



# Comprehensive Curriculum

Revised 2008

## Grade 5 Science



Louisiana Department of  
**EDUCATION**

Paul G. Pastorek, State Superintendent of Education

# Science Safety Contract



This year, in science class, you will be doing many science lab activities. To ensure a safe classroom, a list of rules has been developed and is called the Science Safety Contract. These rules must be followed at all times. Additional safety instructions will be given for each activity.

No science student will be allowed to participate in science activities until this contract has been signed by both the student and a parent or guardian.

In science this year, I agree that

1. I will follow the teacher's written and oral instructions and ask questions if I do not understand what to do.
2. I will not taste, eat, drink, or inhale anything used in science activities unless the teacher tells me to.
3. I will always wear goggles, gloves, and/or a safety apron when instructed/when appropriate.
4. I will keep my hands away from my face, eyes, and mouth during science activities and will wash my hands after lab.
5. I will ask the teacher's permission before I try any experiments on my own.
6. I will tell the teacher if I see something/someone being unsafe.
7. I will tell the teacher immediately if I have an accident or an injury.
8. I know the class emergency plan.

Student Signature \_\_\_\_\_ Date \_\_\_\_\_

Dear Parents,

Your signature indicates that you have read this contract and are aware of my efforts to ensure the safety of your child.

Teacher Signature \_\_\_\_\_ Date \_\_\_\_\_

Parent Signature \_\_\_\_\_ Date \_\_\_\_\_

*Unit 1, Activity 2, Identify that Object*

IDENTIFY THAT OBJECT

Physical properties are properties of objects that can be made without changing the object. When observations are made using the senses, we are making *qualitative* observations. In this activity, you will use your senses (sight, smell, touch, and sound) to describe objects so that others can identify them.

Our bag is labeled Bag # \_\_\_\_\_.

DIRECTIONS:

- Use your senses to describe each item in your bag.
- Record your observations on the chart.
- Write a description of one of your objects below the chart. Make your descriptions clear enough for others to use in identifying your object.

Name of Object	SIGHT	SMELL	TOUCH	SOUND

One of the objects in my bag is \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

The object I am describing is a (an) \_\_\_\_\_.

## Unit 1, Activity 3, Measure to Measure

### MEASURE TO MEASURE

Physical properties are properties of objects that can be determined without changing the object. Physical properties can be determined by using both qualitative and quantitative observations.

- Qualitative observations include color, hardness, transparency, texture, shape, phase, and other observations that can be made using your five senses.
- Quantitative observations include length, width, height, volume, mass, density, boiling/freezing/melting points, temperature, etc. and can be made by using measurement tools such as thermometers, graduated cylinders, scales, rulers, etc.

Describe each block using *qualitative* observations:

Block A: \_\_\_\_\_

Block B: \_\_\_\_\_

Block C: \_\_\_\_\_

Describe each object by using *quantitative* observations.

1. Measure the length, width, and height of each block and record measurements on the chart below to the nearest cm.
2. Use these measurements and a calculator to determine each block's volume by using the formula:  $\text{Volume} = \text{length} \times \text{width} \times \text{height}$

#### LINEAR MEASUREMENTS

BLOCK	LENGTH (cm)	WIDTH (cm)	HEIGHT (cm)	VOLUME (cm <sup>3</sup> )
A				
B				
C				

3. Predict the mass of each object and record it on the chart below.
4. Measure the mass of each block to the nearest gram (g) and record measurements on the chart.
5. Use a calculator to determine the difference between the estimated and actual mass of each block and record measurements on the chart.

#### MASS

BLOCK	ESTIMATED MASS (g)	ACTUAL MASS (g)	DIFFERENCE BETWEEN ESTIMATION AND ACTUAL MASS (g)
A			
B			
C			

6. Choose one block and record its measurements below. Write its measurements on an index card to share with another group.

Block \_\_\_\_\_ has the following measurements:

Length: \_\_\_\_\_ Width: \_\_\_\_\_ Height: \_\_\_\_\_ Volume: \_\_\_\_\_ Mass: \_\_\_\_\_

*Unit 2, Activity 1, Changing Phases*

**CHANGING PHASES**

Most substances can exist in three different forms: as solids, liquids, or gases. When substances change from one form into another, we say a phase change has occurred. In this activity, you will determine what is needed to make a substance go through a phase change.

**Investigating the Solid Phase of Water**

**Predict:**

- 1) What is needed to make solid water (ice) change to liquid water and water vapor?

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- 2) What is needed to make water vapor change to liquid water or liquid water change to solid water (ice)?

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**Investigate:** Record the starting temperature of the ice in the freezer. Continue to monitor the temperature, mass, and phase of the ice as it goes through a phase change. Complete the chart to record your observations. If additional space is needed to record your observations, copy the chart on the back of this paper and continue recording until the ice has completely melted.

<b>Time in Minutes</b>	<b>Temperature °C</b>	<b>Mass of 5 Ice Cubes (g)</b>	<b>Description of Ice Cubes</b>	<b>Phase of Water</b>
0	Freezer:			
2				
4				
6				
8				
10				

Temperature of water (°C) after ice has completely melted:

2 min.	
4 min.	

**Infer:** What caused the ice to change phase into liquid water?

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Why does the temperature continue to change after the ice has turned into liquid water?

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*Unit 2, Activity 1, Changing Phases*

**Investigating the Liquid Phase of Water**

**Investigate:** Observe carefully as the teacher demonstrates how the liquid phase of water changes form. Record the starting temperature of the water on the chart; then continue recording the temperature of the water until it reaches a full, rolling boil. Record the temperature and phase of the water; then continue recording how long it takes for the liquid water to completely change form. Record the final temperature before the liquid water completely changes form.

