SCIENCE

Bonus

Physical Science

GRADES 5-8

NAME: ______________________________

Student Worksheet

Activity One

Writing a Short Essay
How Carbon Goes Around and Around

Write a short essay about how carbon moves from place to place in our world. Carbon is part of the chemical changes that move energy we get from sunlight from one living thing to another. Carbon is also part of the chemical changes we use to get energy from fuels.

Study these chemical changes to get ready to write your essay:

1. Plants use carbon in carbon dioxide from the air to make food.

2. The carbon in food molecules becomes carbon dioxide again during the chemical reactions in our body that give us energy.

3. Burning wood is another chemical change that releases energy stored by plants. This reaction also makes carbon dioxide.

4. Coal, oil, and natural gas are called "fossil fuels" because they are the remains of plants that lived millions of years ago. These plants also put energy from the sun into the materials we now use as fuel. Burning these fuels is another chemical change that puts carbon back into the air as carbon dioxide.

Explain in your essay that carbon is never lost, but circles around and around in different forms.

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Activity Two

Make Models of the States of Matter and of Kinds of Mixtures

Make models using small balls of plastic foam or other small, round objects, like dry peas. Use balls that are all the same size.

Show the difference between particles in a liquid and particles in a solid.

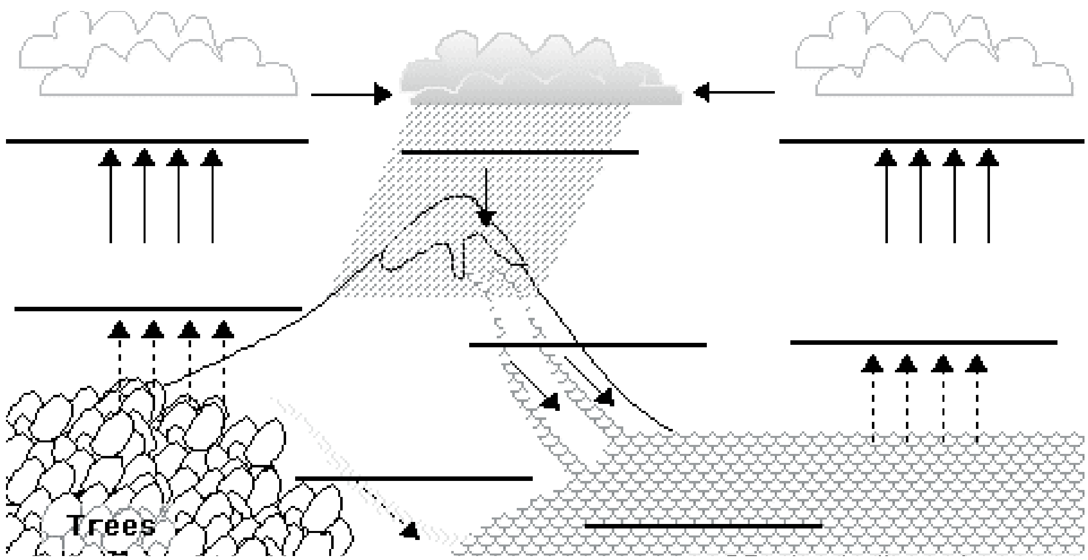
1. To show a liquid, just pour some of the balls into a glass.
2. To show a solid, glue some of the balls together to form a block.
3. It would be hard to use the balls to show a gas. Describe how the balls would be arranged to show a gas, if the balls could be made to float around in the air.
4. Make half of the balls a different color with a marking pen. Mix the two colors of balls together to show how they would be arranged in a solution. This is called a **"homogeneous mixture."**
5. Show how particles are arranged in a mixture like salt and sand. Glue small groups of each colored ball together. Mix the balls together to show a mixture like salt and sand. This is called a **"heterogeneous mixture."**

NAME: ______________________

Activity Three

Make a Diorama of the Water Cycle

The WATER CYCLE is the way water moves from oceans and lakes to the air to clouds to rain and snow and back to the ocean. Make a diorama of the water cycle like the picture shown below.



You can use a mirror or piece of glass for the ocean surface. Use cotton balls for the clouds. Make the mountain from soil or modeling cay. Make the tops of the mountains white to show they have snow on top.

There are changes of state in the water cycle. Tell what the different changes of state are called. Tell what state the water is in before and after the change. Do this for the following changes:

1. **Water going out of the ocean and into the air.**
2. **Water in the air forming clouds.**
3. **Water in the clouds becoming snowflakes.**
4. **Water in the snow on the mountaintop changing to a form that lets it run back to the ocean.**

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Activity Four

Designing a Game

Identify Materials From Their Properties

Design a game about materials and their properties. All you need are some small cards all the same size. Work in pairs.

1. Write all these properties on cards, one on each card:
   Solid at room temperature, Liquid at room temperature, Gas at room temperature, Freezes at 32°F, Boils at 212°F, Transparent, Opaque, Translucent, hard, soft, rough, smooth, white, black, red, purple, blue, green, yellow, orange, brown, round, square, has a smell, has no smell, flammable, will not burn, rots, will not rot, rusts, will not rust, attracted to a magnet.
2. Choose some objects and materials that could be described with some of the properties above (for example: a rock, a nail, oil, water, a wood block). Think of some more yourself. Write each object or material on another set of cards.
3. To play the game, separate the cards into a stack of objects and materials and a stack of properties.
4. The first person chooses a card from the materials stack and reads it. The person then looks through the properties stack to find the properties that match the material. The person turns the material card and the property card face down.
5. The second person turns the property cards up one at a time. After each card is turned up the second person tries to guess the material on the material card.
6. When the second person guesses the material, he or she writes down the number of guesses it took as his or her score.
7. The two people change places as card chooser and guesser, and the new guesser writes down his or her score.
8. Each takes the same number of turns. Add up the total number guesses for each person. Low score wins.

Activity Five

Designing a Game
Separating Mixtures

This game tests your skill at thinking of ways to separate mixtures. You will need some small cards, all the same size.

1. On one set of cards write the names of materials that could be part of a mixture that could be separated with ordinary tools. These could be sand, salt, tooth picks, iron filings, small iron nails, pennies, sawdust, water, and oil. You may be able to think of others, but be careful not to choose any that would be too hard to separate, like salt and sugar.

2. On another set of cards write the names of tools that would be useful in separating mixtures. These could be a bucket, water, a hot plate, a screen, a magnet, and a filter.

3. Divide the materials cards equally between the two players.

4. Take turns drawing from the face-down stack of tool cards. If the tool you draw makes it possible to completely separate one of the materials from your mixture, give the material card to the other player. Now it is part of his mixture, and separating it is his problem.

5. Play until one person has completely separated his mixture or until you have taken an agreed on number of turns. Then the person with the fewest materials in his or her mixture wins.

Activity Six

Moon Games

You have learned that some things are different on the moon than they are on Earth and some things are not.

Everything weighs about **one-sixth** as much on the moon as it does on Earth. This means you can throw something six times as high. There is **no air** on the moon. This means you can throw things farther, because there is no air resistance. But you can't throw them six times as far, only a little farther.

Everything has the ***same* mass** on the moon as it does on Earth. This means it is just as hard to stop something that is moving and just as hard to get something moving that is sitting still. This is because the more mass something has, the harder it is to change its motion.

Now, what does all this have to do with games?

Some things about games will be different and some will be the same. **Choose your favorite game and describe how it would be different on the moon.** Be sure it is an active game that involves moving people and objects. Some games you might want to choose from are baseball, hockey, tennis, bowling, cycling, rock climbing, basketball, volleyball, football, or track events. There are many more. But definitely not hang gliding. Also remember there is no water on the moon.

- Tell which parts of the game would be about the same and which would be different. Explain why.
- Describe any rule changes you think you would have to make.
- Don't worry about the space suits slowing you down.

