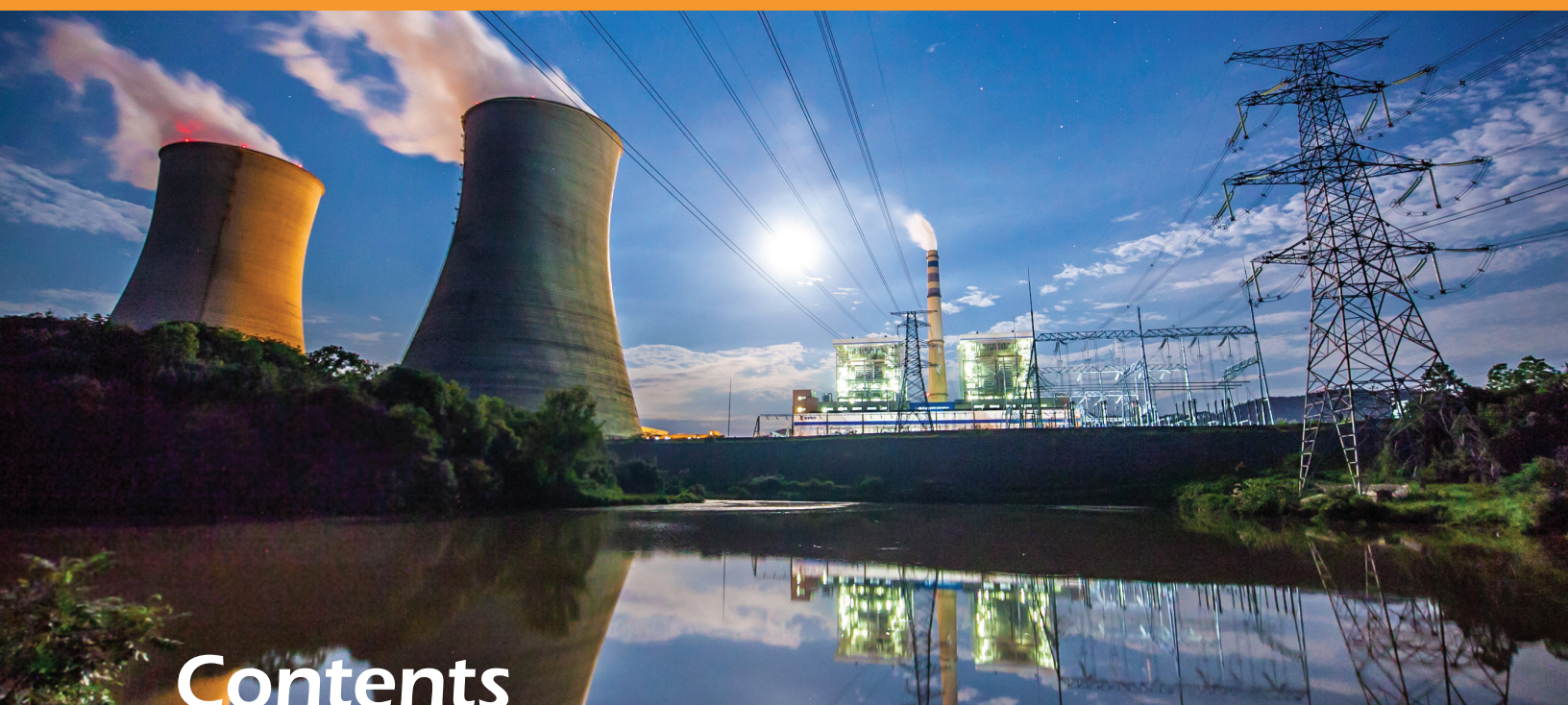
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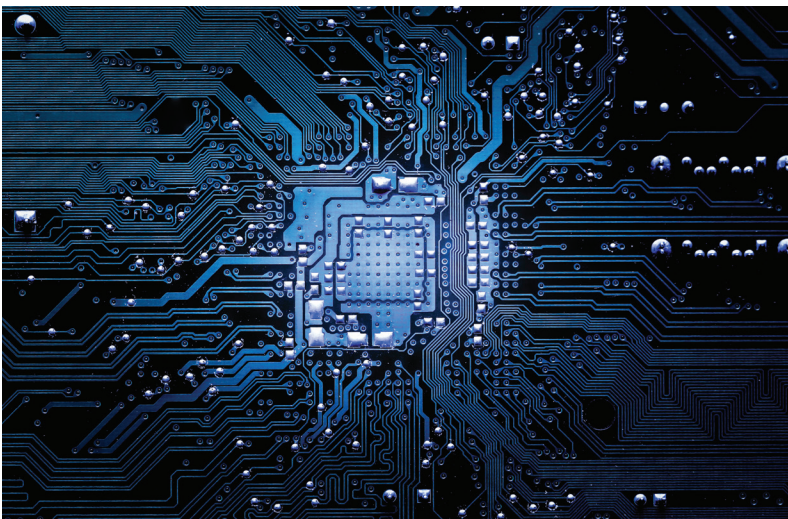
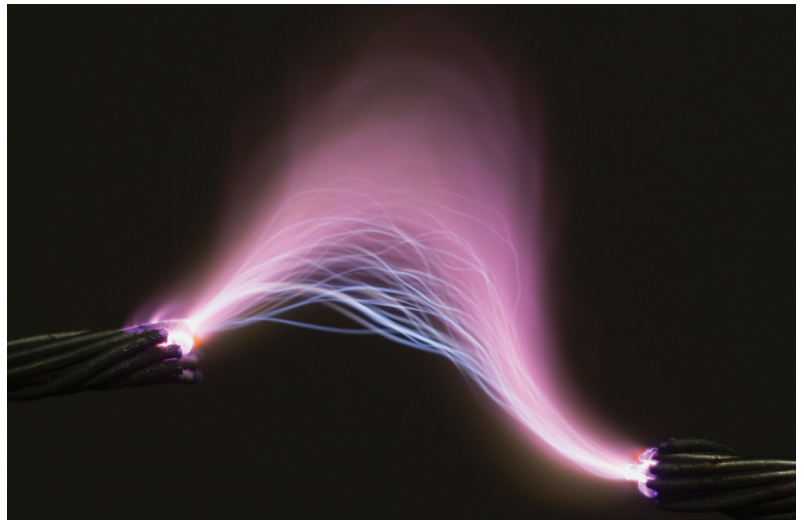
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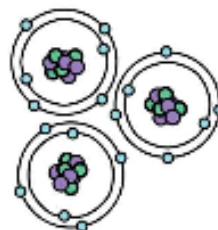




