

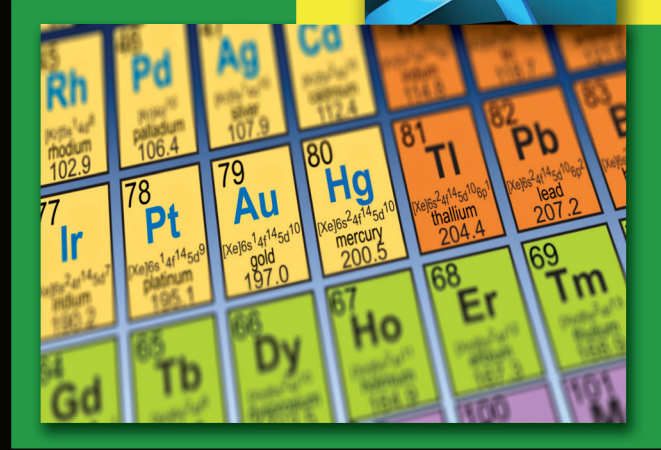
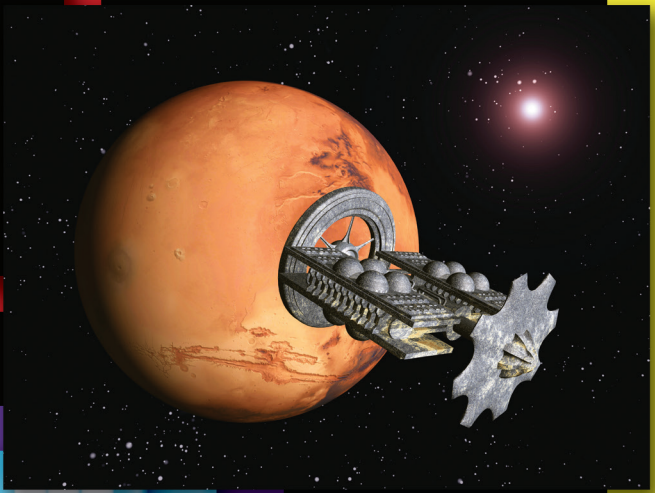
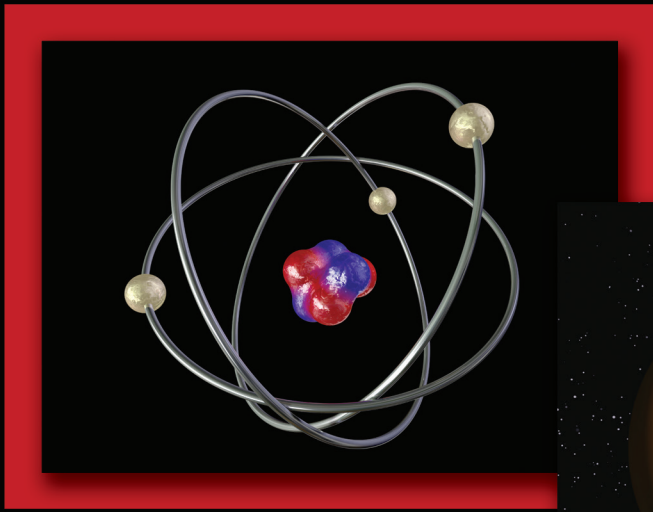
# General Science

## Daily Bell Ringers

*100+ Quick Activities*



404251-EB



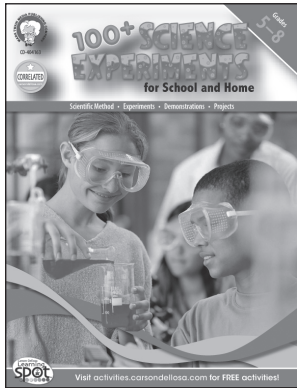
## About the Authors

Schyrllet Cameron (left) has 34 years of experience as an elementary and middle-school teacher. She has authored or co-authored over 30 teacher resource books. Schyrllet is currently working as a writer and educational consultant. She has presented workshops at the national, state, and local levels on a variety of topics. Schyrllet holds a Master of Education Degree in Elementary Education and has received recognition for her professionalism in teaching, including the Missouri Science Teacher of the Year Award and the national Excellence in Teaching Elementary Science Presidential Award.