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Student Worksheet

Activity One

Writing a Short Essay

The History of the Atomic Model

Write a short report on the history of the atomic model.

Tell about the models in the order they were suggested:

1. John Dalton's model in 1803
2. J. J. Thompson's model in 1897
3. Ernest Rutherford's model in 1909
4. Niels Bohr's model in 1913
5. Bohr's model is a lot like the one we have been studying, but there is a newer one. It is the electron cloud model. It came from the work of several people around 1926.

Find out what you can about how each model showed the parts of an atom. The ways people showed the electrons are important. Find out what you can about the experiments these people did that led to their models. Tell why Thompson's model was called the "plumb pudding model."

The electron cloud model is the hardest to understand. Don't expect to be able to tell everything about it. It shows the electrons as clouds of different shapes. This is because it is not possible to tell exactly where an electron is, not because they are really clouds.

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Activity Two

Make Models of Atoms of Elements

Make models of several of the smaller atoms. Use whatever you can find easily for the electrons, neutrons, and protons. You can use peas, plastic foam balls, old golf balls, fruit, or whatever you can get easily. You could even make models that could be eaten for lunch!

Make the neutrons and protons about the same size and different colors. Glue or fasten them together to form the nucleus. Use something smaller for the electrons.

The easiest way would be to fasten the parts to a piece of cardboard. If you can hang them in the air, that could look be even better. Try hanging the nucleus and electrons from strings inside a cardboard box.

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Student Worksheet

Activity Three

Collect samples of elements

Make a collection of as many pure elements as you can find. Compounds containing the elements don't count. Some of the easiest to get are listed below in order of atomic number.

Atomic Number	Element	Example
He	Helium	in a helium balloon
C	Carbon	as a lump of coal or charcoal
Mg	Magnesium	
Al	Aluminum	
Cr	Chromium	
Fe	Iron	
Ni	Nickel	
Cu	Copper	
Zn	Zinc	scraped from a galvanized nail
Ag	Silver	
I	Iodine	
W	Tungsten	from a light bulb
Pt	Platinum	
Au	Gold	
Hg	Mercury	
Pb	Lead	

You might also be able to find silicon (Si), sulfur (S), and calcium (Ca).

Ask your teacher which would be poisonous or dangerous to touch.

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Student Worksheet

Activity Four

Designing a Game

The Periodic Table as a Board Game

For two or more players

Use the periodic table as a board game. Get a large copy of the periodic table you can lay on a table top. You could also make you own periodic table on a large piece of paper. You will also need a pair of dice and a mover for each person.

Rules:

1. Take turns rolling the dice.
2. Move one space on the periodic table for each count of the dice. For example, if the first person rolls a six, they put their mover on the carbon square.
3. If you roll a double, you get a free turn.
4. If you land on an inert gas, you loose a turn. (That is, you become inert.)
5. If you land on nickel, you get to move ahead five spaces to arsenic.
6. If you land on silver, you get to move ahead ten spaces to lanthanum.
7. The first person to land on gold wins. *But* you have to land exactly on gold. If you don't roll the exact number, you have to try again next turn.

You can think of it this way—for every dot on the dice you get a proton in you nucleus. You don't have to worry about getting neutrons. Neutrons are free, because there is no charge for neutrons. (No charge…get it?)

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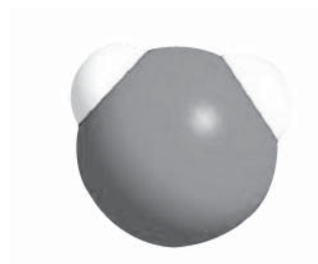
Activity Five

Molecular Models

We have studied atomic models, but we have not studied molecular models. Most kinds of molecular models show the bonds and the atoms but not the electrons, neutrons, and protons.

Look for some pictures of molecular models, and think about how you would make them with things you can find. Your school may also have kit for making molecular models. The most common kind of molecular model is the stick and ball model. The balls are atoms and the sticks are bonds. This is a stick and ball model of a water molecule..

The small balls are hydrogen atoms, and the large ball is an oxygen atom. The sticks are bonds. Notice the balls are different sizes. Try to find a list of atom sizes so you know what size balls to use. Molecular models show the sizes and shapes of molecules, but they don't look exactly like molecules. The model below looks more like a real molecule.



You will have to learn a little about chemical formulas and molecule shapes to make your models. Try to make some simple molecules, like oxygen, methane, ammonia, and methanol. Some things you might try for model parts are toothpicks for bonds and marshmallows, grapes, or plastic foam balls for atoms.

Activity Six

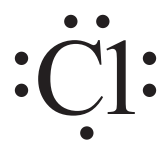
The Octet Rule

Learn More about How Outer Electrons Form Bonds

Learn about the octet rule. Octet means a group of eight. The main idea is that eight outer electrons is a very stable number. Stable, for atoms, means about the same as inert. All the inert gases have eight outer electrons.

Atoms that don't have eight outer electrons can get eight by sharing electrons with other atoms or giving away or taking electrons. This is what happens when bonds form.

Learn how to show these ideas with "electron dot structures." These pictures show the symbol for the atom surrounded by its outer electrons. This is the electron dot structure of chlorine.



A chlorine molecule has two atoms of chlorine. This is the electron dot structure of a chlorine molecule.

See how both chlorines are now surrounded by eight electrons because they are sharing a pair.

When you understand the octet rule, you can understand why molecules have certain fixed numbers of each atom. It also helps to learn how to read and write chemical formulas. For example the chemical formula for a chlorine molecule is Cl_2. The little 2 means two atoms of chlorine in each molecule. The formula for water is H_2O. So a water molecule has two atoms of hydrogen and one of oxygen. When you understand the octet rule and electron dot structures, you can understand other chemical formulas, like $AlCl_3$, NH_3, and CCl_4.

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Student Worksheet

Activity One

How Does a Hybrid Car Work?

Hybrid cars are powered partly by gasoline and partly by electricity. When the car is using energy stored in its batteries, it is saving on gasoline. Learn how hybrid cars work by reading about them. You could also ask a dealer that sells hybrid cars. Find out how hybrid cars are different from other cars. You can find information on the Internet about hybrid cars. Your teacher may be able to help you find websites or books that explain how hybrid cars work.

Here are some questions for you to think about as you do your research:

- What kind of energy does a moving car have?
- What energy transformation happens when a normal car slows to a stop?
- What energy transformation happens when a hybrid car slows to a stop?
- What kind of energy is stored in gasoline?
- In what other form does a hybrid car store energy?
- What energy transformations happen when a hybrid car uses its stored energy?
- Any other facts of interest to you

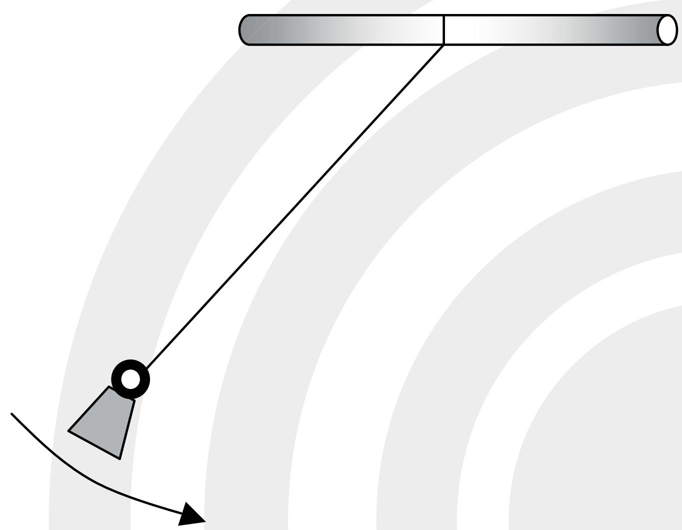
Record your findings in a one-page report.

