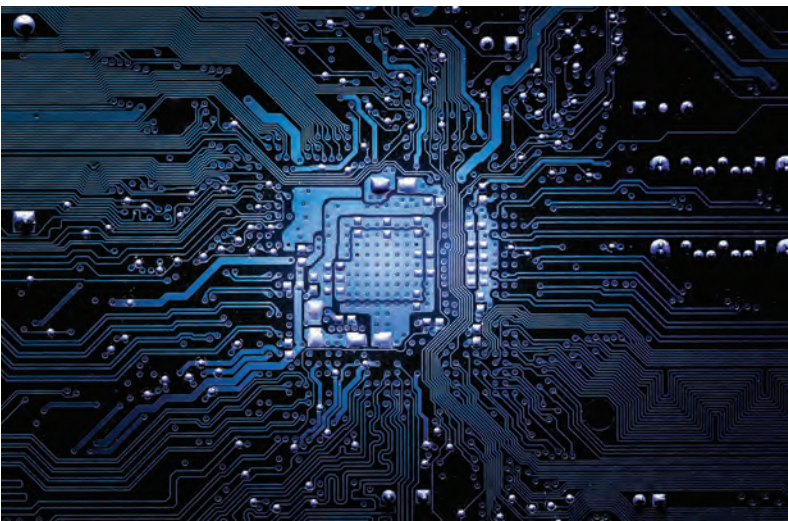
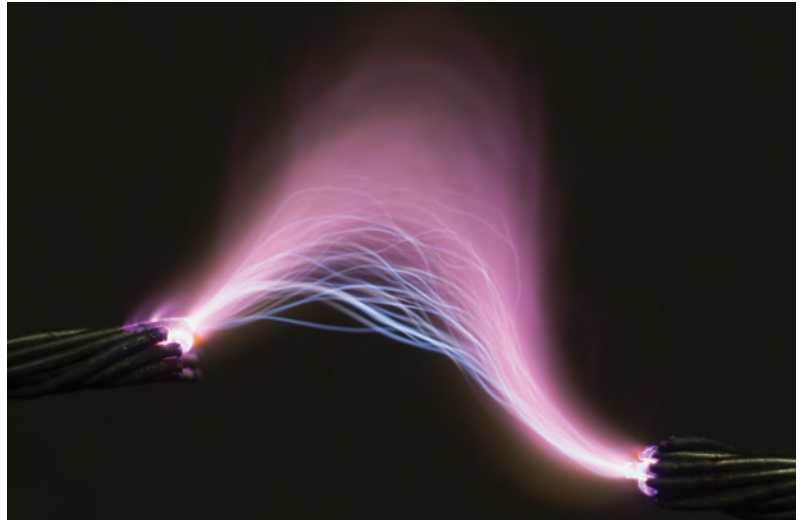



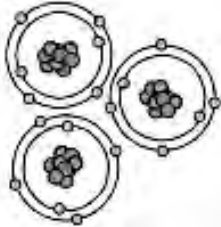

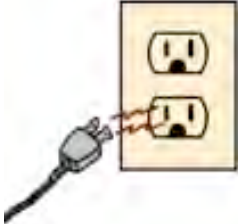
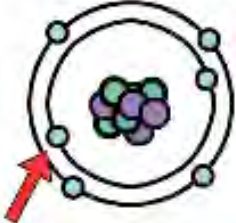

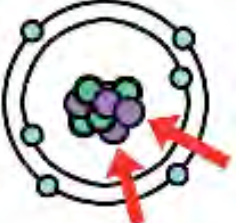



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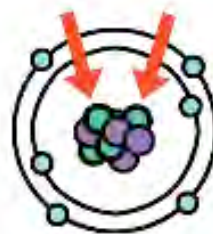


Vocabulary

 <p>appliance</p>	 <p>atoms</p>
 <p>battery</p>	 <p>electricity</p>
 <p>electrons</p>	 <p>energy</p>
 <p>neutrons</p>	 <p>outlet</p>



power plant









protons



static electricity

Vocabulary Definitions

appliance Any machine that uses electricity to do work.












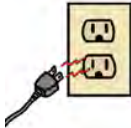






atoms Small particles that make up all matter.

battery A container filled with chemicals that makes

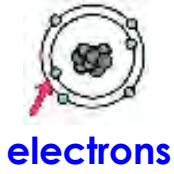
 electrical power.







electricity Energy that occurs from the flow of electrons.