## Vocabulary



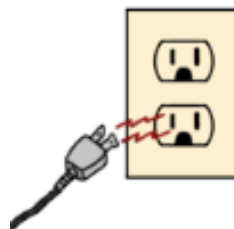
appliance



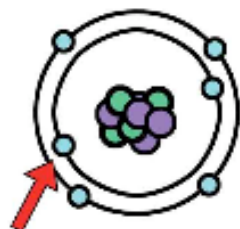
atoms



battery



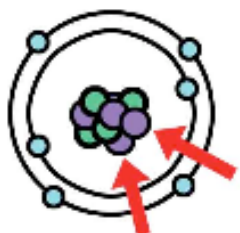
electricity



electrons



energy



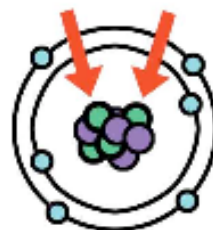
neutrons



outlet



power plant






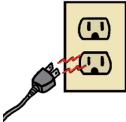


protons

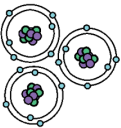


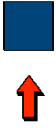



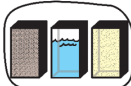




static electricity





# Vocabulary Definitions

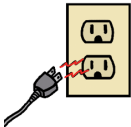







**appliance** Any machine that uses electricity to do work.









**atoms** Small particles that make up all matter.



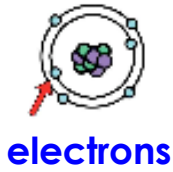

**battery** A container filled with chemicals that makes



 electrical power.






**electricity** Energy that occurs from the flow of electrons.



Negatively charged particles that go

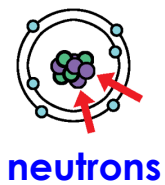
around the nucleus of an atom.



Power from coal, electricity, or other

sources that make machines work

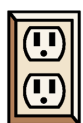
& and produce heat.



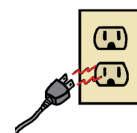
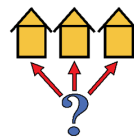
Uncharged particles in the nucleus of

an atom.