NAME: ____________________

Activity Two

Learn About the Motion of a Pendulum

When a pendulum swings back and forth, it transforms kinetic and potential energy back and forth. Make a simple pendulum like the one shown below.



To make your pendulum, tie a string to a weight. Tie the other end of the string to something it can swing from. Learn what can change the time it takes to make one complete swing. Use a stopwatch to time one swing. Or, you can time ten swings and divide that number by ten.

Now, see what can change the time it takes the pendulum to make each swing.

1. Try changing the amount of **weight** on the end of the string. Does this change the time of one swing?

2. Try changing how **high** you lift the weight before you let it go. Does the height change the time of one swing?

3. Try changing the **length** of the string. Does the length of the string change the time it takes for one swing?

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Student Worksheet

Activity Three

Study Heat Flow

Learn about heat flow between a warm object and a cold object.

For this activity you will need:

- 2 thermometers
- a soft drink can
- a pencil and paper

Follow these steps:

1. Fill a sink with cold water from the cold water faucet. Make the water level *less* than the height of the soft drink can.
2. Fill a soft drink can with hot water from the hot water faucet.
3. Use the thermometers to measure the temperatures of the water in the sink and the water in the can. Write the temperatures down.
4. Put the soft drink can in the sink.
5. Measure the temperature of the water in the sink and the water in the can every two minutes until they are the same temperature.

Record your observations. Here are some questions that may help you.

- How did the temperatures change?
- Why do you think the temperatures changed the way they did?
- Which had more thermal energy when you put the can in the sink—the water in the can or the water in the sink?
- Which direction did heat flow?
- Which gained heat—the water in the can or the water in the sink?
- Which lost heat—the water in the can or the water in the sink?
- Was the heat gained equal to the heat lost?

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Student Worksheet

Activity Four

Wave Motion

In this activity you will see that waves carry energy but they do not carry matter. You will also measure the wavelength, frequency, amplitude, and speed of a wave on water.

You will need:

- a small object that floats, like a piece of wood
- a ruler
- a stop watch

This is what you will do:

1. Find some flat, still, shallow water. A pond or a large puddle will do.
2. Place a piece of wood a few feet from the shore where you can reach it.
3. Drop a pebble into the water a few feet from the floating block.
4. As the waves pass the block, watch carefully how the block moves.
5. Hold the ruler straight up and down in the water with one end resting on the bottom and make waves again.
6. Read the high and low water levels on the ruler as the waves pass it.
7. Count how many waves pass the ruler in one minute.
8. Try to measure the distance between wave tops. You may have to move the ruler along with the waves as you read it.

Record your observations. Here are some questions that may help you.

- How did the block move? (This is the way the water particles moved.)
- What was the amplitude of the wave? (It was not the *total* difference between the high and low water.)
- What was the frequency of the waves?
- What was the wavelength of the waves?
- What was the wave speed? (To get this number, multiply the frequency times the wavelength.)

Activity Five

The Law of Reflection Making a Periscope

Do you remember the LAW OF REFLECTION?

This law says that the angle of reflection equals the angle of incidence. This means that light bounces off a mirror at the *same angle* that the light hits it, only in the other *direction*.

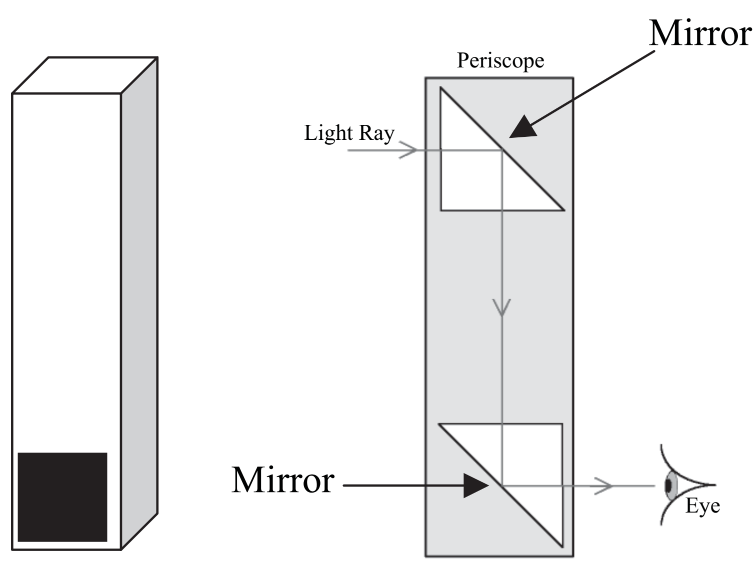
You can use this law to make a **periscope.** With a periscope, you can look over fences or around corners without being seen. A submarine has a periscope that the people inside can use to see above the water while the submarine is under water.

For this project, you will need:

- a long square box
- 2 small, square mirrors

Follow these steps to make your periscope:

1. Cut a square out of the bottom of one long side of the box (as shown on the left).



2. Cut another square hole on the other side, at the other end.
3. Cut slots to hold the mirrors so that one mirror is at each end (as shown on the right).
4. Look at the angles that the light path makes with the mirrors. Do they agree with the law of reflection? *Yes, they do*!

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Activity Six

Renewable and Nonrenewable Energy Sources

In this activity, you will learn more about a renewable energy source and a nonrenewable energy source.

Choose *one* renewable energy source from the list on the left that you would like to learn more about. Choose *one* nonrenewable energy source from the list on the right that you would like to learn more about.

Renewable Energy Sources	**Nonrenewable Energy Sources**
Wood	Coal
Wind	Oil
Solar	Natural Gas
Hydroelectric	Nuclear
Geothermal	
Biodiesel	
Tide and Wave Motion	

Research some facts about the sources of energy that you choose. Here are some questions you may wish to think about as you do your research:

- What is the original form of energy? (chemical, electromagnetic, thermal…)
- What form or forms is it changed into so it can be used?
- How does it cost compared to other energy sources?
- How plentiful is it (how much is there in the world)? Where can it be found and used?
- What are the main advantages of the energy source?
- What are the main disadvantages of the energy source?
- Any other facts of interest to you

Write down your findings in a short report. Include any pictures that you find. (Copy them or draw them yourself to help show what you found.)

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Student Worksheet

Activity One

Force, Mass, and Acceleration

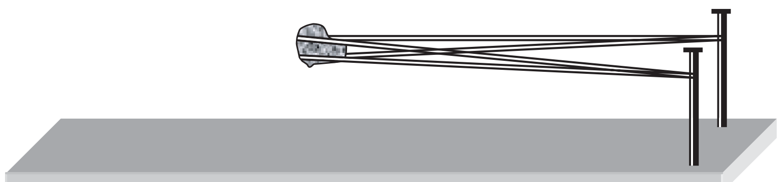
This activity may be done alone or with a partner.

FOR THIS ACTIVITY, you will need:

- Rocks of different sizes. (Use rocks that are all the same kind of rock. Choose rocks from the size of a small marble to the size of your fist.)
- A large, thick rubber band
- A board about two feet long and at least six inches wide
- Two large nails
- A tape measure
- A scale or balance

Steps

1. Measure the masses of the rocks with the scale.
2. Pound the nails into one end of the board a little farther apart than the width of the largest rock.
3. Loop the rubber band around the nails.
4. Try launching one of the rocks with the rubber band. *Be safe!* ***Be sure no one could get hit by the rock you launch. Do not try to shoot the rock more than a few feet!*** Your rock launcher should look like this:



5. The farther you pull back the rubber band, the more force will act on the rock. Measure the distances you pull back the rubber band. This is will give you a rough measure of force.
6. The farther the rock flies, the more it was accelerated by the force of the rubber band. This gives you a rough measure of acceleration.
7. Try different amounts of force on the same rock.
8. Try the same amount of force on different rocks.
9. Write down your results in a table like this:

Distance Rubber Band Was Pulled (Force)	Distance Rock Traveled (Acceleration)	Mass of Rock

What do your results show? How does mass affect acceleration? How does force affect acceleration?