— Negatively charged particles that go



around the nucleus of an atom.



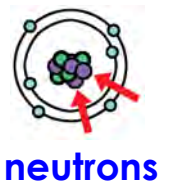
Power from coal, electricity, or other



sources that make machines work



and produce heat.



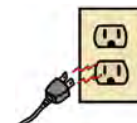
Uncharged particles in the nucleus of



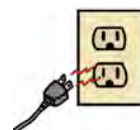
an atom.



outlet



The place in a building where electrical



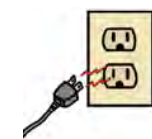
cords can be plugged to get electrical energy.



power



plant



Where electrical energy is made.



protons



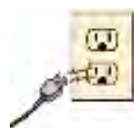
Positively charged particles in the nucleus of



an atom.



static electricity



Electricity



that

is made



when

2

two



things



rub



together



quickly.

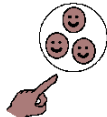



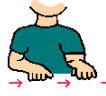




Learning About Electricity




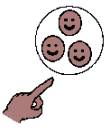















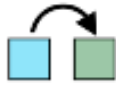
















 What is electricity? **Scientists** know a lot about **electricity**.















 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,

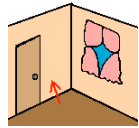
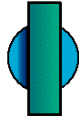


in their homes, and in their transportation.

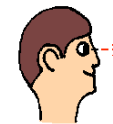




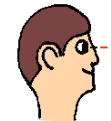
Electricity is in our homes. It runs in



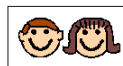
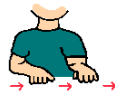
wires behind our walls and we use the electricity



whenever we need it. We cannot see the



electricity in our homes. We only see what



electricity does for us.



Can



you



think



of appliances



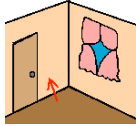
that



plug



into



the wall?



An **appliance**



is something



that



needs



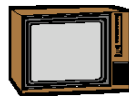
electricity



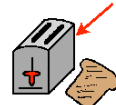
to work.



A lamp,



a TV,



a toaster,



and a vacuum cleaner



are all appliances.



They



must be plugged

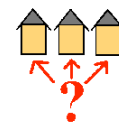
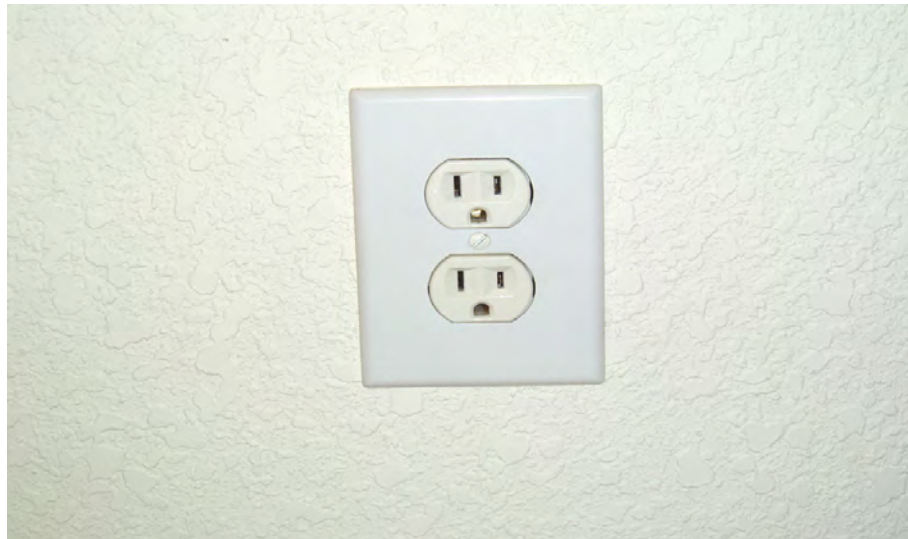


into an



outlet.