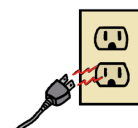
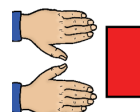




outlet



The place in a building where electrical



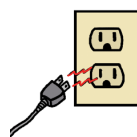
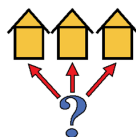
cords can be plugged to get electrical energy.



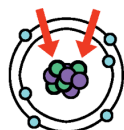
power



plant



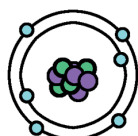
Where electrical energy is made.



protons



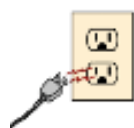
Positively charged particles in the nucleus of



an atom.



static electricity



2

Electricity that is made when two

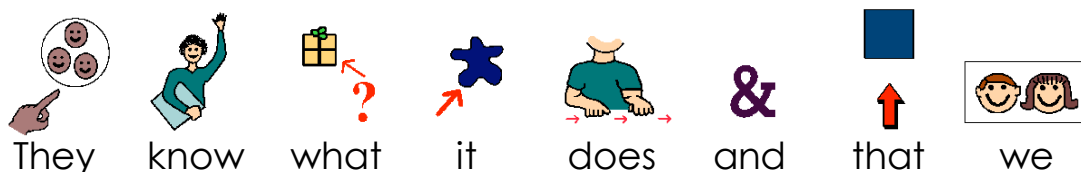


things rub together quickly.

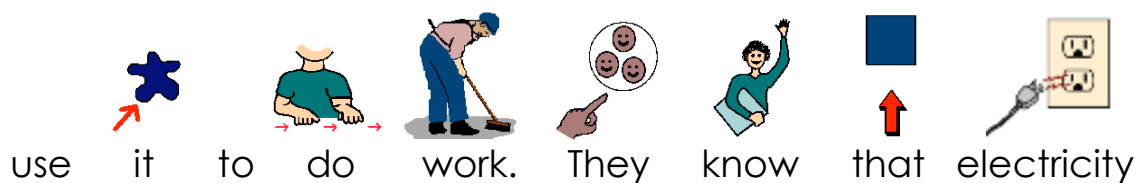
# Learning About Electricity



What is electricity? **Scientists** know a lot about **electricity**.



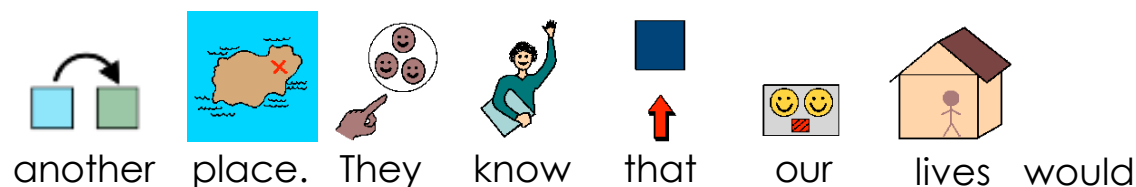
They know what it does and that we



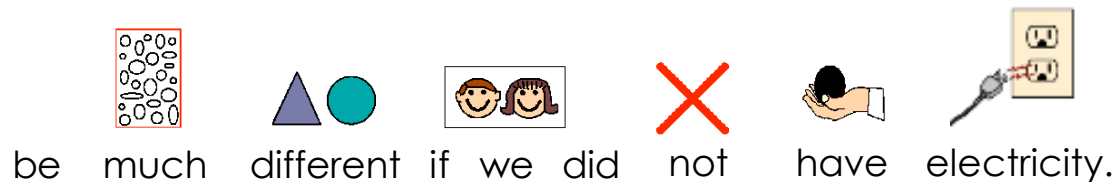
use it to do work. They know that electricity



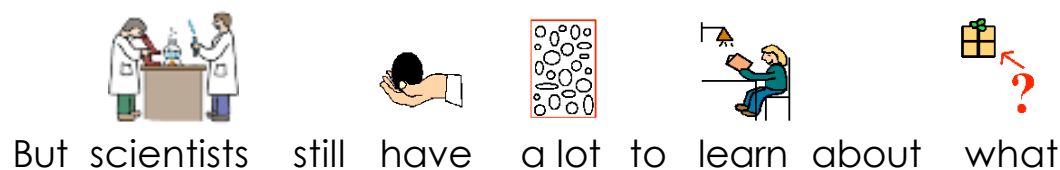
can be made in one place and sent to



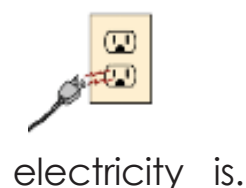
another place. They know that our lives would



be much different if we did not have electricity.