Answers: The greater the mass, the less the acceleration. The greater the force, the greater the acceleration.

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Student Worksheet

Activity Two

Newton's Laws of Motion

Your task is to write a **short essay** on Newton's three laws of motion.

Read about Isaac Newton and his three laws of motion. Search the Internet or ask your teacher to suggest some books to read. Collect as many important facts as you can about Isaac Newton and his laws of motion.

Here are some questions for you to think about as you collect your information:

- **Where and when did Isaac Newton live?**
- **Which things in science did Newton study?**
- **What is the story of Newton and the apple?**
- **Is it true that Newton invented the fig newton?**
- **What are Newton's three laws of motion? (Give an example of each law from everyday life.)**
- **How are many people's ideas about motion *not* correct according to the first law of motion?**

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Student Worksheet

Activity Three

Gravity and the Planets, Moons, and Stars

Write a **short essay** about the force of gravity among the stars, planets, and moons.

Ask your teacher or look on the Internet for places to read about **how gravity affects large objects in space**, like the sun, stars, planets, moons, galaxies, and black holes. Collect as many important facts about this topic as you can.

Here are some questions for you to think about as you do your research:

- **What does gravity have to do with the way moons travel around planets and the way planets travel around the sun?**
- **Is gravity different on the moon?**
- **How much would you weigh on the moon?**
- **How does gravity cause stars to be "born?"**
- **How does gravity cause stars to make light?**
- **What can happen when a star's mass keeps growing and growing?**
- **What are black holes, and what does gravity have to do with them?**

NAME: ______________________________

Activity Four

Falling Objects and Acceleration

Write a short essay about **Galileo Galilei** and his study of falling objects.

"Galileo Galilei" and "The Leaning Tower of Pisa"

Search the Internet or ask your teacher for books about Galileo Galilei's study of falling objects. (He is usually called just "Galileo".) Collect as many important facts about this topic as you can.

Consider these questions as you collect your information:

- **Where and when did Galileo live?**
- **What did he discover about falling objects? Did it agree with what people thought at the time?**
- **Is it true that he dropped balls from the Leaning Tower of Pisa? Describe his experiment on falling objects.**

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Activity Five

Make an Electromagnet

In this activity you will make an **electromagnet.**
An electromagnet uses an electric current to turn an iron rod into a magnet.

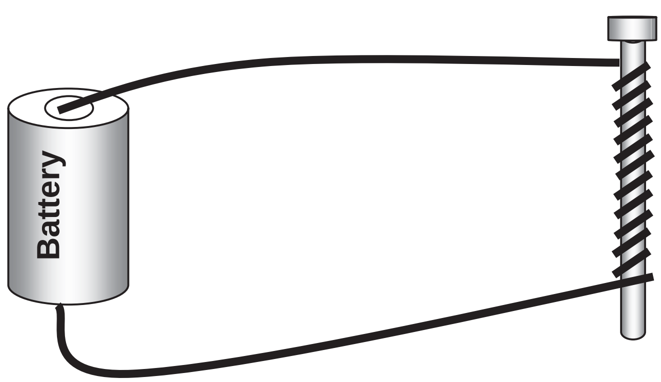
Work with a partner.

FOR THIS ACTIVITY, you will need:

- **A large iron nail or bolt**
- **A battery**
- **About two feet of electrical wire (the wire should be the kind that stays bent when you bend it)**
- **Some small things made of iron, like small nails or paper clips**
- **A bar magnet**

STEPS

1. Wrap the middle part of the wire around the nail at least ten times.
2. Leave about 6 inches of wire at each end that is not wrapped around the nail.
3. Touch or connect the ends of the wire to the battery as shown below.
4. While holding the wires to the battery, have your partner see if the things made of iron will stick to the ends of the nail.
5. Bring one end of the bar magnet close to one end of the nail. Is it attracted or repelled?
6. Reverse the wires on the battery.
7. Bring the same end of the bar magnet close to the same end of the nail. Is it attracted or repelled?



Answers: Answers to #5 and #7 will be reversed. Answers will vary.

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Student Worksheet

Activity Six

Electrostatic Force

FOR THIS ACTIVITY, you will need:

- **a plastic comb**
- **a balloon**
- **tissue paper**
- **wool cloth**
- **plastic tape**
- **a cat would also be good to have, but not necessary.**

STEPS

1. Tear the tissue into several small pieces about this size.
2. Comb your hair with the comb several times, and bring it near the bits of tissue paper.
3. **Gently** comb a cat, and bring the comb near the bits of paper.
4. Rub the comb on wool cloth, and bring it near the bits of paper.
5. Blow up the balloon and tie it shut.
6. Rub the balloon on the wool, and see if it will stick to the wall.
7. Repeat with the cat, **gently**.

All the attractions you saw were caused by electrostatic attraction. The comb and balloon picked up a charge. When you brought them near the bits of paper or the wall, they caused another charge to form in the paper and the wall. **Were the charges on the two things the same or different?** Explain how you know.

8. Cut off two pieces of tape about 8 or 10 inches long.
9. Stick both pieces to a table top.
10. Pull both pieces of tape off at the same time. This puts a charge on each piece of tape.
11. Hold the two pieces at least a foot apart and hanging down. Slowly bring them together.

Were the charges on the pieces of tape the same or different? Explain how you know.

Answers: 7. Different, because unlike charges attract. 11. The same, because like charges repel.

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Student Worksheet

Activity One

Musical Water Glasses

FOR THIS ACTIVITY, you will need:

- **8 water glasses** (make sure they are all the same size and shape)
- **a spoon**
- **a musical instrument** (such as a guitar, piano or a pitch pipe)

STEPS

1. Fill the water glasses with different amounts of water.
2. Tap the glasses with a spoon and listen to the notes they make.
3. With the help of a musical instrument, try to make an **eight-note musical scale** with the glasses.
4. See if you can play a simple tune on the glasses.

Now, notice which glasses have higher notes and which ones have lower notes. **How is the height of water in the glasses related to the pitch of the notes?**

Answers: Lower water gives higher notes.

Activity Two

Speeds in Nature

Speeds in nature go from very, very slow to very, very fast. Some speeds are so slow you can't see the motion. Some speeds are so fast you can't see the motion. Search the Internet or books your teacher suggests for some very different speeds in nature.

Here are some speeds to look for:

Speeds too SLOW to see:

- continental drift
- hair growing
- plants growing (look for fastest and slowest growth)

Speeds you CAN see:

- snail moving
- fast animals
- cars (What is the record?)
- planes (What is the record?)
- speed of sound
- speed of Earth traveling around the sun

Speeds too FAST to see:

- electrical signal through a wire
- speed of light

Look for these and other speeds you think would be interesting to know. Make a chart like the one below and record the speeds in it.

Item	Speed

NAME: ____________________

Student Worksheet

Activity Three

Graphing Acceleration

In this activity you will see how acceleration looks on a graph. The acceleration we will look at is the acceleration caused by GRAVITY. This is the acceleration of something that is FALLING. (We won't worry about air resistance slowing things down. Air resistance doesn't make much difference for small dense things, like a pebble, during the first few seconds of falling.)

The table below shows how far a pebble falls during the first 4 seconds. It also shows how its speed changes.

Time in seconds	Distance in meters	Speed in meters per second
0	0	0
1	5	10
2	20	20
3	45	30
4	80	40

1. Use a ruler to make a grid like the one below. Make it with four columns and four rows.

Next, use your grid to make a graph of DISTANCE and TIME. Put the numbers for distance on the left and the numbers for time along the bottom. Add the labels from the top of the table.