<b>TIME IN MINUTES</b>	<b>TEMPERATURE OF WATER</b>	<b>PHASE</b>
0		
2		
4		
6		
8		
10		

Observations of Water at Full Boil

<b>TIME IN MINUTES (continued)</b>	<b>TEMPERATURE OF WATER</b>	<b>PHASE</b>

**Observe:** Did the water begin to evaporate before or after the water came to a full boil?

\_\_\_\_\_

What happens to the temperature of the water once it reaches a full boil?

\_\_\_\_\_

**Infer:** What phase change occurred as the liquid water disappeared?

\_\_\_\_\_

What caused the liquid water to go through this phase change?

\_\_\_\_\_

For water vapor to change back into liquid water, what must happen?

\_\_\_\_\_

*Unit 2, Activity 3, Water Cycle Vocabulary Chart*

Name \_\_\_\_\_

**WATER CYCLE VOCABULARY  
SELF-AWARENESS CHART**

<b>WORD</b>	<b>+</b>	<b>√</b>	<b>-</b>	<b>EXAMPLE</b>	<b>DEFINITION</b>

Procedure:

1. Examine the list of words you have written in the first column.
2. Put a “+” next to each word you know well and for which you can write an accurate example and definition. Your definition and example must relate to the water cycle.
3. Place a “√” next to any words for which you can write either a definition or an example, but not both.
4. Place a “-” next to any words that are new to you.

This chart will be revisited after you have completed all the activities related to the water cycle. By the end, you should have the entire chart completed. Because you will be revisiting this chart, write in pencil.

**To demonstrate understanding of your new vocabulary words, write an explanation of the water cycle in which you use all of the words appropriately.**

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## Unit 2, Activity 5, Is it Physical or Chemical?

### Is It Physical or Chemical?

**Physical changes** occur when a substance changes size, shape, or phase without changing the substance itself. **Chemical reactions** occur when the atoms in the substance, called the *reactants*, are rearranged to form new substances, called the *products*. The new substance has different physical properties from the original substance(s). It has undergone a **chemical change**.

Evidence that a chemical reaction is occurring can be

- a color change
- temperature change
- formation of a precipitate
- formation of a gas

**DIRECTIONS:** Follow the directions at each station to observe whether a physical change or chemical change has occurred. Record your observations on the chart and answer the questions that accompany each activity.

#### STATION 1:

Activity: \_\_\_\_\_

Observations: \_\_\_\_\_

Inference: \_\_\_\_\_ Physical Change                      \_\_\_\_\_ Chemical Change

#### STATION 2:

Activity: \_\_\_\_\_

Observations: \_\_\_\_\_

Inference: \_\_\_\_\_ Physical Change                      \_\_\_\_\_ Chemical Change

#### STATION 3:

Activity: \_\_\_\_\_

Observations: \_\_\_\_\_

Inference: \_\_\_\_\_ Physical Change                      \_\_\_\_\_ Chemical Change

#### STATION 4:

Activity: \_\_\_\_\_

Observations: \_\_\_\_\_

Inference: \_\_\_\_\_ Physical Change                      \_\_\_\_\_ Chemical Change

*Unit 3, Activity 6, Force, Motion, and Energy Vocabulary Chart*

**STATION 5:**

Activity: \_\_\_\_\_

Observations: \_\_\_\_\_

Inference: \_\_\_\_\_ Physical Change                      \_\_\_\_\_ Chemical Change

**STATION 6:**

Activity: \_\_\_\_\_

Observations: \_\_\_\_\_

Inference: \_\_\_\_\_ Physical Change                      \_\_\_\_\_ Chemical Change

**STATION 7:**

Activity: \_\_\_\_\_

Observations: \_\_\_\_\_

Inference: \_\_\_\_\_ Physical Change                      \_\_\_\_\_ Chemical Change

**SHOW WHAT YOU KNOW**

**Is it a Physical Change or a Chemical Change?**

Based on your investigation, describe an activity that results in a physical change and one that results in a chemical change. Support your answers with evidence.

**Physical Change:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Chemical Change:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### Unit 3, Activity 1, You Were Going HOW Fast?

Name \_\_\_\_\_ Date \_\_\_\_\_

#### YOU WERE GOING HOW FAST?!!!!

**Materials:** meter stick/yard stick, stopwatch, wind-up car, calculator, chart to record results

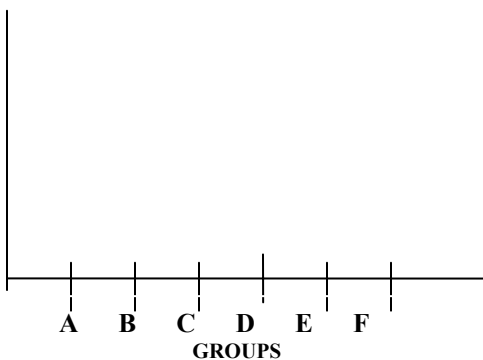
1. Place the measuring stick on a smooth surface. Wind up the car and hold it in the starting position with the front wheels 6 cm (about 2 inches) behind the edge of the measuring stick.
2. On a signal from the starter, the driver will release the car and when the car's nose passes by the tip of the stick, the starter will signal the timer to start the stopwatch.
3. When the car's nose passes the end of the measuring stick, the flagger signals the timer to stop the stopwatch.
4. The recorder records distance traveled in both m and yards and elapsed time (in seconds) on the chart below.
5. The same procedure should be repeated for a minimum of three trials.
6. Record the time it takes for the car to travel 1 meter for each trial and then find the average elapsed time. This should be recorded on the chart.
7. After determining the distance in m, use a yardstick to measure the time the car takes to travel 1 yard for each trial. Find the average elapsed time and record it on the chart.
8. Find the average speed of the car by using the formula for speed (Speed = distance ÷ time).