Carolyn Craig (right) has 26 years of experience as an elementary and middle-school teacher. She has co-authored over 20 teacher resource books. Carolyn is currently working as a writer and educational consultant. She holds a Master of Education Degree in Curriculum. Carolyn has presented workshops on a variety of topics and has received recognition by the Missouri Middle School Association for her collaborative teamwork.

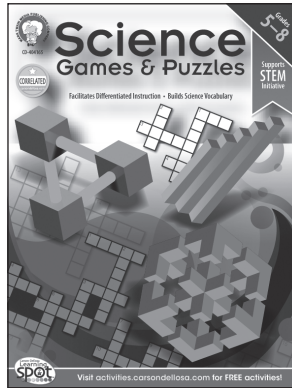
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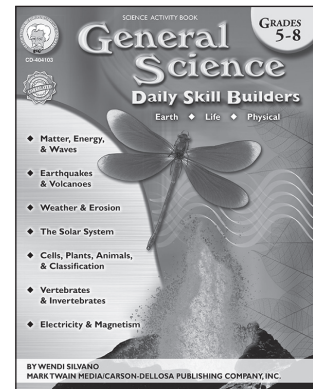
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This product has been correlated to Common Core State Standards and other current state, national, and Canadian provincial standards. Visit [www.carsondellosa.com](http://www.carsondellosa.com) to search and view its correlations to your standards, or call 800-321-0943 for more information.

# ***General Science: Daily Bell Ringers, Grades 5–8***

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**Editor:** Mary Dieterich  
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ISBN 978-1-62223-613-8

Printing No. 404251-EB

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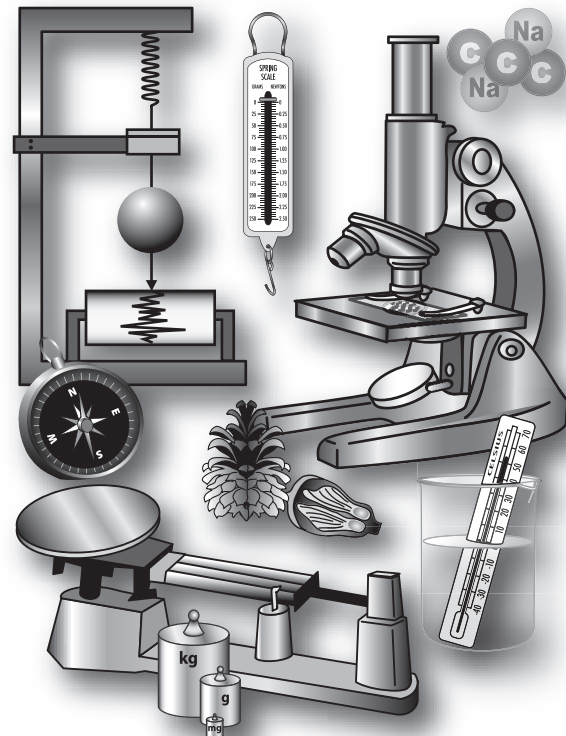


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## Introduction to the Teacher

*General Science: Daily Bell Ringers, Grades 5–8* is a book filled with activities that quiz students over content they should learn in middle-school science. The 106 activities are designed to provide students with the opportunity to review or gain extra practice with the skills and concepts presented in the regular science curriculum.