2. **Now, make a graph of SPEED and TIME.** (You will need to make another grid like the one in Question 1 above. Make it with four columns and four rows.) Put the numbers for speed on the left and the numbers for time along the bottom. Add the labels from the top of the table.

3. **a)** What is the acceleration caused by gravity in meters per second per second?
b) Why is the first graph a curved line?
c) Is the speed of a falling pebble constant? Explain.
d) Why is the second graph a straight line?
e) Is acceleration caused by gravity constant acceleration? Explain.

Answers: 3. a) 10 meters per second per second, **b)** Speed is changing, **c)** No, because the slope is changing, **d)** Because acceleration is constant, **e)** Yes, because the slope is not changing

NAME: ____________________

Activity Four

Acceleration and "Gs"

A falling object accelerates at about 10 meters per second per second (10 m/s^2). This is called the **acceleration due to gravity.** That is speeding up pretty fast. It is more acceleration than a runner can get as he or she takes off from the starting line of a race.

Some things, like race cars, can accelerate much faster. Sometimes acceleration is given in **Gs.** If something accelerates at 10 m/s^2, we say it has an acceleration of 1 G. If the acceleration is 20 m/s^2, it has 2 Gs of acceleration.

Search the Internet for the acceleration of different things. Try searching for "speed and acceleration" and for "dragster acceleration" with and without the quotation marks. Look for the acceleration of these things:

- **race cars**
- **dragsters**
- **rocket dragsters**
- **roller coasters**
- **jet planes**
- **humans**
- **cheetahs**
- **space shuttle**

Write what you find in the table below. Put the acceleration of different things in order from HIGHEST acceleration to LEAST acceleration.

Item	Its Acceleration

Activity Five

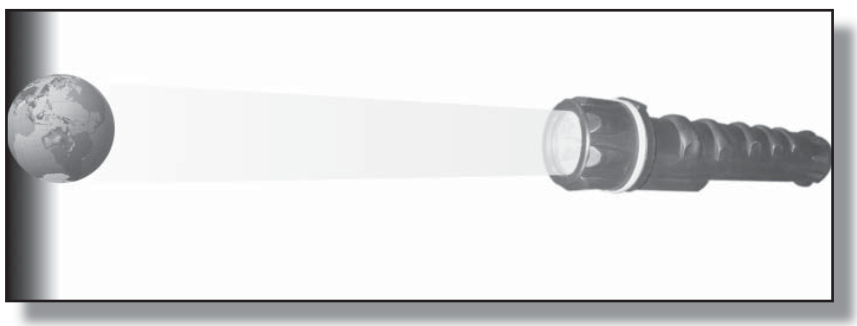
Earth's Motion

We have learned that the sun *looks like* it is circling the Earth because it moves across the sky during the day. We have also learned that it looks this way because we are standing on the Earth which feels like it is not moving. It is actually the Earth that is spinning.

In this activity you will try to really believe that the Earth is spinning and the sun is sitting still.

STEPS

1. Begin by making a **simple model of the Earth and sun**. Use a flashlight for the sun and any large ball for the Earth. A globe would be even better for the Earth. Your model will look like this:



2. Now, make the room as dark as you can. Turn on the flashlight, and slowly spin the "Earth." Picture yourself on a place on the surface of the Earth. Imagine yourself in that spot watching the sun as it rises in the morning, as it seems to move across the sky, and as it sets in the evening.
3. Next, **look at the real thing**. Find a spot where you can see the sun set in the evening. Wait until the sun begins to dip below the horizon. (Do **not** look directly at the sun until it has become red and dim. You can damage your eyes if you look at it while it is still bright.)

   Think about your model as you look at the sun. If you look very closely, you can see it moving. But forget that the sun looks like it is moving. Try to SEE and FEEL the Earth you are standing on spinning away from the sun. Can you do it? It's hard to imagine, but that is what is really happening!

NAME: ______________________________

Student Worksheet

Activity Six

Measuring Waves

In this activity you will measure the SPEED, WAVELENGTH, FREQUENCY, and AMPLITUDE of waves on water.

It is easiest to do this activity with a partner. Find a large puddle of water outside, or go to a still pond. As you follow the steps below, record your answers to each question in your notebook.

FOR THIS ACTIVITY, you will need:

- **a stopwatch**
- **a ruler or tape measure**

STEPS

1. Drop a pebble in the water and watch the waves as they move across the water.
2. Put the ruler up and down in the water, resting on the bottom. Measure the **high** and **low** points of the waves as they pass the ruler.
3. How do you find the **amplitude** of the wave from the high and low points?
4. Find the speed of the waves. Drop the pebble and measure **how long** it takes a wave to reach shore. Measure the **distance** to where you dropped the pebble.
5. How do you find the **speed** of the wave?
6. Drop the pebble and count **how many** waves come to shore in one minute.
7. What is the **frequency** of the waves?
8. Measure the **distance** between wave tops. This will be tricky. You will have to read the ruler as you move it along with the waves.
9. For any kind of wave, the **speed equals the wavelength times the frequency**. See if your measurements agree with this equation.

CHALLENGE! How do different sizes of pebbles affect the speed, wavelength, frequency, and amplitude of the waves? You can also try this: drop the same pebble from different heights and see how height affects the speed, wavelength, frequency, and amplitude of the waves.

Answers: **3.** Subtract low from high and divide by 2, **5.** Divide distance by time, **7.** Number of waves divided by minutes

Activity One

Rube Goldberg Machines

A Report

About 100 years ago a man named Rube Goldberg started drawing cartoons of goofy machines that are now called "Rube Goldberg machines". These machines were designed to do a very simple task in a very complicated (and funny) way. The machines were a series of connected parts. Each part made the next part do something. Some of the parts were things like rockets, parrots, and popping balloons. Many of the parts were simple machines.

PREPARE A SHORT REPORT on Rube Goldberg machines. It can be written or spoken, but either way you will need some **pictures**. Search a library or the Internet for "Rube Goldberg" and "Rube Goldberg Machines". A web site for image searches will lead you to some pictures of these machines.

Copy and print some pictures of Rube Goldberg machines. Make two copies of each picture. On one copy, **label all the simple machines** you can find that are part of the Rube Goldberg machine. They all have some, especially levers. You may also want to include a little information on the life of Rube Goldberg himself.

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NAME: ______________________

Activity Two

Archimedes' Screw

A Short Essay

WRITE A SHORT ESSAY on the compound machine called "Archimedes' screw". This interesting machine is said to have been invented by the Greek scientist Archimedes more than 2,000 years ago. Search the Internet or a library for "Archimedes" and "Archimedes' screw." You should find a picture of the machine if you look in an image search site.

Try to include the answers to these questions in your essay:

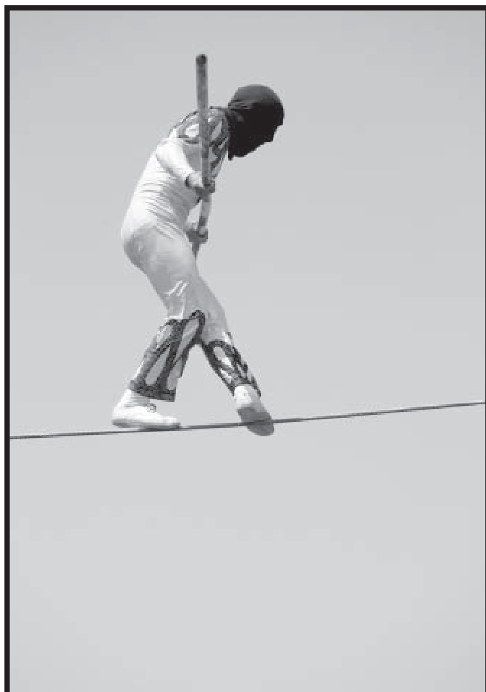
- **What is an Archimedes' screw used for?**
- **Is it still used today?**
- **Which two simple machines make up this compound machine?**

You might also want to include some things about Archimedes himself and some of his other studies and inventions.