#### AVERAGE SPEED OF TOY CARS

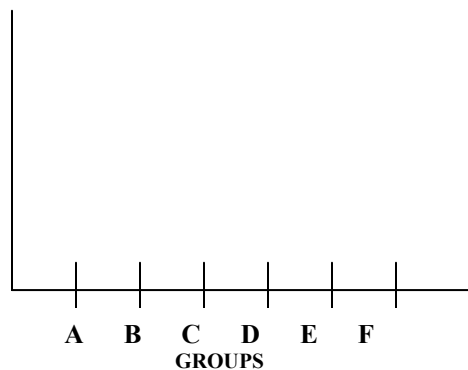
DISTANCE	TIME	AVERAGE TIME	AVERAGE SPEED	DISTANCE	TIME	AVERAGE TIME	AVERAGE SPEED
(m)	(s)	(s)	(m/s)	(yd)	(s)	(s)	(yd/s)

9. Create a bar graph to show the results of each group.

AVERAGE SPEED OF CARS



AVERAGE SPEED OF CARS



**Unit 3, Activity 6, Force, Motion, and Energy Vocabulary Chart**

NAME \_\_\_\_\_ DATE \_\_\_\_\_

<b>Rate of Descent = <math>\frac{\text{Distance Traveled}}{\text{Time}}</math></b>
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Average Rate of Descent for  
Parachutes of Different Surface Areas

<b>Group</b>	<b>Surface Area of Parachute (cm<sup>2</sup>)</b>	<b>Height of Dropped Parachute (m)</b>	<b>Time (s)</b>	<b>Average Rate of Descent (m/sec)</b>

1. Which group's parachute descended the fastest? \_\_\_\_\_
2. What was its surface area? \_\_\_\_\_
3. Which group's parachute descended the slowest? \_\_\_\_\_
4. What was its surface area? \_\_\_\_\_
5. Explain the relationship between the rate of descent and the surface area of the parachute.  
\_\_\_\_\_  
\_\_\_\_\_



**Unit 3, Activity 7, Energy Resources: Which is Best?**

NAME \_\_\_\_\_ DATE \_\_\_\_\_

**Energy Resources: Which is Best?  
Anticipation Guide**

*Directions Before Presentation:* Read each sentence carefully and place a check mark in the box under the word “agree” or “disagree” in the “Before Presentation” column. Compare your responses with someone sitting near you.

*Directions After Presentation:* After hearing the presentations, read each sentence again and decide whether you still agree with it or not. Place a check mark in the box under the correct response. Write a statement from the presentations to support your response. Use the back of your paper to complete responses if you run out of space.

Statement and Support	Before Presentation		After Presentation	
	Agree	Disagree	Agree	Disagree
<p><b>1. Geothermal energy is a renewable energy source because the water is replenished by rainfall and the heat is continuously produced inside the Earth.</b></p> <p>Support:</p>				
<p><b>2. Natural gas is a fossil fuel that is renewable.</b></p> <p>Support:</p>				
<p><b>3. Nuclear fission power plants produce no air pollution or carbon dioxide, so nuclear energy is the most environmentally safe energy source.</b></p> <p>Support:</p>				
<p><b>4. Hydropower is the ideal fuel for electricity generation, because unlike the nonrenewable fuels used to generate electricity, it is almost free, there are no waste products, and hydropower does not pollute the water or the air.</b></p> <p>Support:</p>				
<p><b>5. Biomass is a renewable energy source because we can always grow more trees and crops, and waste will always exist.</b></p> <p>Support:</p>				

**Unit 3, Activity 7, Energy Resources: Which is Best? with Answers**

**Energy Resources: Which is Best?  
Anticipation Guide**

*Directions Before Presentation:* Read each sentence carefully and place a check mark in the box under the word “agree” or “disagree” in the “Before Presentation” column. Compare your responses with someone sitting near you.

*Directions After Presentation:* After hearing the presentations, read each sentence again and decide whether you still agree with it or not. Place a check mark in the box under the correct response. Write a statement from the presentations to support your response. Use the back of your paper to complete responses if you run out of space.

Statement and Support	Before Presentation		After Presentation	
	Agree	Disagree	Agree	Disagree
<p><b>1. Geothermal energy is a renewable energy source because the water is replenished by rainfall and the heat is continuously produced inside the earth.</b></p> <p>Support:</p>			X	
<p><b>2. Natural gas is a fossil fuel that is renewable.</b></p> <p>Support: Natural gas is made from the remains of organisms that lived millions of years ago. It is a nonrenewable resource.</p>				X
<p><b>3. Nuclear fission power plants produce no air pollution or carbon dioxide, so nuclear energy is the most environmentally safe energy source.</b></p> <p>Support: Even though nuclear power plants produce no air pollution or carbon dioxide, nuclear power generation has by-product wastes: spent (used) fuels, other radioactive waste, and heat. Spent fuels and other radioactive wastes are the principal environmental concern for nuclear power.</p>				X
<p><b>4. Hydropower is the ideal fuel for electricity generation because, unlike the nonrenewable fuels used to generate electricity, it is almost free, there are no waste products, and hydropower does not pollute the water or the air.</b></p> <p>Support: Opinions will vary. Even though it is almost free, there are no waste products and it does not pollute the water or the air; the generation of hydropower does affect natural habitats.</p>			X	X
<p><b>5. Biomass is a renewable energy source because we can always grow more trees and crops, and waste will always exist.</b></p> <p>Support: Biomass <i>is</i> a renewable energy source, but it can cause depletion of soil nutrients if growing the same crop of biomass, forcing greater use of fertilizers that may well result in a larger dead zone off the LA coast.</p>			X	X

*Unit 4, Activity 2, Plant and Animal Cell Organelles Word Grid*

**PLANT AND ANIMAL CELL ORGANELLES WORD GRID**

Directions:

Brainstorm with your classmates to create a list of organelles found in both plants and animals. As your teacher lists them on the board, write one in each box across the top of the grid. Work with a partner to determine which organelles are found in plant cells, first. Place a “+” in each box for plant cells that has a particular organelle and a “-” by each organelle that is not present. Then do the same for animal cells. When you have completed both cell types, compare the answers to determine which organelles are present in both plant and animal cells. Mark the organelles that are present in both types of cells with a “√.”