### Organization

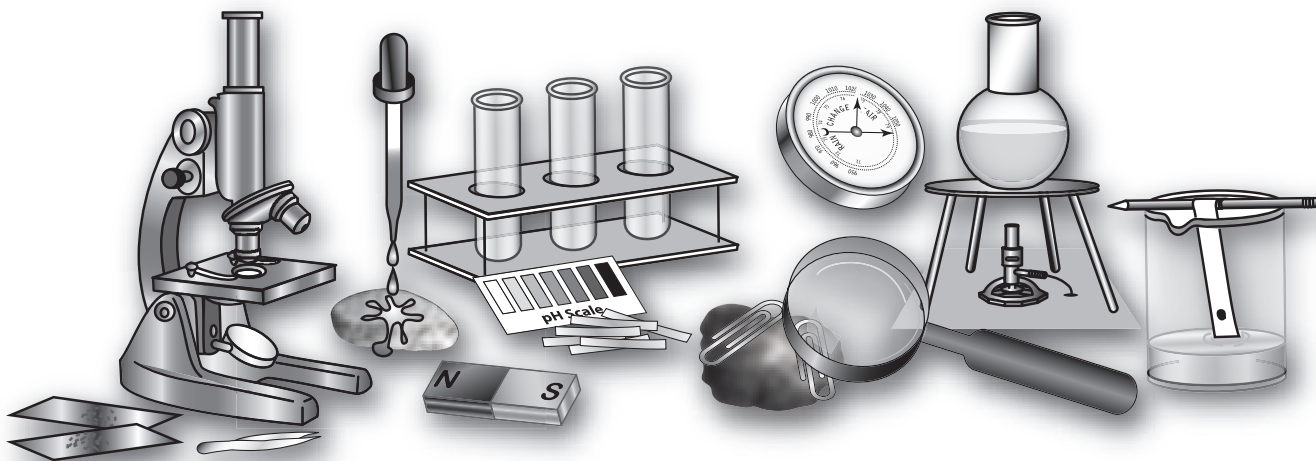
The daily bell ringers are arranged by topic, with the focus of this book being on physical science, life science, and earth and space sciences. Each activity page is divided into two reproducible sections that can be cut apart and used separately, placed on a whiteboard, or downloaded by students to their laptops.

### Suggestions for Use

Bell ringers may be used as a class warm-up, a review of a topic covered earlier in the year, as extra practice on a topic currently being studied, in a learning center for review or extra practice, or as a homework assignment. The warm-ups typically take about five minutes to complete. Students may be allowed to use their science book or class notes to complete the short activity while the teacher takes attendance, collects homework, or does other small chores. The activities can be read and comments made before the teacher starts the day's lesson, but they do not necessarily need to be graded. They can be used to help the teacher gauge what the students have remembered from previous lessons or determine if additional lessons are needed. They can also be saved by students and used for review before unit tests or end-of-the-year state standardized assessments.

### State and National Standards

*General Science: Daily Bell Ringers* was written with state and national science standards in mind. The short, thought-provoking activities take only a few minutes each day to review key topics. This book is an excellent resource for teachers to prepare students for standardized science and end-of-the-term assessments.



# Scientific Inquiry

## Bell Ringer 1: Scientific Method

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

Date: \_\_\_\_\_

Scientists use the steps in the **scientific method** to design and conduct scientific investigations to explore questions they have about the world around them.

**Directions:** Put the steps of the scientific method in order by numbering them 1 through 6 from first to last.

Step # \_\_\_\_\_ Draw Conclusion

Step # \_\_\_\_\_ Research the Problem

Step # \_\_\_\_\_ Analyze the Data

Step # \_\_\_\_\_ Design and Carry Out the Experiment

Step # \_\_\_\_\_ Choose a Problem

Step # \_\_\_\_\_ Construct a Hypothesis



## Bell Ringer 2: Laboratory Safety

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

Date: \_\_\_\_\_

**Directions:** Write the meaning for each symbol in the chart.










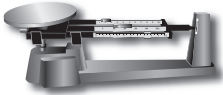

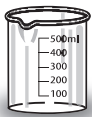
Safety Symbol	Meaning	Safety Symbol	Meaning
1.		5.	
2.		6.	
3.		7.	
4.		8.	