Activity Three

Circus Machines

Simple machines are often an important part of circus acts. For example, the tightrope walker below is using a LEVER when he uses the balancing pole.



See how many pictures you can find of simple machines in the circus. Try the Internet or books about circuses. Here are some pictures you can look for:

- Look for a SPRINGBOARD ACT. That's where a big person jumps on one end of a board, and a small person on the other end flies into the air and lands on someone's shoulders.
- Look for simple machines in JUGGLING ACTS.
- Look for STILT WALKERS.

If you have a chance to watch some acts, that would be even better.

IDENTIFY and LABEL the simple machines in each picture of a circus act.

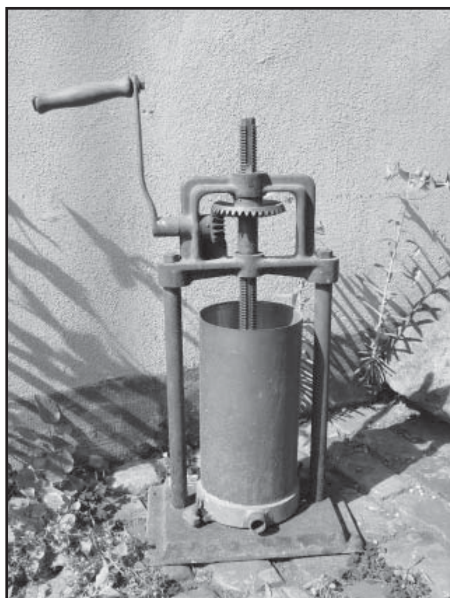
NAME: ____________________

Activity Four

Antique Tools

Some people think things were simpler in the old days. Machines certainly were. Many things that are now powered by electric motors and gasoline engines were once done with hand tools. Those tools were often simple or compound machines. **See how many old tools and appliances you can find that are simple or compound machines**. Look in books, on the Internet, and in antique stores.

The picture below shows a machine that was used to squeeze the juice out of grapes. How many simple machines can you find in this machine?



Try to find other old tools and machines that are simple or compound machines. Look for pictures of these things or look for the actual tools. Here are some things you can look for:

- Printing press
- Manual typewriter
- Apple corer
- Meat grinder
- Washing machine
- Carpenter's hand tools

Try to find the simple machines in each compound machine or tool. For example, a manual typewriter has dozens of levers.

NAME: ______________________________

Student Worksheet

Activity Five

Antique Machinery

A hundred and fifty years ago, FACTORY and FARM MACHINERY was much different than today. Power in factories came from one big power source, like a steam engine. The power was sent to each machine by a system of wheel and axles and pulleys. **Try to find some pictures of people working in one of these factories.** Search for "nineteenth century factory" and "antique machinery". See how many simple and compound machines you can find in the pictures.

Farm machinery was a lot different, too. **Try to find pictures of antique farm machinery** like those shown below.

Plow

Windmill

Search for "antique farm machinery." You might even be able to see some of these machines in a museum or at a county fair. Try to figure out how the machines work. **Try to name the simple machines that make up each machine.**

NAME: ______________________

Student Worksheet

Activity Six

Build a Catapult

Have you ever seen a catapult? You may have seen one in a movie or on television. A picture of a catapult is shown below.

Catapults were used in wars before canons were invented. Catapults could throw large rocks long distances.

A catapult is a huge simple machine. Some catapults also have parts that are other simple machines. For example, a simple machine in a catapult does the throwing.

For this activity, you will build a smaller, simpler catapult. Look for instruction plans on the Internet. Search for "catapult plans" and "trebuchet." Gather your materials, and construct your catapult. When you are finished building it, display your labeled model in your classroom for other students to see.

Publication Listing

SOCIAL STUDIES - Books

ITEM #	TITLE
	DAILY LIFE SKILLS SERIES
CC5790	Daily Marketplace Skills Gr. 6-12
CC5791	Daily Social & Workplace Skills Gr. 6-12
CC5792	Daily Health & Hygiene Skills Gr. 6-12
CC5793	Daily Life Skills Big Book Gr. 6-12
	21ST CENTURY SKILLS SERIES
CC5794	Learning Problem Solving Gr. 3-8
CC5795	Learning Communication & Teamwork Gr. 3-8
CC5796	Learning Skills for Global Competency Gr. 3-8
CC5797	Learning to Learn Big Book Gr. 3-8
	MAPPING SKILLS SERIES
CC5786	Gr. PK-2 Mapping Skills with Google Earth
CC5787	Gr. 3-5 Mapping Skills with Google Earth
CC5788	Gr. 6-8 Mapping Skills with Google Earth
CC5789	Gr. PK-8 Mapping Skills with Google Earth Big Book
	NORTH AMERICAN GOVERNMENTS SERIES
CC5757	American Government Gr. 5-8
CC5758	Canadian Government Gr. 5-8
CC5759	Mexican Government Gr. 5-8
CC5760	Governments of North America Big Book Gr. 5-8
	WORLD GOVERNMENTS SERIES
CC5761	World Political Leaders Gr. 5-8
CC5762	World Electoral Processes Gr. 5-8
CC5763	Capitalism vs. Communism Gr. 5-8
CC5777	World Politics Big Book Gr. 5-8
	WORLD CONFLICT SERIES
CC5511	American Revolutionary War Gr. 5-8
CC5500	American Civil War Gr. 5-8
CC5512	American Wars Big Book Gr. 5-8
CC5501	World War I Gr. 5-8
CC5502	World War II Gr. 5-8
CC5503	World Wars I & II Big Book Gr. 5-8
CC5505	Korean War Gr. 5-8
CC5506	Vietnam War Gr. 5-8
CC5507	Korean & Vietnam Wars Big Book Gr. 5-8
CC5508	Persian Gulf War (1990-1991) Gr. 5-8
CC5509	Iraq War (2003-2010) Gr. 5-8
CC5510	Gulf Wars Big Book Gr. 5-8
	WORLD CONTINENTS SERIES
CC5750	North America Gr. 5-8
CC5751	South America Gr. 5-8
CC5768	The Americas Big Book Gr. 5-8
CC5752	Europe Gr. 5-8
CC5753	Africa Gr. 5-8
CC5754	Asia Gr. 5-8
CC5755	Australia Gr. 5-8
CC5756	Antarctica Gr. 5-8
	WORLD CONNECTIONS SERIES
CC5782	Culture, Society & Globalization Gr. 5-8
CC5783	Economy & Globalization Gr. 5-8
CC5784	Technology & Globalization Gr. 5-8
CC5785	Globalization Big Book Gr. 5-8

SOCIAL STUDIES - Software

ITEM #	TITLE
	MAPPING SKILLS SERIES
CC7770	Gr. PK-2 Mapping Skills with Google Earth
CC7771	Gr. 3-5 Mapping Skills with Google Earth
CC7772	Gr. 6-8 Mapping Skills with Google Earth
CC7773	Gr. PK-8 Mapping Skills with Google Earth Big Box