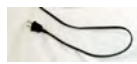




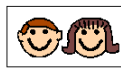
An outlet is a place in a building where electrical



cords can be plugged in. The electricity flows from



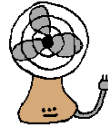
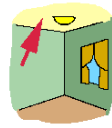
the outlet, through the plug, and power cord into



the appliance. When we turn on the appliance,



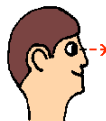
the electricity makes the appliance work. When you



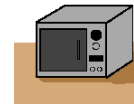
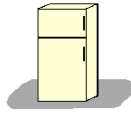
flip a switch, lights, ceiling fans, and other



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

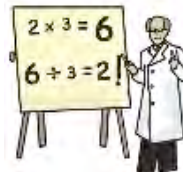


buy and use to make our lives easier.

Vocabulary



invent



prove



scientist

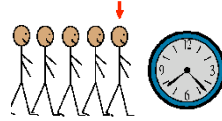


lightning rod

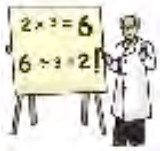
Vocabulary Definitions



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



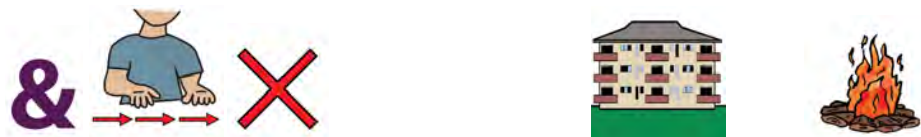
to buildings and runs into the



ground. It is used to protect buildings





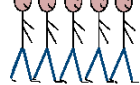












because lightning travels down the rod


















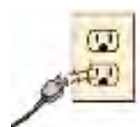
and does not cause the building to burn.


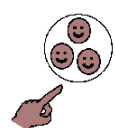



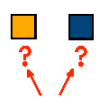


History of Electricity









 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_



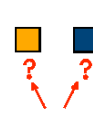
People lived for many years without electricity. They



cooked on wood or coal burning stoves, read



by candlelight, and heated their homes in fireplaces.



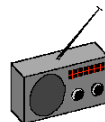
People would ride horses, or in carriages pulled



by horses and oxen, because they did not



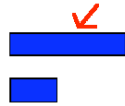
have cars. People did not have washing machines,



dryers, irons, televisions, stereos, video games, computers, or



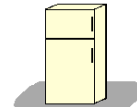
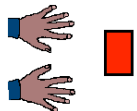
cell phones.



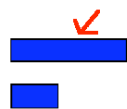
Life long ago is hard to understand because today



people use electrical energy all the time. Imagine not having



lights or not getting a cold drink from a refrigerator.



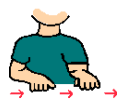
Imagine how long it would take you to get



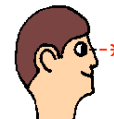
to the grocery store if you had to walk or ride a



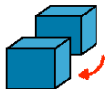
horse.



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.



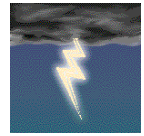
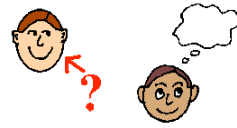
It has always been in nature, but electricity was



not named by people until the 1700s.



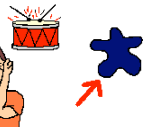
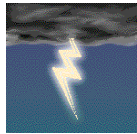
1



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



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

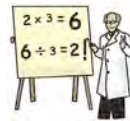
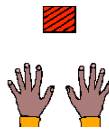


&

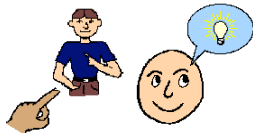


x → □

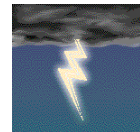
lightning, the noise it made, and the way it moved



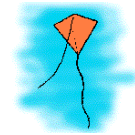
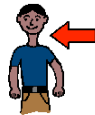
across the sky was electricity. Franklin wanted to **prove**



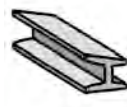
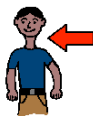
his theory.



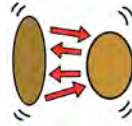
Franklin decided to fly a kite up into storm



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



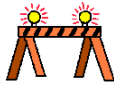
He used a metal key because he knew from his



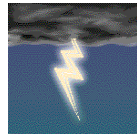
experiments that electricity is attracted to metal. The key



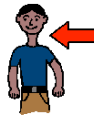
was also not too heavy, so the kite would still fly.