# Scientific Inquiry

## Bell Ringer 3: Lab Equipment

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

**Directions:** Write the name of the lab equipment under the correct picture.

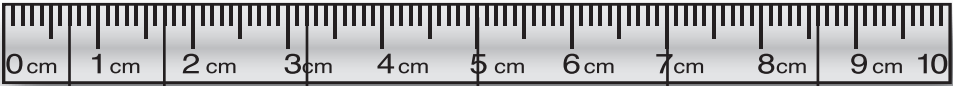
 1. _____	 2. _____	 3. _____	 4. _____
 5. _____	 6. _____	 7. _____	 8. _____
 9. _____	 10. _____	 11. _____	 12. _____

## Bell Ringer 4: Reading Measurements

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

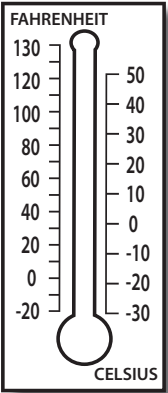
**Directions:** Complete the exercises below.

1. Record the length that corresponds to each line along the metric ruler. Label your answers in centimeters.




A. \_\_\_\_\_ B. \_\_\_\_\_ C. \_\_\_\_\_ D. \_\_\_\_\_ E. \_\_\_\_\_ F. \_\_\_\_\_

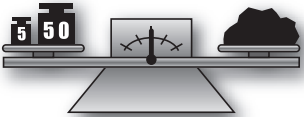
2. Shade in the mercury bar to 50 degrees Fahrenheit on the thermometer.



3. Record the volume of the liquid in mL.



4. Record the mass in grams.





# Physical Science

## Bell Ringer 5: Matter

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

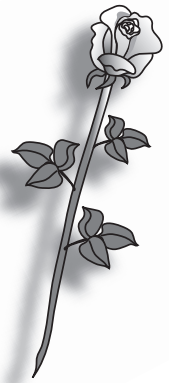
Date: \_\_\_\_\_

**Matter** is anything that contains a certain amount of material (has mass) and takes up space (has volume).

**Directions:** Circle each item below that is matter and cross out each one that is not.



- |          |         |        |        |          |
|----------|---------|--------|--------|----------|
| paper    | milk    | steel  | dreams | peach    |
| skin     | light   | glue   | rock   | book     |
| thoughts | rose    | planet | mud    | hair     |
| water    | leaf    | spit   | pencil | emotions |
| blood    | diamond | ideas  | tape   | sand     |
| germs    | tree    | nest   | love   | heat     |



## Bell Ringer 6: Physical Properties of Matter

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

Date: \_\_\_\_\_

Characteristics that help us identify matter are called properties. All matter has **physical properties**.

**Directions:** Match each example of a physical property with its definition.

- |                                  |  |
|----------------------------------|--|
| 1. _____ density                 | a. the ability to be pressed or pounded into a thin sheet                |
| 2. _____ ductility               | b. how well a substance allows electricity to flow through it            |
| 3. _____ malleability            | c. the temperature at which a substance changes from a solid to a liquid |
| 4. _____ boiling point           | d. the ability to dissolve in another substance                          |
| 5. _____ melting point           | e. the ability to be pulled into a thin strand, like a wire              |
| 6. _____ electrical conductivity | f. the temperature at which a substance changes from a liquid to a gas   |
| 7. _____ solubility              | g. the amount of matter in a given volume                                |

# Physical Science

## Bell Ringer 7: Chemical Properties of Matter

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

A **chemical property** is a characteristic of matter that describes its ability to change into a new substance.

**Directions:** Complete the table by filling in the definition for each chemical property of matter.

Chemical Property	Definition
1. oxidation	
2. toxicity	
3. radioactivity	
4. biodegradability	
5. flammability	

## Bell Ringer 8: States of Matter

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

There are three familiar states of matter: **solid**, **liquid**, and **gas**. **Plasma** is a fourth state of matter that only occurs at extremely high temperatures.