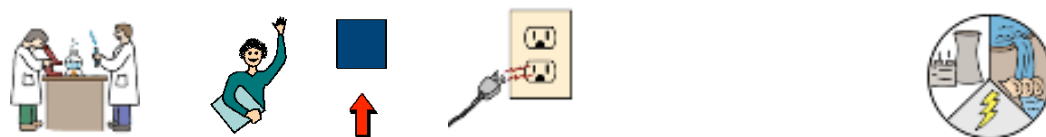


But scientists still have a lot to learn about what



electricity is.





Scientists know that electricity is a form of **energy**.



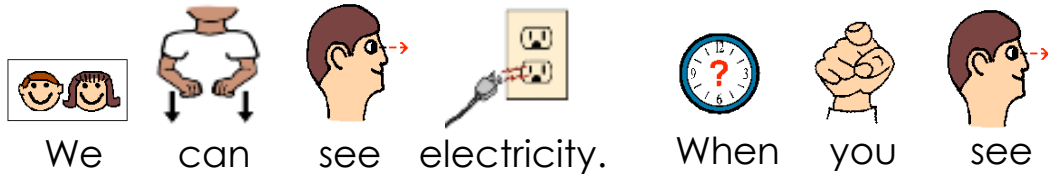
Energy is power. Everything needs energy to grow,



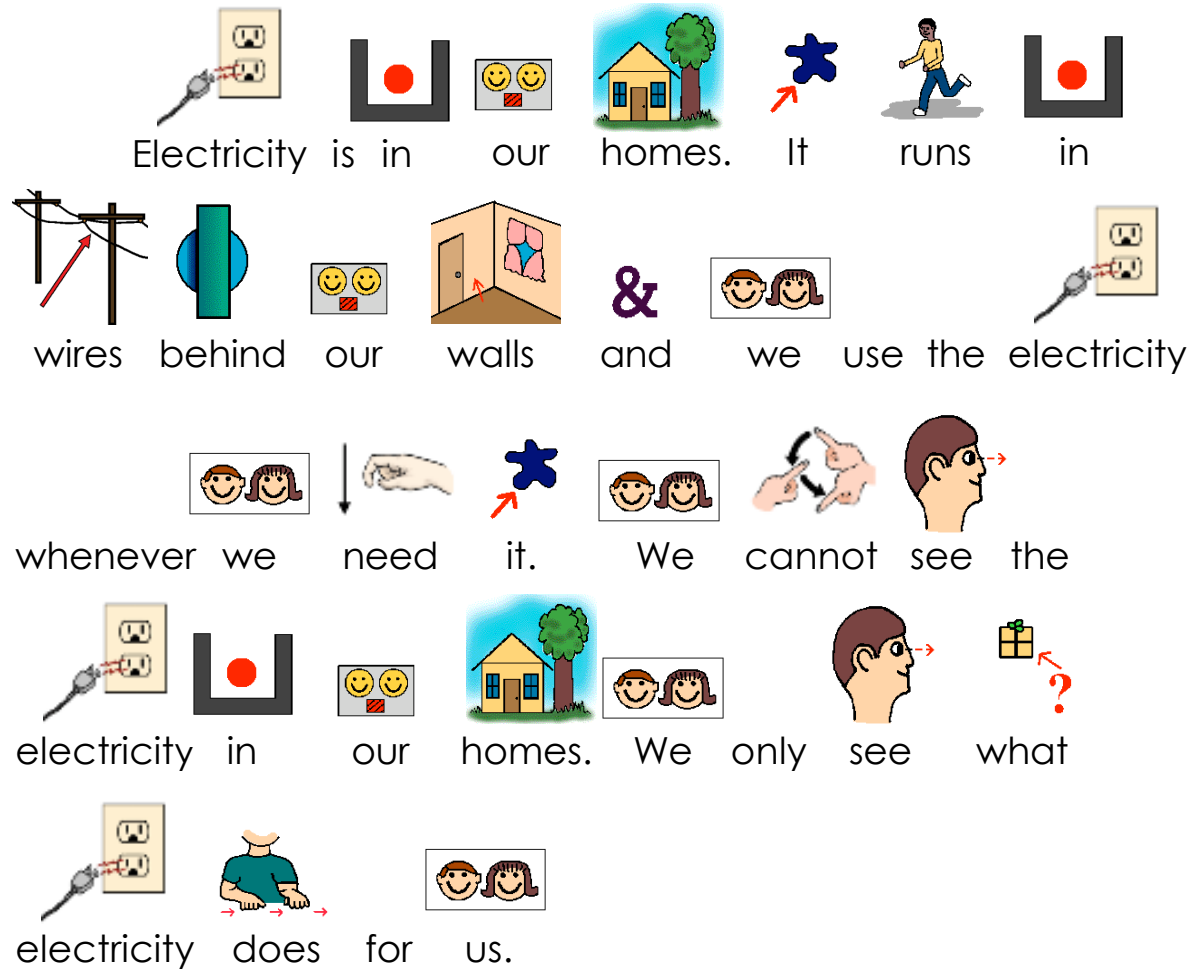
work, and live. People use energy in their work,