SCIENCE - Software

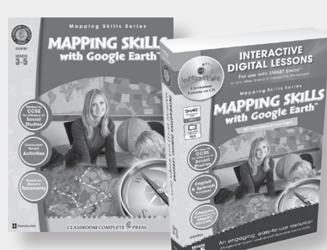
	SPACE AND BEYOND SERIES
CC7557	Solar System Gr. 5-8
CC7558	Galaxies & the Universe Gr. 5-8
CC7559	Travel & Technology Gr. 5-8
CC7560	Space Big Box Gr. 5-8
	HUMAN BODY SERIES
CC7549	Cells, Skeletal & Muscular Systems Gr. 5-8
CC7550	Senses, Nervous & Respiratory Systems Gr. 5-8
CC7551	Circulatory, Digestive & Reproductive Systems Gr. 5-8
CC7552	Human Body Big Box Gr. 5-8
	FORCE, MOTION & SIMPLE MACHINES SERIES
CC7553	Force Gr. 3-8
CC7554	Motion Gr. 3-8
CC7555	Simple Machines Gr. 3-8
CC7556	Force, Motion & Simple Machines Big Box Gr. 3-8

ENVIRONMENTAL STUDIES - Software

	CLIMATE CHANGE SERIES
CC7747	Global Warming: Causes Gr. 3-8
CC7748	Global Warming: Effects Gr. 3-8
CC7749	Global Warming: Reduction Gr. 3-8
CC7750	Global Warming Big Box Gr. 3-8

LANGUAGE ARTS - Software

CC7112	Word Families - Short Vowels Gr. PK-2
CC7113	Word Families - Long Vowels Gr. PK-2
CC7114	Word Families - Vowels Big Box Gr. PK-2
CC7100	High Frequency Sight Words Gr. PK-2
CC7101	High Frequency Picture Words Gr. PK-2
CC7102	Sight & Picture Words Big Box Gr. PK-2
CC7104	How to Write a Paragraph Gr. 3-8
CC7105	How to Write a Book Report Gr. 3-8
CC7106	How to Write an Essay Gr. 3-8
CC7107	Master Writing Big Box Gr. 3-8
CC7108	Reading Comprehension Gr. 5-8
CC7109	Literary Devices Gr. 5-8
CC7110	Critical Thinking Gr. 5-8
CC7111	Master Reading Big Box Gr. 5-8



SCIENCE - Books

ITEM #	TITLE
	HANDS-ON STEAM SCIENCE SERIES
CC4100	Physical Science Gr. 1-5
CC4101	Life Science Gr. 1-5
CC4102	Earth & Space Science Gr. 1-5
CC4103	Hands-On Science Big Book Gr. 1-5
	ECOLOGY & THE ENVIRONMENT SERIES
CC4500	Ecosystems Gr. 5-8
CC4501	Classification & Adaptation Gr. 5-8
CC4502	Cells Gr. 5-8
CC4503	Ecology & The Environment Big Book Gr. 5-8
	MATTER & ENERGY SERIES
CC4504	Properties of Matter Gr. 5-8
CC4505	Atoms, Molecules & Elements Gr. 5-8
CC4506	Energy Gr. 5-8
CC4507	The Nature of Matter Big Book Gr. 5-8
	FORCE & MOTION SERIES
CC4508	Force Gr. 5-8
CC4509	Motion Gr. 5-8
CC4510	Simple Machines Gr. 5-8
CC4511	Force, Motion & Simple Machines Big Book Gr. 5-8
	SPACE & BEYOND SERIES
CC4512	Solar System Gr. 5-8
CC4513	Galaxies & The Universe Gr. 5-8
CC4514	Travel & Technology Gr. 5-8
CC4515	Space Big Book Gr. 5-8
	HUMAN BODY SERIES
CC4516	Cells, Skeletal & Muscular Systems Gr. 5-8
CC4517	Senses, Nervous & Respiratory Systems Gr. 5-8
CC4518	Circulatory, Digestive & Reproductive Systems Gr. 5-8
CC4519	Human Body Big Book Gr. 5-8

ENVIRONMENTAL STUDIES - Books

	MANAGING OUR WASTE SERIES
CC5764	Waste: At the Source Gr. 5-8
CC5765	Prevention, Recycling & Conservation Gr. 5-8
CC5766	Waste: The Global View Gr. 5-8
CC5767	Waste Management Big Book Gr. 5-8
	CLIMATE CHANGE SERIES
CC5769	Global Warming: Causes Gr. 5-8
CC5770	Global Warming: Effects Gr. 5-8
CC5771	Global Warming: Reduction Gr. 5-8
CC5772	Global Warming Big Book Gr. 5-8
	GLOBAL WATER SERIES
CC5773	Conservation: Fresh Water Resources Gr. 5-8
CC5774	Conservation: Ocean Water Resources Gr. 5-8
CC5775	Conservation: Waterway Habitat Resources Gr. 5-8
CC5776	Water Conservation Big Book Gr. 5-8
	CARBON FOOTPRINT SERIES
CC5778	Reducing Your Own Carbon Footprint Gr. 5-8
CC5779	Reducing Your School's Carbon Footprint Gr. 5-8
CC5780	Reducing Your Community's Carbon Footprint Gr. 5-8
CC5781	Carbon Footprint Big Book Gr. 5-8

LITERATURE KITS™ - Books

ITEM #	TITLE
	GRADES 1-2
CC2100	Curious George (H. A. Rey)
CC2101	Paper Bag Princess (Robert N. Munsch)
CC2102	Stone Soup (Marcia Brown)
CC2103	The Very Hungry Caterpillar (Eric Carle)
CC2104	Where the Wild Things Are (Maurice Sendak)
	GRADES 3-4
CC2300	Babe: The Gallant Pig (Dick King-Smith)
CC2301	Because of Winn-Dixie (Kate DiCamillo)
CC2302	The Tale of Despereaux (Kate DiCamillo)
CC2303	James and the Giant Peach (Roald Dahl)
CC2304	Ramona Quimby, Age 8 (Beverly Cleary)
CC2305	The Mouse and the Motorcycle (Beverly Cleary)
CC2306	Charlotte's Web (E.B. White)
CC2307	Owls in the Family (Farley Mowat)
CC2308	Sarah, Plain and Tall (Patricia MacLachlan)
CC2309	Matilda (Roald Dahl)
CC2310	Charlie & The Chocolate Factory (Roald Dahl)
CC2311	Frindle (Andrew Clements)
CC2312	M.C. Higgins, the Great (Virginia Hamilton)
CC2313	The Family Under The Bridge (N.S. Carlson)
CC2314	The Hundred Penny Box (Sharon Mathis)
CC2315	Cricket in Times Square (George Selden)
CC2316	Fantastic Mr Fox (Roald Dahl)
CC2317	The Hundred Dresses (Eleanor Estes)
CC2318	The War with Grandpa (Robert Kimmel Smith)
CC2320	The Chocolate Touch (Patrick Skene Catling)
	GRADES 5-6
CC2500	Black Beauty (Anna Sewell)
CC2501	Bridge to Terabithia (Katherine Paterson)
CC2502	Bud, Not Buddy (Christopher Paul Curtis)
CC2503	The Egypt Game (Zilpha Keatley Snyder)
CC2504	The Great Gilly Hopkins (Katherine Paterson)
CC2505	Holes (Louis Sachar)
CC2506	Number the Stars (Lois Lowry)
CC2507	The Sign of the Beaver (E.G. Speare)
CC2508	The Whipping Boy (Sid Fleischman)
CC2509	Island of the Blue Dolphins (Scott O'Dell)
CC2510	Underground to Canada (Barbara Smucker)
CC2511	Loser (Jerry Spinelli)
CC2512	The Higher Power of Lucky (Susan Patron)
CC2513	Kira-Kira (Cynthia Kadohata)
CC2514	Dear Mr. Henshaw (Beverly Cleary)
CC2515	The Summer of the Swans (Betsy Byars)
CC2516	Shiloh (Phyllis Reynolds Naylor)
CC2517	A Single Shard (Linda Sue Park)
CC2518	Hoot (Carl Hiaasen)
CC2519	Hatchet (Gary Paulsen)
CC2520	The Giver (Lois Lowry)
CC2521	The Graveyard Book (Neil Gaiman)
CC2522	The View From Saturday (E.L. Konigsburg)
CC2523	Hattie Big Sky (Kirby Larson)
CC2524	When You Reach Me (Rebecca Stead)
CC2525	Criss Cross (Lynne Rae Perkins)
CC2526	A Year Down Yonder (Richard Peck)
CC2527	Maniac Magee (Jerry Spinelli)