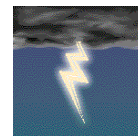
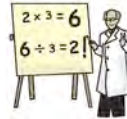
It was a very dangerous experiment.



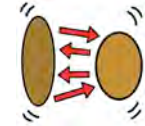
When lightning struck Franklin's kite and the key,



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



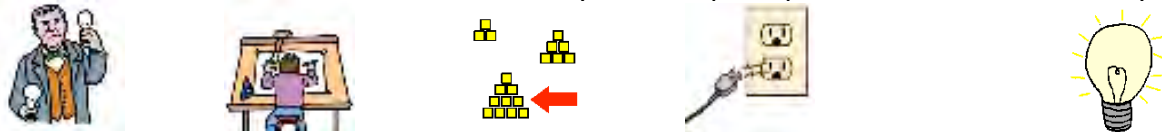
and it gave him an electrical shock.

 Lightning had hit  trees and  buildings and  started  fires. Because  lightning can cause  damage, Franklin wanted  to protect  buildings and  people from  lightning during  storms.

He  invented a **lightning rod**. His  lightning rod was made of  iron and was about **10**  feet long. The  lightning rod  was put on  top of a  building and  it ran  down into the  ground. When the  lightning hit  the rod  it  traveled through the  rod into the  ground. Buildings  were not  damaged and  fires did  not start.



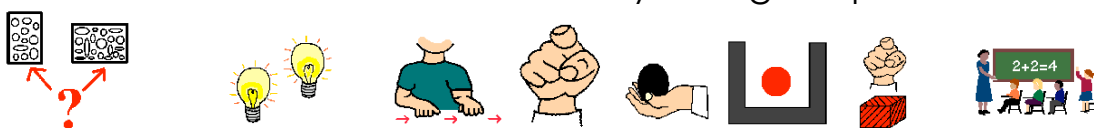
Other scientists found ways for people to use electricity.



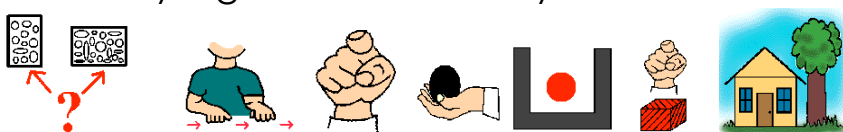
Thomas Edison invented the most used electrical item – the light bulb!



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



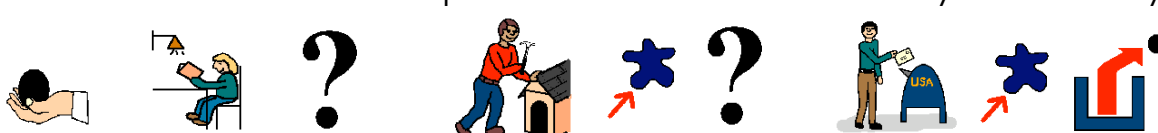
How many light bulbs do you have in your classroom?



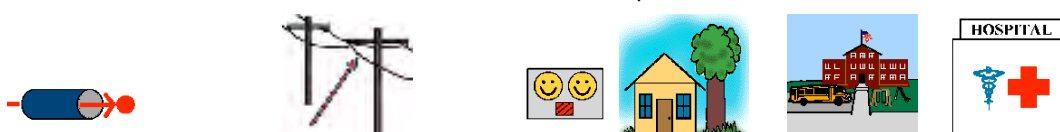
How many do you have in your home?



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



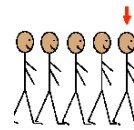
3. Thomas Edison invented the light bulb.



True



False



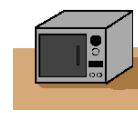
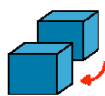
4. Benjamin Franklin made the first lightning rod.



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

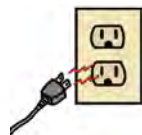


8. To prove something means to _____.

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

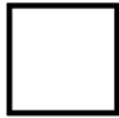
c. attract



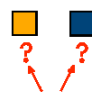
10. Without electricity, people cooked with _____



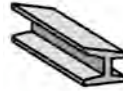
or _____



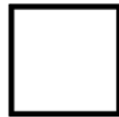
a. wood



or



iron



b. wood



or



coal



c. straw



or



butter