**CELL ORGANELLES**

<b>PLANT CELL</b>								
<b>ANIMAL CELL</b>								
<b>BOTH</b>								

Write a paragraph that explains the similarities in organelle types between plant and animal cells. Be sure to explain why these organelles are needed by both types of organisms.

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**Unit 4, Activity 2, Plant and Animal Cell Organelles Word Grid Answer Key**

**Note:** Below is a suggested Answer Key that contains most of the organelles that should be listed during brainstorming by students. With this strategy, students should be responsible for suggesting organelles that might be present in cells.

**CELL ORGANELLES**

	Cell Wall	Cell Membrane	Cytoplasm	Chloroplasts	Mitochondria	Ribosomes	Nucleus	Vacuoles
<b>PLANT CELL</b>	X	X	X	X	X	X	X	X
<b>ANIMAL CELL</b>	--	X	X	--	X	X	X	X
<b>BOTH</b>		√	√		√	√	√	√

## Unit 4, Activity 7, Classroom Objects Sort

### Classroom Objects Sort

**Classification** is a method used by scientists to sort objects into groups with similar characteristics. **Keys** are used to sort organisms or objects into smaller and smaller groups in order to classify them. A **dichotomous key** is a key that only allows two choices for each question. The choice is either “Yes/No” or “True/False.” Once you have selected one of the two answers, your group becomes smaller and smaller. Finally, each organism or object will no longer fit into any group but one. When only one object or organism is in each group, you have classified the organism as completely as possible. **In this activity, you will practice using a dichotomous key to sort classroom objects.**

**Materials per Group:** scissors, paper clip, textbook, plastic ruler, crayons, tack, glue

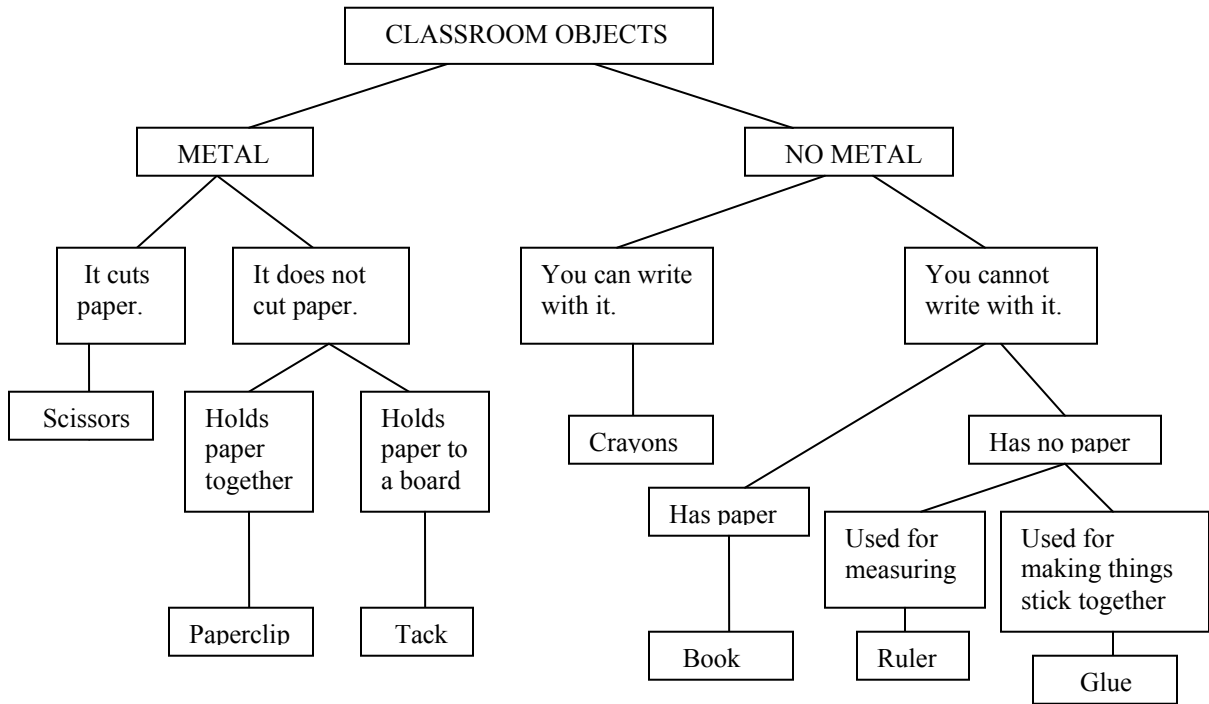
#### Directions for Activity:

1. Place all of the objects in front of your group.
2. Carefully look at all objects in each group as you read each statement.
3. Sort the objects in each group into new groups based on the statements.
4. Each new group should have fewer objects than the group before.
5. Each new statement will only apply to the objects that are left in one group.
6. Stop when every object is by itself.
7. Create a diagram to show your sorting.

#### Classroom Objects

1a	The object has some metal.	Go to 3
1b	The object has no metal.	Go to 2
2a	You can write with the object.	Crayons
2b	You cannot write with the object.	Go to 4
3a	The object cuts paper.	Scissors
3b	The object does not cut paper.	Go to 5
4a	The object has some paper in it.	Book
4b	The object does not have any paper in it.	Go to 6
5a	The object holds paper together.	Paper clip
5b	The object holds paper to a board.	Tack
6a	The object is used for measuring.	Ruler
6b	The object makes objects stick together.	Glue

*Unit 4, Activity 7, Classroom Objects Sort with Answers*



*Unit 5, Activity 2, The Evidence Speaks for Itself*

## The Evidence Speaks for Itself

Evaluate the evidence by completing each section of the rubric and scoring your responses.