LITERATURE KITS™ - Books

ITEM #	TITLE
CC2528	From the Mixed-Up Files of Mrs. Basil E. Frankweiler (E.L. Konigsburg)
CC2529	Sing Down the Moon (Scott O'Dell)
CC2530	The Phantom Tollbooth (Norton Juster)
CC2531	Gregor the Overlander (Suzanne Collins)
CC2532	Through the Looking-Glass (Lewis Carroll)
CC2533	Wonder (R.J. Palacio)
CC2534	Freak the Mighty (Rodman Philbrick)
CC2535	Tuck Everlasting (Natalie Babbitt)
	GRADES 7-8
CC2700	Cheaper by the Dozen (Frank B. Gilbreth)
CC2701	The Miracle Worker (William Gibson)
CC2702	The Red Pony (John Steinbeck)
CC2703	Treasure Island (Robert Louis Stevenson)
CC2704	Romeo & Juliet (William Shakespeare)
CC2705	Crispin: The Cross of Lead (Avi)
CC2706	Call It Courage (Armstrong Sperry)
CC2707	The Boy in the Striped Pajamas (John Boyne)
CC2708	The Westing Game (Ellen Raskin)
CC2709	The Cay (Theodore Taylor)
CC2710	The Hunger Games (Suzanne Collins)
CC2712	The Pearl (John Steinbeck)
	GRADES 9-12
CC2001	To Kill A Mockingbird (Harper Lee)
CC2002	Angela's Ashes (Frank McCourt)
CC2003	The Grapes of Wrath (John Steinbeck)
CC2004	The Good Earth (Pearl S. Buck)
CC2005	The Road (Cormac McCarthy)
CC2006	The Old Man and the Sea (Ernest Hemingway)
CC2007	Lord of the Flies (William Golding)
CC2008	The Color Purple (Alice Walker)
CC2009	The Outsiders (S.E. Hinton)
CC2010	Hamlet (William Shakespeare)
CC2011	The Great Gatsby (F. Scott Fitzgerald)
CC2012	The Adventures of Huckleberry Finn (Mark Twain)
CC2013	Macbeth (William Shakespeare)
CC2014	Fahrenheit 451 (Ray Bradbury)
CC2015	The Crucible (Arthur Miller)
CC2016	Of Mice and Men (John Steinbeck)
CC2017	Divergent (Veronica Roth)

LANGUAGE ARTS - Books

CC1110	Word Families - Short Vowels Gr. K-1
CC1111	Word Families - Long Vowels Gr. K-1
CC1112	Word Families - Vowels Big Book Gr. K-1
CC1113	High Frequency Sight Words Gr. K-1
CC1114	High Frequency Picture Words Gr. K-1
CC1115	Sight & Picture Words Big Book Gr. K-1
CC1100	How to Write a Paragraph Gr. 5-8
CC1101	How to Write a Book Report Gr. 5-8
CC1102	How to Write an Essay Gr. 5-8
CC1103	Master Writing Big Book Gr. 5-8
CC1116	Reading Comprehension Gr. 5-8
CC1117	Literary Devices Gr. 5-8
CC1118	Critical Thinking Gr. 5-8
CC1119	Master Reading Big Book Gr. 5-8
CC1106	Reading Response Forms: Gr. 1-2
CC1107	Reading Response Forms: Gr. 3-4
CC1108	Reading Response Forms: Gr. 5-6
CC1109	Reading Response Forms Big Book: Gr. 1-6

MATHEMATICS - Software

ITEM #	TITLE
	PRINCIPLES & STANDARDS OF MATH SERIES
CC7315	Gr. PK-2 Five Strands of Math Big Box
CC7316	Gr. 3-5 Five Strands of Math Big Box
CC7317	Gr. 6-8 Five Strands of Math Big Box

MATHEMATICS - Books

	TASK SHEETS
CC3100	Gr. PK-2 Number & Operations Task Sheets
CC3101	Gr. PK-2 Algebra Task Sheets
CC3102	Gr. PK-2 Geometry Task Sheets
CC3103	Gr. PK-2 Measurement Task Sheets
CC3104	Gr. PK-2 Data Analysis & Probability Task Sheets
CC3105	Gr. PK-2 Five Strands of Math Big Book Task Sheets
CC3106	Gr. 3-5 Number & Operations Task Sheets
CC3107	Gr. 3-5 Algebra Task Sheets
CC3108	Gr. 3-5 Geometry Task Sheets
CC3109	Gr. 3-5 Measurement Task Sheets
CC3110	Gr. 3-5 Data Analysis & Probability Task Sheets
CC3111	Gr. 3-5 Five Strands of Math Big Book Task Sheets
CC3112	Gr. 6-8 Number & Operations Task Sheets
CC3113	Gr. 6-8 Algebra Task Sheets
CC3114	Gr. 6-8 Geometry Task Sheets
CC3115	Gr. 6-8 Measurement Task Sheets
CC3116	Gr. 6-8 Data Analysis & Probability Task Sheets
CC3117	Gr. 6-8 Five Strands of Math Big Book Task Sheets
	DRILL SHEETS
CC3200	Gr. PK-2 Number & Operations Drill Sheets
CC3201	Gr. PK-2 Algebra Drill Sheets
CC3202	Gr. PK-2 Geometry Drill Sheets
CC3203	Gr. PK-2 Measurement Drill Sheets
CC3204	Gr. PK-2 Data Analysis & Probability Drill Sheets
CC3205	Gr. PK-2 Five Strands of Math Big Book Drill Sheets
CC3206	Gr. 3-5 Number & Operations Drill Sheets
CC3207	Gr. 3-5 Algebra Drill Sheets
CC3208	Gr. 3-5 Geometry Drill Sheets
CC3209	Gr. 3-5 Measurement Drill Sheets
CC3210	Gr. 3-5 Data Analysis & Probability Drill Sheets
CC3211	Gr. 3-5 Five Strands of Math Big Book Drill Sheets
CC3212	Gr. 6-8 Number & Operations Drill Sheets
CC3213	Gr. 6-8 Algebra Drill Sheets
CC3214	Gr. 6-8 Geometry Drill Sheets
CC3215	Gr. 6-8 Measurement Drill Sheets
CC3216	Gr. 6-8 Data Analysis & Probability Drill Sheets
CC3217	Gr. 6-8 Five Strands of Math Big Book Drill Sheets
	TASK & DRILL SHEETS
CC3300	Gr. PK-2 Number & Operations Task & Drill Sheets
CC3301	Gr. PK-2 Algebra Task & Drill Sheets
CC3302	Gr. PK-2 Geometry Task & Drill Sheets
CC3303	Gr. PK-2 Measurement Task & Drill Sheets
CC3304	Gr. PK-2 Data Analysis & Probability Task & Drills
CC3306	Gr. 3-5 Number & Operations Task & Drill Sheets
CC3307	Gr. 3-5 Algebra Task & Drill Sheets
CC3308	Gr. 3-5 Geometry Task & Drill Sheets
CC3309	Gr. 3-5 Measurement Task & Drill Sheets
CC3310	Gr. 3-5 Data Analysis & Probability Task & Drills
CC3312	Gr. 6-8 Number & Operations Task & Drill Sheets
CC3313	Gr. 6-8 Algebra Task & Drill Sheets
CC3314	Gr. 6-8 Geometry Task & Drill Sheets
CC3315	Gr. 6-8 Measurement Task & Drill Sheets
CC3316	Gr. 6-8 Data Analysis & Probability Task & Drills