**Directions:** Read each description. Write the state of matter being described.



- \_\_\_\_\_ has a definite shape and volume
- \_\_\_\_\_ has no definite volume or shape
- \_\_\_\_\_ has no definite shape or volume and is a highly energized gas
- \_\_\_\_\_ has a definite volume but no definite shape
- \_\_\_\_\_ common in the universe; not common on Earth
- \_\_\_\_\_ will expand to fill any container and will take the shape of the container
- \_\_\_\_\_ will take the shape of the container in which it is placed but does not expand to fill the container
- \_\_\_\_\_ when placed in a container, keeps its shape and takes up the same amount of space

# Physical Science

## Bell Ringer 9: Physical vs. Chemical Change

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

Date: \_\_\_\_\_

**Directions:** Decide whether the changes listed below are chemical or physical. Write the change under the correct heading.

freezing water  
rotting wood  
cake baking

burning paper  
bread molding  
iron rusting

crushing rock  
drying clothes  
folding paper

shredding paper  
ice melting  
exploding fireworks

### Physical Change

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### Chemical Change

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Bell Ringer 10: Atoms

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

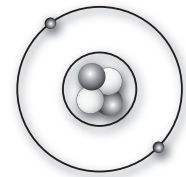
Date: \_\_\_\_\_

**Directions:** Use the word bank to fill in the blanks in the paragraph about atoms.

protons  
nucleus  
neutrons

valence energy  
electron cloud  
atoms

electrons  
matter



Everything is made of \_\_\_\_\_, and all matter is made of \_\_\_\_\_.

There are three basic parts of the atom: protons, neutrons, and \_\_\_\_\_. The \_\_\_\_\_ and \_\_\_\_\_ are located in the center of the atom; this area is called the \_\_\_\_\_. The electrons are found orbiting around the nucleus in an area we call the \_\_\_\_\_. They are organized into levels within the electron cloud, and the outermost level is referred to as the \_\_\_\_\_ level.

# Physical Science

## Bell Ringer 11: Atom Structure

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

Date: \_\_\_\_\_

The three basic parts of the **atom** are the **proton**, **neutron**, and **electron**. While an atom is said to be electrically neutral, its particles are positively charged, negatively charged, or electrically neutral.

**Directions:** Complete the table below. Add the electrical charge of each particle and the location of the particle in the atom.

Particle	Electrical Charge	Location
proton		
neutron		
electron		

## Bell Ringer 12: Elements, Molecules, and Compounds

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

Date: \_\_\_\_\_

Different kinds of atoms are called **elements**. The simplest **molecule** contains only two atoms. A **compound** is formed when two or more different atoms chemically join together in a fixed ratio.

**Directions:** List the items in the word bank under the correct column to indicate which are elements, molecules of elements, and compounds of more than one element.

O <sub>2</sub> (oxygen)	Au (gold)	NaHCO <sub>3</sub> (baking soda)
Fe (iron)	H <sub>2</sub> (hydrogen)	C <sub>12</sub> H <sub>22</sub> O <sub>11</sub> (table sugar)

**Element**

**Molecule**

**Compound**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



## Physical Science

### Bell Ringer 13: Chemical Bonds

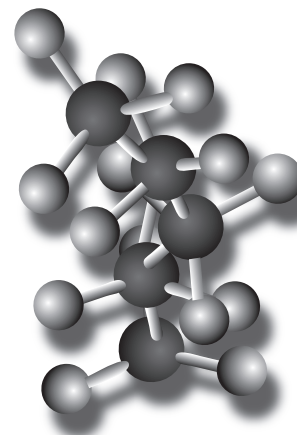
Name: \_\_\_\_\_

Date: \_\_\_\_\_

The elements in a compound are held together by **chemical bonds**. **Covalent** and **ionic** are two types of chemical bonds.

**Directions:** Covalent and ionic bonds form compounds with distinct properties. Write the name of the bond beside the correct property.