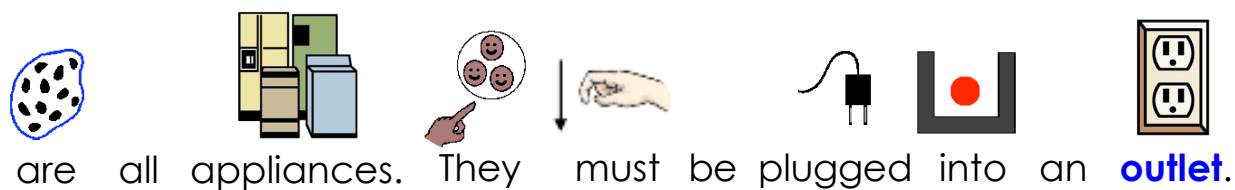
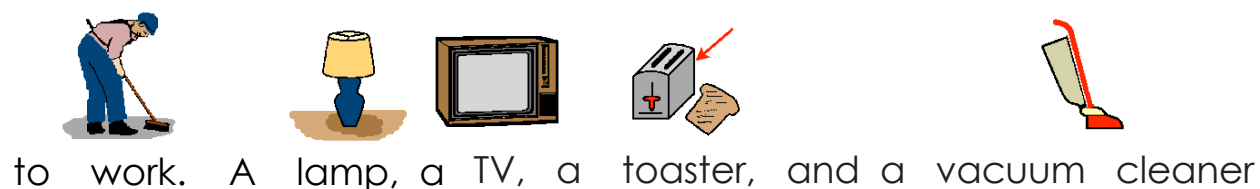
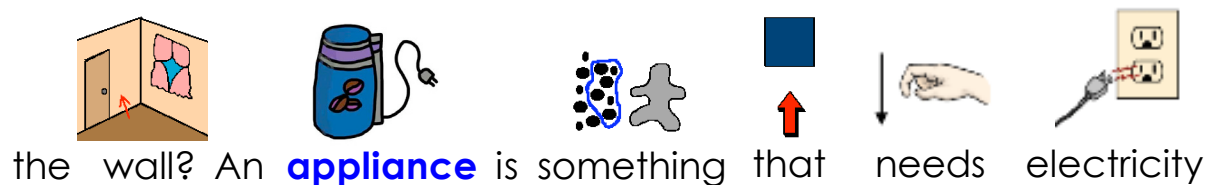
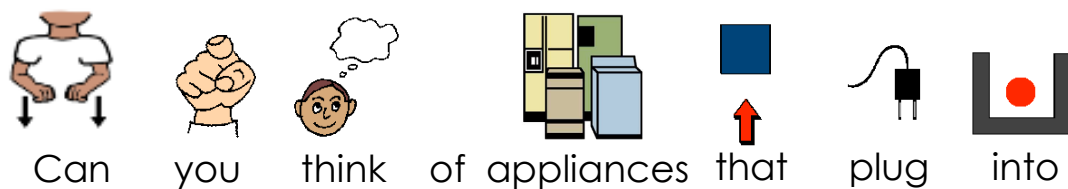


in their homes, and in their transportation.





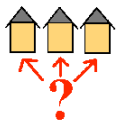
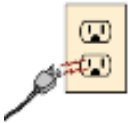





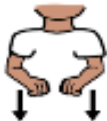

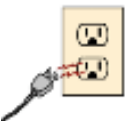



















An outlet is a place in a building where electrical

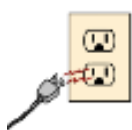
cords can be plugged in. The electricity flows from

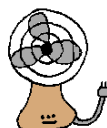
the outlet, through the plug, and power cord into

the appliance. When we turn on the appliance,



the electricity makes the appliance work. When you



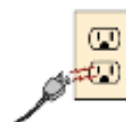
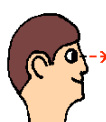
&



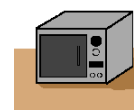
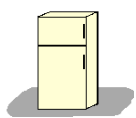
flip a switch, lights, ceiling fans, and other



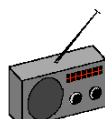
appliances work.