- Record the evidence that is provided in its appropriate section and use it for considering what score to give.
- If you use 2 or 1 for a score, include an explanation about what is wrong in the comment section.

Ecosystem: \_\_\_\_\_

**Rating Scale:** 4 = Excellent—provides exemplary evidence

3= Good—provides adequate and accurate evidence

2= Fair—provides limited evidence, some is inaccurate

1= Poor—provide little to no evidence, evidence that was given is inaccurate

Presentation	Evidence	4	3	2	1	Score
Includes a statement that names the ecosystem and how a particular organism living in it would be affected by a change in one of its components (position statement).						
	Comments:					
Includes information about the components necessary for this organism to survive in the ecosystem.						
	Comments:					
Includes an explanation of the limiting factors for the ecosystem.						
	Comments:					
Evidence from research is provided as proof of position statement.						
	Comments:					

**SCORE:** \_\_\_\_\_

**Evaluators:** \_\_\_\_\_



**Unit 6, Activity 1, Soil Savvy**

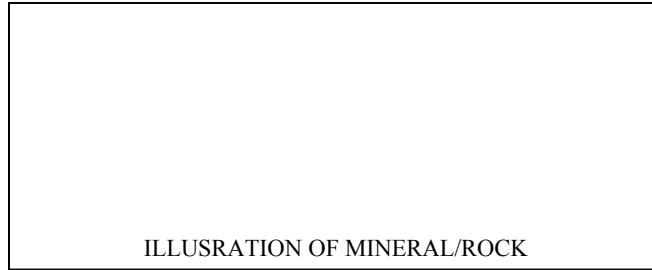
**SOIL SAAVY**  
Anticipation Guide

<p><i>Directions before Investigation:</i> Read the following statements about soil and indicate whether you think the statement is true or false in the BEFORE INVESTIGATING column. Compare your responses with someone in your group.</p> <p><i>Directions after Investigation:</i> Read each statement about soil and decide whether you still think it is true or false. If your answer has changed, write a statement supporting your new answer based upon what you discovered from your investigation.</p>				
Statement and Support	Before Investigation		After Investigation	
	True	False	True	False
<p><b>1. Only non-living materials make up soil.</b></p>				
Support:				
<p><b>2. The particles of rocks and minerals found in soil have broken away from larger pieces of rocks and minerals.</b></p>				
Support:				
<p><b>3. Living organisms (such as bacteria, fungi, insects, etc.) are an important part of soil.</b></p>				
Support:				
<p><b>4. All soils are made of the same materials.</b></p>				
Support:				
<p><b>5. The materials found in soil are from the immediate area in which the soil is found.</b></p>				
Support:				
<p><b>6. Air and water are found in soil but are not considered an important part of soil.</b></p>				
Support:				



## GIFTS FROM THE EARTH

MY MINERAL/ROCK IS \_\_\_\_\_.



LOCATIONS OF THIS MINERAL/ROCK IN LOUISIANA	COMMON USES	UNUSUAL USES	PAST TECHNOLOGY USED IN MINING	PRESENT TECHNOLOGY USED IN MINING

This rock/mineral has had an effect on human lives in the following way(s):

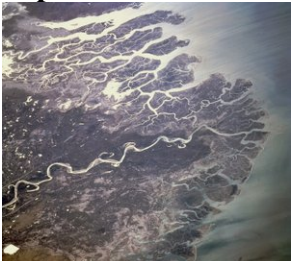
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## **SAMPLE VOCABULARY CARD**

<p><b>Definition:</b></p> <p>When transported, earth materials such as sand, rock, and soil drop out of moving wind, water, or ice and are deposited in a new location</p>	<p><b>Characteristics:</b></p> <p>Builds up new land Occurs when wind and water slow down enough for materials to drop out</p>
<p><b>Deposition</b></p>	
<p><b>Examples:</b></p> <p>Mississippi Delta Nile Delta Pensacola Beach</p>	<p><b>Simple Illustration:</b></p> 



*Unit 7, Activity 6, Climate Zone Investigation*

**CLIMATE ZONE:** \_\_\_\_\_

**Group Members:** \_\_\_\_\_

**SECTION 1: Use this sheet to record information you learned about your climate zone. Record references used to find information.**

**Reference Sources:**

\_\_\_\_\_  
\_\_\_\_\_

**GENERAL DESCRIPTION OF CLIMATE ZONE:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**DOMINANT VEGETATION:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**DOMINANT ANIMAL SPECIES:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**TEMPERATURE:**

Average Winter Temperature: \_\_\_\_\_  
Average Summer Temperature: \_\_\_\_\_  
Highest Recorded Temperature: \_\_\_\_\_  
Lowest Recorded Temperature: \_\_\_\_\_

**PRECIPITATION:**

Average Yearly Precipitation: \_\_\_\_\_  
Most Common Form of Precipitation \_\_\_\_\_  
Greatest Amount of Rainfall on Record \_\_\_\_\_  
Least Amount of Rainfall on Record \_\_\_\_\_