- \_\_\_\_\_ electrons are transferred
- \_\_\_\_\_ hard and brittle
- \_\_\_\_\_ low melting point
- \_\_\_\_\_ high melting point
- \_\_\_\_\_ formed between two nonmetals
- \_\_\_\_\_ electrons are shared
- \_\_\_\_\_ compound arranged in a crystalline pattern



### Bell Ringer 14: Periodic Table

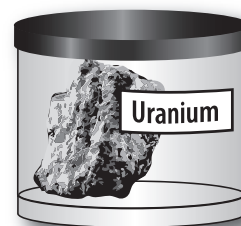
Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Directions:** Use a copy of the Periodic Table of Elements in your science book, online, or from another source to give the following information about the element listed below.

#### Uranium

- \_\_\_\_\_ Atomic Number
- \_\_\_\_\_ Symbol
- \_\_\_\_\_ Group Name
- \_\_\_\_\_ Solid, Liquid, or Gas
- \_\_\_\_\_ Metal, Nonmetal, or Metalloid
- \_\_\_\_\_ Natural or Manmade
- \_\_\_\_\_ Radioactive or Stable



# Physical Science

## Bell Ringer 15: Chemical Formulas, Reactions, and Equations

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

**Direction:** Match each term with its definition.

- |                                      |   |
|--------------------------------------|---|
| 1. _____ chemical formula            | a. one or more substances change to form one or more new substances |
| 2. _____ coefficient                 | b. $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$       |
| 3. _____ chemical reaction           | c. the substances that undergo the change in a chemical reaction    |
| 4. _____ reactants                   | d. matter can be neither created nor destroyed                      |
| 5. _____ products                    | e. the substance that results from a chemical reaction              |
| 6. _____ chemical equation           | f. $\text{CO}_2$  |
| 7. _____ law of conservation of mass | g. the number of molecules (or atoms) involved in the reaction      |

## Bell Ringer 16: Types of Mixtures

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

A **mixture** is a substance made by combining two or more different substances without a chemical reaction occurring.

In a **homogeneous mixture**, the particles are dispersed evenly throughout. A **heterogeneous mixture** is made of different substances that remain physically separate.

**Directions:** Write the mixtures in the word bank under the correct column heading.



toothpaste	perfume	granite
Italian dressing	sand	air



**Homogeneous Mixture**

**Heterogeneous Mixture**

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

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

## Physical Science

### Bell Ringer 17: Solutions, Colloids, Alloys, and Suspensions

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

Date: \_\_\_\_\_

**Solutions, colloids, alloys, and suspensions** are four types of **mixtures**. Each of the mixtures have different properties.

**Directions:** Complete the table about mixtures by filling in the correct information under each column heading.

Mixture	Definition	Example
solution		
colloid		
alloy		
suspension		

### Bell Ringer 18: Acids and Bases

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

Date: \_\_\_\_\_

**Directions:** Complete the table by filling in the correct information about **acids** and **bases**.

Question	Acid	Base
What is it (definition)?		
How does it feel?		
How does it taste?		
What is the result of testing with litmus paper?		
What is an example you could find in your home?		
What is the pH range?		
What is an example of a chemical with which it reacts?		
What ions does it produce in solution?		

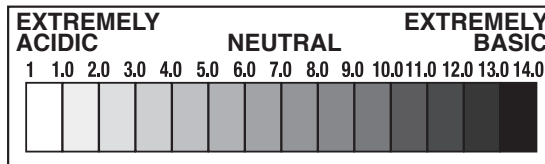
# Physical Science

## Bell Ringer 19: pH Scale

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

A **pH scale** is a device that helps measure how acidic or basic a solution is. The scale ranges from 0 to 14. A pH of 7 is neutral, pH below 7 is acidic, and pH above 7 is basic.

**Directions:** Identify the following substances as acid, neutral, or basic. Place an “x” under the correct column heading for each substance.