As you can see, many things need electricity



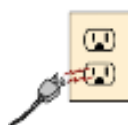
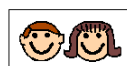
to work: refrigerators, washers, dryers, microwaves, mixers,



&



blenders, computers, radios, hairdryers, and curling irons.



We have many electrical appliances that we can



&



$$\begin{array}{r} 2 \\ +0 \\ \hline 2 \end{array}$$

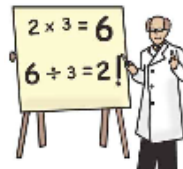
buy and use to make our lives easier.



## Vocabulary



**invent**



**prove**



**scientist**

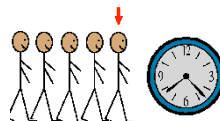
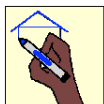


**lightning rod**

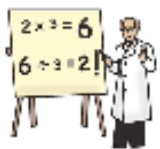
# Vocabulary Definitions



**invent**



To create for the first time.



**prove**



To test by an experiment.



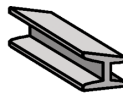
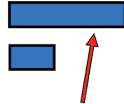
**scientist**



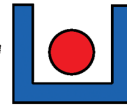
A person skilled in science.



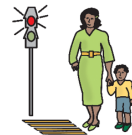
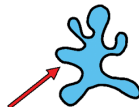
lightning rod



A long iron rod that is attached



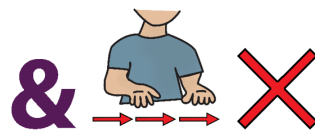
to buildings and runs into the



ground. It is used to protect buildings

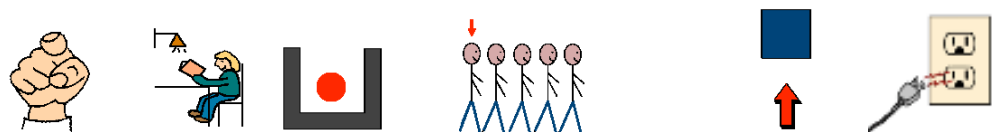


because lightning travels down the rod



and does not cause the building to burn.

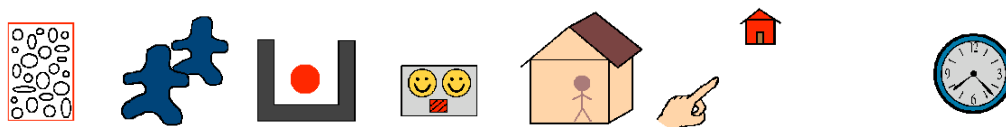
# History of Electricity



You learned in the last chapter that electricity



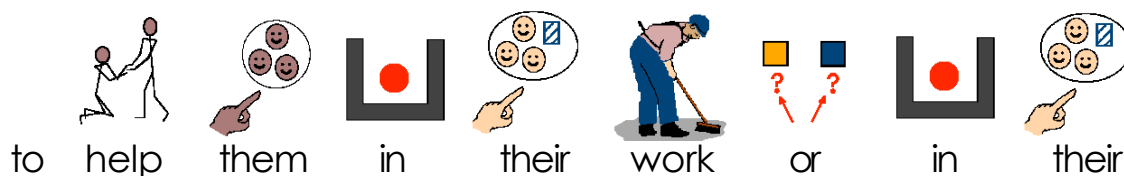
is a kind of energy. You also learned that we use electricity



for many things in our lives. There was a time



in history when people did not have electricity



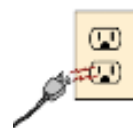
to help them in their work or in their



homes.



200\_



People lived for many years without electricity. They



cooked



on



wood



or



coal



burning stoves,



read



by



candlelight,

&



heated their



homes



in



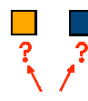
fireplaces.



People would ride



horses,



or



in carriages



pulled



by



horses

&



oxen,

because they



did



not



have



cars.



People



did



not



have



washing machines,



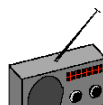
dryers,



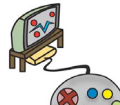
irons,



televisions,



stereos,



video games,

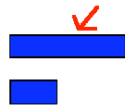


computers, or

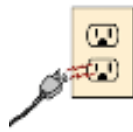


cell phones.