**TYPICAL SEVERE WEATHER EVENTS IN THIS CLIMATE ZONE:**

\_\_\_\_\_

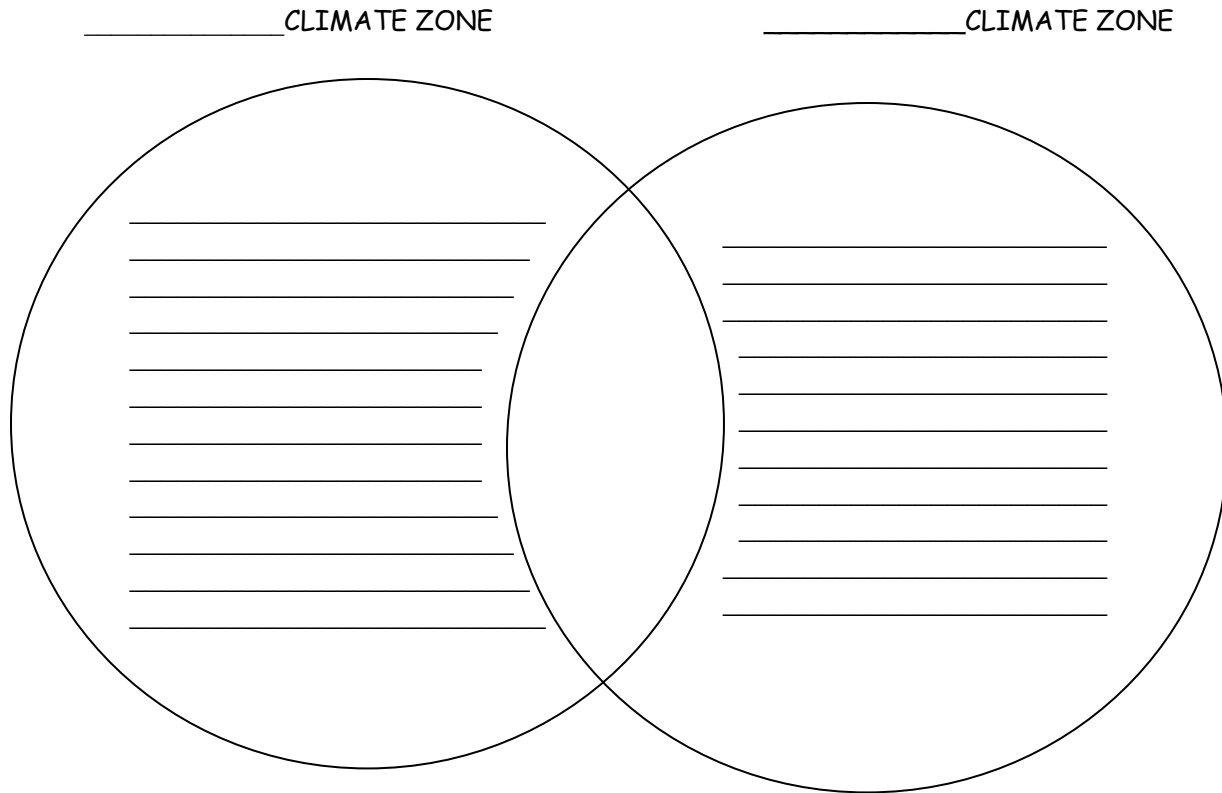
**OTHER IMPORTANT FACTS ABOUT THIS CLIMATE ZONE:**

\_\_\_\_\_  
\_\_\_\_\_

*Unit 7, Activity 6, Climate Zone Investigation*

**SECTION 2: COMPARISON OF TWO CLIMATE ZONES**

Study a poster of a different climate zone and compare its features with your own. Write similar features in the middle section of the two circles and differences in the outer section of each circle. Be prepared to share your observations.



The most obvious differences between these two climate zones: \_\_\_\_\_

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The most obvious similarities between these two climate zones: \_\_\_\_\_

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*Unit 7, Activity 7, Taking a Closer Look at Climate Zones*

Taking a Closer Look at the \_\_\_\_\_ Climate Zone

General Description of Climate:

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Use an atlas that contains physical maps, ocean currents, temperatures, and global wind patterns of the area where your climate zone is located. Use it to find out the following information:

This climate zone is located between \_\_\_\_\_° (N, S) Latitude and \_\_\_\_\_° (N, S) Latitude. This is about \_\_\_\_\_° from the Equator.

Due to the tilt of Earth, the Sun's rays hit this part of Earth: (directly—indirectly).

The average altitude of the land located in this climate zone ranges from \_\_\_\_\_ ft. to \_\_\_\_\_ ft. (above—below) sea level.

The closest large body of water is \_\_\_\_\_.  
Its location is (within--next to--a short distance from--a great distance from) this climate zone.

Ocean currents that affect the nearest coast bring (warm—cold) water toward the land.

Global winds that blow through this climate zone generally travel in the direction from \_\_\_\_\_ to \_\_\_\_\_.

These winds usually carry (cold—cool—warm—hot) air into the climate zone.

The major landform types in this climate zone include the following: \_\_\_\_\_

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Which characteristics do you think affect the climate in your area most significantly?

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Why? \_\_\_\_\_

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*Unit 7, Activity 9, Danger: Severe Weather Warning!*

WEATHER WARNING OPINIONNAIRE

Directions: Read each statement below and indicate whether you agree (A) or disagree (D). Write your reason for your opinion as well. There are no "right" answers.

\_\_\_\_\_ Weather is predictable.

Your reason:

\_\_\_\_\_ Weather instruments do not accurately measure changes in weather conditions.

Your reason:

\_\_\_\_\_ Having knowledge of approaching severe weather is useful for people in a community.

Your reason:

\_\_\_\_\_ People can tell when severe weather is approaching even without the use of weather instruments.

Your reason:

\_\_\_\_\_ Many lives have been saved with the invention and use of more sophisticated weather instruments.

Your reason:

*Unit 8, Activity 1, Sun Facts and Stats*

**SUN FACTS AND STATS**

Explore the following websites to find information about the Sun, the ultimate energy source on Earth. As you read each section, write down questions that can be answered about the Sun and its connection to Earth. Several questions have been provided to get you started.

Use the following websites:

[http://observe.arc.nasa.gov/nasa/gallery/image\\_gallery/solar\\_system/solar\\_sun.html](http://observe.arc.nasa.gov/nasa/gallery/image_gallery/solar_system/solar_sun.html)

<http://www.solarviews.com/eng/sun.htm>

[http://stargazers.gsfc.nasa.gov/resources/sun\\_earth\\_background.htm](http://stargazers.gsfc.nasa.gov/resources/sun_earth_background.htm)

**Section 1: Some Interesting Facts about the Sun**

1. What elements make up the Sun? \_\_\_\_\_

2. How hot is the Sun at its core? \_\_\_\_\_ At its surface? \_\_\_\_\_

3. Website source(s) used:  
\_\_\_\_\_

**Section 2: How We Depend on the Sun**

5. What benefits does the Sun provide for Earth? \_\_\_\_\_  
\_\_\_\_\_

6. How do plants use the Sun's energy? \_\_\_\_\_  
\_\_\_\_\_

7. Website source(s) used:  
\_\_\_\_\_

**Section 4a: How the Sun Works—Its Source of Energy**

9. What happens in the center of the Sun to create the energy that travels to Earth?  
\_\_\_\_\_

10. What happens to the energy from the Sun that does not reach Earth?  
\_\_\_\_\_

11. Website source(s) used:  
\_\_\_\_\_

## Unit 8, Activity 1, Sun Facts and Stats

### Section 4b: How the Sun Works—Its Different Parts

Copy the drawing of the Sun's parts in the box below and label each part. Give a brief description of each part next to its label.

_____		_____
_____		_____
_____		_____

Use the following websites to find pictures or diagrams of the Sun. Draw or print them below, then use them to answer the questions that follow:

- <http://umbra.nascom.nasa.gov/images/latest.html>
- <http://www.solarviews.com/eng/sun.htm#views>

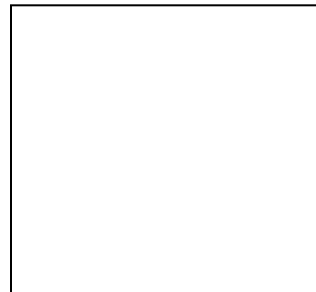
Image 1



Image 2



Image 3



1. Which drawing or photo best illustrates the Sun? \_\_\_\_\_  
Why? \_\_\_\_\_

2. Which drawing or photo is least helpful in understanding the parts of the Sun?  
\_\_\_\_\_ Why? \_\_\_\_\_

3. How can you improve the photo or diagram indicated in #2? \_\_\_\_\_

*Unit 8, Activity 4, Planetary Research*

**Welcome Aboard, Earthling!**

Come along with us as we learn about other planets in our Solar System. Choose a planet to research. As you learn new and interesting facts, make a note of them on the research sheet below. You can use them to create an exciting travel poster that will encourage others to visit, also. Are you ready? Three, two, one.....BLAST OFF!!!!!!

Crew Members on Your Journey: \_\_\_\_\_

\_\_\_\_\_

Destination: Planet \_\_\_\_\_

**PLANET FACTS**

Distance from Sun: \_\_\_\_\_

Position in the Solar System: \_\_\_\_\_

Length of Day and Night: \_\_\_\_\_

Length of Year: \_\_\_\_\_

Diameter of Planet: \_\_\_\_\_

Average Temperature during the day: \_\_\_\_\_

Average Temperature during the night: \_\_\_\_\_

Composition of Atmosphere: \_\_\_\_\_

\_\_\_\_\_

Characteristics of Atmosphere: \_\_\_\_\_

\_\_\_\_\_

Characteristics of Planet's Surface: \_\_\_\_\_

\_\_\_\_\_

Geology of the Planet: \_\_\_\_\_

\_\_\_\_\_

Number of Moons: \_\_\_\_\_

Moons that would make an interesting side trip: \_\_\_\_\_

Why? \_\_\_\_\_

\_\_\_\_\_

Other facts of interest about your planet; \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Unit 8, Activity 4, Planet Poster Rubric**

**Making a Poster: Planet Travel Poster**

Teacher Name: \_\_\_\_\_

Student Name: \_\_\_\_\_

CATEGORY	4	3	2	1
<b>Required Elements</b>	The poster includes all required elements as well as additional information.	All required elements are included on the poster.	All but 1 of the required elements are included on the poster.	Several required elements were missing.
<b>Content - Accuracy</b>	At least 7 accurate facts are displayed on the poster.	5-6 accurate facts are displayed on the poster.	3-4 accurate facts are displayed on the poster.	Less than 3 accurate facts are displayed on the poster.
<b>Graphics - Relevance</b>	All graphics are related to the topic and make it easier to understand.	All graphics are related to the topic and most make it easier to understand.	All graphics relate to the topic.	Graphics do not relate to the topic.
<b>Labels</b>	All items of importance on the poster are clearly labeled with labels that can be read from at least 3 ft. away.	Almost all items of importance on the poster are clearly labeled with labels that can be read from at least 3 ft. away.	Several items of importance on the poster are clearly labeled with labels that can be read from at least 3 ft. away.	Labels are too small to view OR no important items were labeled.
<b>Title</b>	Title can be read from 6 ft. away and is quite creative.	Title can be read from 6 ft. away and describes content well.	Title can be read from 4 ft. away and describes the content well.	The title is too small and/or does not describe the content of the poster well.
<b>Grammar</b>	There are no grammatical mistakes on the poster.	There is 1 grammatical mistake on the poster.	There are 2 grammatical mistakes on the poster.	There are more than 2 grammatical mistakes on the poster.
<b>Use of Class Time</b>	Used time well during each class period. Focused on getting the project done. Never distracted others.	Used time well during each class period. Usually focused on getting the project done and never distracted others.	Used some of the time well during each class period. There was some focus on getting the project done but occasionally distracted others.	Did not use class time to focus on the project OR often distracted others.