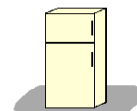
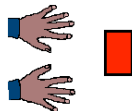




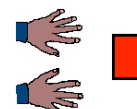
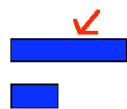
Life long ago is hard to understand because today



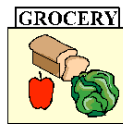
people use electrical energy all the time. Imagine not having



lights or not getting a cold drink from a refrigerator.



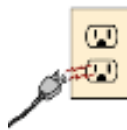
Imagine how long it would take you to get



to the grocery store if you had to walk or ride a



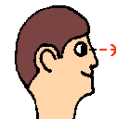
horse.

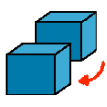


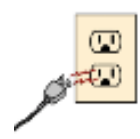
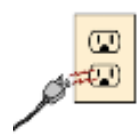
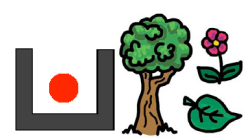


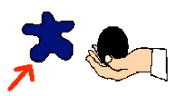
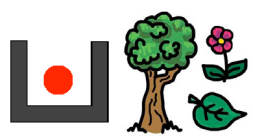
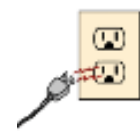
Did someone **invent** electricity? Invent means to make




something brand new that no one has ever seen









 before. No one invented electricity. Electricity is in nature.




 It has always been in nature, but electricity was

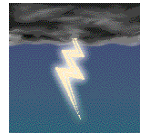




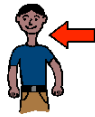
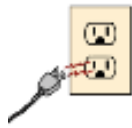
 not named by people until the 1700s.



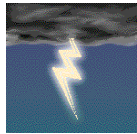
1



Benjamin Franklin was one **scientist** who thought lightning



was a form of electricity. He thought that the color of the

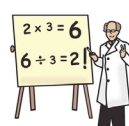
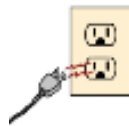


&

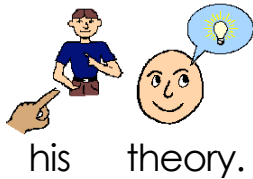


x → □

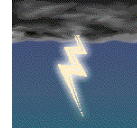
lightning, the noise it made, and the way it moved



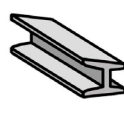
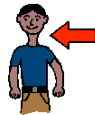
across the sky was electricity. Franklin wanted to **prove**



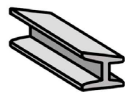
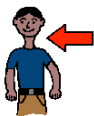
his theory.



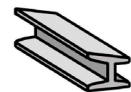
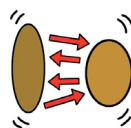
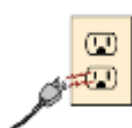
Franklin decided to fly a kite up into storm



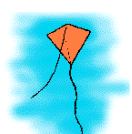
clouds. He tied a metal key to the kite string.



He used a metal key because he knew from his



experiments that electricity is attracted to metal. The key



was also not too heavy, so the kite would still fly.



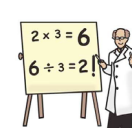
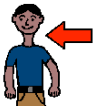
It was a very dangerous experiment.



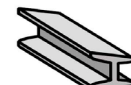
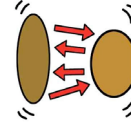
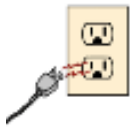
When lightning struck Franklin's kite and the key,



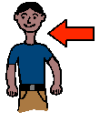
he received an electrical shock. He was lucky that



he was not hurt badly. Franklin proved lightning was



electricity because it was attracted to the metal key



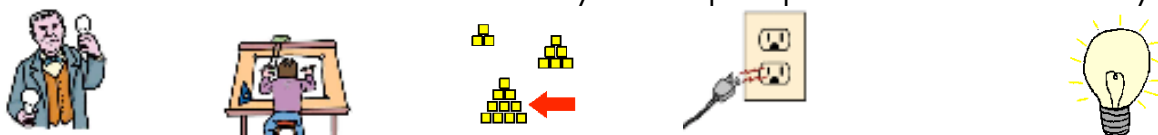
and it gave him an electrical shock.