Comments:

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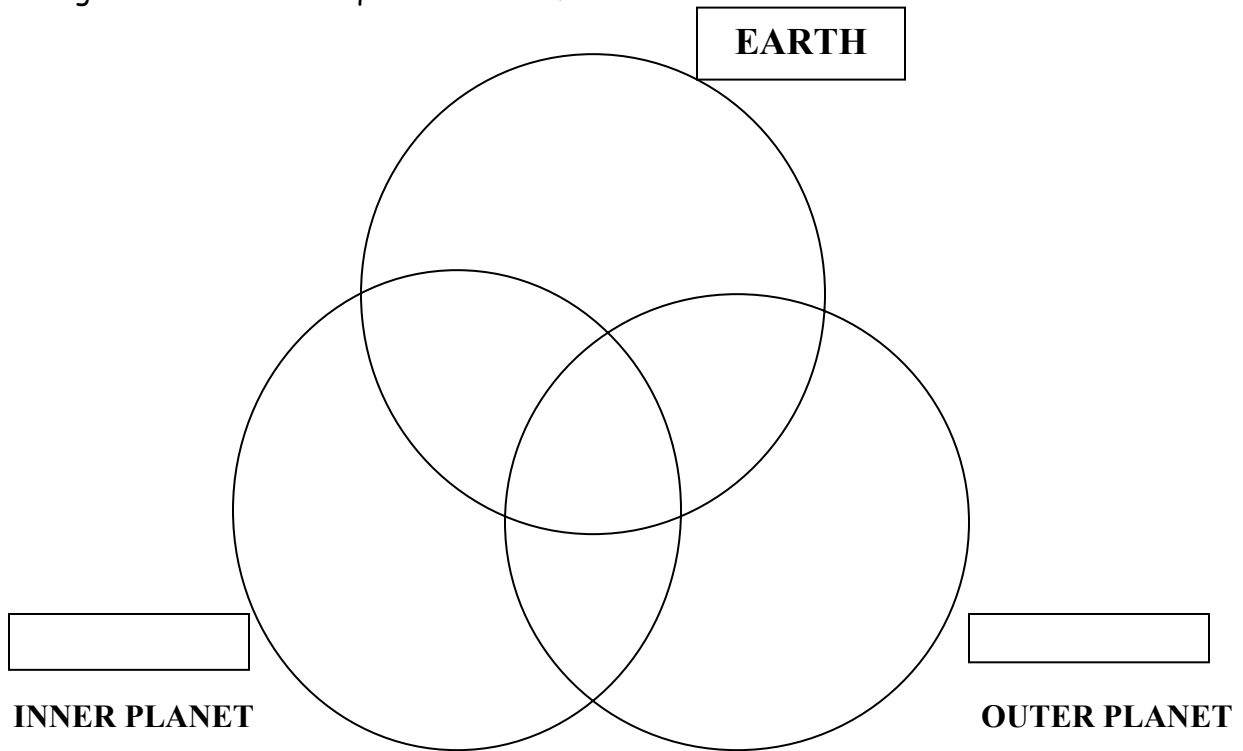
Total points: \_\_\_\_/28

Grade:

*Unit 8, Activity 5, Planet Comparison*

**What Makes Inner and Outer Planets Different or Similar to Earth?**

Work with a partner who researched a different type of planet (inner or outer planet) and use your Planetary Research Sheets to compare characteristics of each of your planets with Earth. You will need to share information to complete the Venn diagram. Use your Venn diagram to answer the questions that follow.



1. What characteristic(s) of the planets' surfaces make them different?  
\_\_\_\_\_
2. What characteristic(s) of the planets' surfaces is/are similar?  
\_\_\_\_\_
3. What characteristic(s) of the planets' atmospheres is/are different?  
\_\_\_\_\_
4. What characteristic(s) of the planets' atmospheres is/are similar?  
\_\_\_\_\_
5. How do the sizes of each planet's diameters compare? \_\_\_\_\_  
\_\_\_\_\_
6. How do the distances from the Sun of each planet compare? \_\_\_\_\_  
\_\_\_\_\_

*Unit 8, Activity 5, Pluto Opinionnaire*

Should Pluto Be Reinstated as a Planet?

On August 24, 2006, the planet, Pluto, was demoted. It officially became a "dwarf planet" as a result of votes of 424 astronomers who remained for the last day of a meeting of the International Astronomical Union (IAU) in Prague.

"Pluto is not a planet," said Caltech researcher, Mike Brown. "There are finally, officially, eight planets in the solar system."

**Directions:** Read each statement below and indicate whether you agree (A) or disagree (D). Write the reason for your opinion as well. There are no "right" answers. After the activity, revisit your opinions to change any that you no longer have. Write the reason for your new opinion on the second line.

\_\_\_\_\_ 1. Since Pluto has been a planet since 1930, astronomers should not be allowed to vote to demote it.

**Reason:** \_\_\_\_\_

**Reason:** \_\_\_\_\_

\_\_\_\_\_ 2. Pluto should never have been named as a planet, because it is the only "planet" that has an orbit that crosses over the path of another orbit.

**Reason:** \_\_\_\_\_

**Reason:** \_\_\_\_\_

\_\_\_\_\_ 3. Pluto meets three of the four requirements of planets; therefore, it should still be considered as a planet.

**Reason:** \_\_\_\_\_

**Reason:** \_\_\_\_\_

\_\_\_\_\_ 4. The planets that are part of the outer planets are gaseous planets. Since Pluto is rocky, it should not be considered as a planet.

**Reason:** \_\_\_\_\_

**Reason:** \_\_\_\_\_

\_\_\_\_\_ 5. Pluto is a part of a sea of other objects orbiting in the same region of space. Since Pluto has not "cleared the neighborhood around its orbit," it should not be thought of as a planet.

**Reason:** \_\_\_\_\_

**Reason:** \_\_\_\_\_