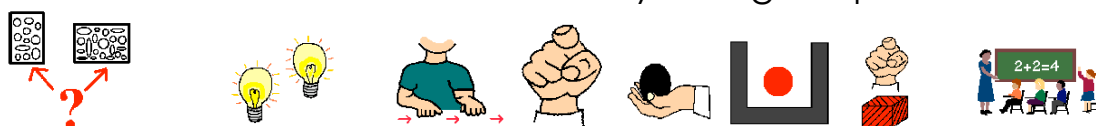
Other scientists found ways for people to use electricity.



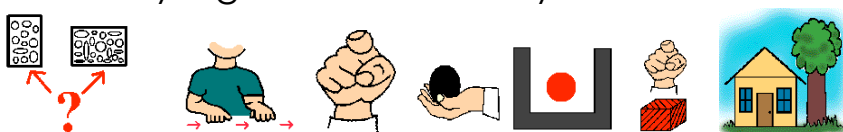
Thomas Edison invented the most used electrical item – the light bulb!



It was Edison who used electricity to light up our houses.



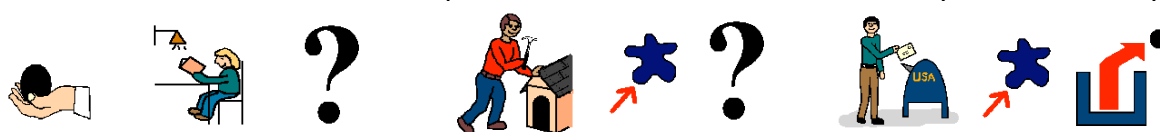
How many light bulbs do you have in your classroom?



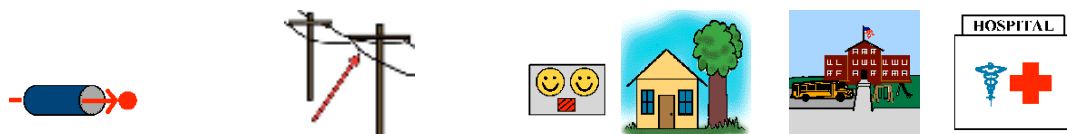
How many do you have in your home?



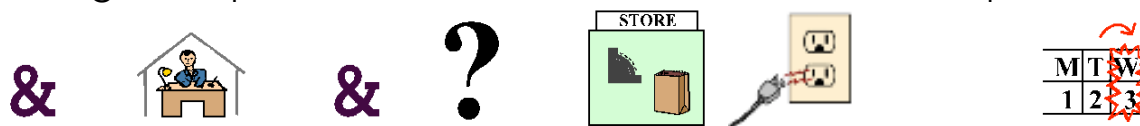
Scientists have experimented with electricity and they



have learned how to make it; how to send it out



through the power lines in our homes, schools, hospitals,



and businesses; and how to store electricity for use later.

# Quiz



Mark



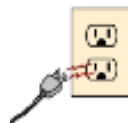
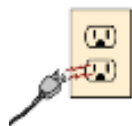
or



circle



the correct answer.



1. Electrical outlets are only for electrical plugs.



True



False



2.

I should



not



fly



kites



around



power lines.



True



False



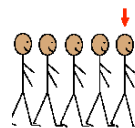
3. Thomas Edison invented the light bulb.



True



False



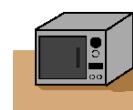
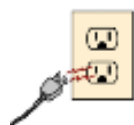
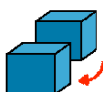
4. Benjamin Franklin made the first lightning rod.



True



False



5. Before electricity, people cooked in microwaves.

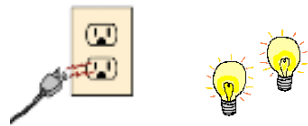


True



False

6. A long time ago, people did not have



electrical lights.



True



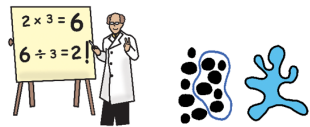
False

7. Benjamin Franklin tied a \_\_\_\_\_ to his kite.

☐ a. ribbon

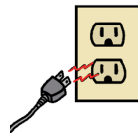
☐ b. pencil

☐ c. key



8. To prove something means to \_\_\_\_\_.

- ☐ a. show that it is true.
- ☐ b. show that it is false.
- ☐ c. show that it is silly.



9. Lightning rods \_\_\_\_\_ electricity.

- ☐ a. repel
- ☐ b. cool
- ☐ c. attract





10. Without electricity, people cooked with \_\_\_\_\_



or \_\_\_\_\_ .