Substance	pH Level	Acid	Base	Neutral
1. lemon juice	1.8			
2. sea water	8.0			
3. bleach	13.2			
4. baking soda	8.0			
5. orange juice	4.8			
6. ammonia	11.2			
7. vinegar	3.0			
8. blood	7.2			
9. distilled water	7.0			

## Bell Ringer 20: Buoyancy

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

**Directions:** Match the terms below with their definitions.

- |                                |   |
|--------------------------------|---|
| 1. _____ fluid                 | a. the tendency of certain objects to float or rise in fluid  |
| 2. _____ buoyancy              | b. a body immersed in a fluid experiences a buoyant force equal to the weight of the fluid it displaces |
| 3. _____ density               | c. any material, either liquid or gas, that can flow  |
| 4. _____ displacement          | d. the relationship between the mass and volume of an object  |
| 5. _____ Archimedes' Principle | e. a method used to find the volume of an irregular object  |
6. Explain why icebergs float in the ocean.

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# Physical Science

## Bell Ringer 21: Bernoulli's Principle

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

Date: \_\_\_\_\_

A **fluid** is a substance that has no definite shape and has the ability to flow: liquid, gas, and plasma. **Bernoulli's Principle** states that in fluid flow, an increase in velocity causes a decrease in pressure. This means the faster a fluid flows, the less pressure it exerts.

**Directions:** Use Bernoulli's Principle to explain how an airplane can achieve lift.

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## Bell Ringer 22: Pascal's Principle

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

Date: \_\_\_\_\_

A **fluid** is a substance that has no definite shape and has the ability to flow: liquid, gas, and plasma. **Pascal's Principle** states that a change in the pressure applied to an enclosed container is transmitted without change throughout the fluid and acts in all directions.

**Directions:** Use Pascal's Principle to explain how a bicycle tire pump works to inflate a flat tire.

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# Physical Science

## Bell Ringer 23: Gravity

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

Date: \_\_\_\_\_

**Directions:** Use the word bank to fill in the blanks of the paragraph about gravity.

force distance gravity gravitation attract mass Newton

Gravity is a \_\_\_\_\_ that pulls objects toward each other. Isaac \_\_\_\_\_ realized that \_\_\_\_\_ was a force that acts everywhere in the universe, not just on Earth. It is the force that makes an apple fall to the ground and the planets in our solar system orbit around the sun. Newton developed the Law of Universal \_\_\_\_\_ to explain this phenomena. The law states that the force of gravity acts between all objects in the universe. This means that any two objects in the universe \_\_\_\_\_ each other. Two factors affect the gravitational attraction between objects: mass and distance. If the \_\_\_\_\_ of objects increases, the force of gravity increases. If the \_\_\_\_\_ between two objects increases, the force of gravity decreases.

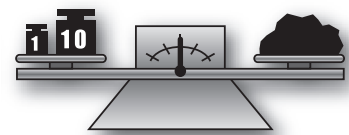
## Bell Ringer 24: Mass vs. Weight

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

Date: \_\_\_\_\_

**Directions:** Write *mass* or *weight* on the line in front of the correct description.

1. \_\_\_\_\_ doesn't change when an object's location changes
2. \_\_\_\_\_ a measurement of the amount of matter something contains
3. \_\_\_\_\_ changes with location
4. \_\_\_\_\_ the measurement of the pull of gravity on an object
5. \_\_\_\_\_ the measurement unit is Newton (N)
6. \_\_\_\_\_ the measurement unit is kilogram (kg), gram (g), and milligram (mg)
7. \_\_\_\_\_ is measured using a pan balance, a triple-beam balance, lever balance, or electronic balance
8. \_\_\_\_\_ is measured using a spring balance



# Physical Science

## Bell Ringer 25: Balanced and Unbalanced Forces

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

**Force** is a push or a pull. Force appears in pairs and can be either balanced or unbalanced. **Balanced forces** produce no change in the motion of an object. They are equal in size and opposite in direction. **Unbalanced forces** produce a change in the motion of an object in the direction of the greatest force.

**Direction:** Write *balanced force* or *unbalanced force* on the line in front of the example.

1. \_\_\_\_\_ a parked truck
2. \_\_\_\_\_ a car being towed
3. \_\_\_\_\_ a see-saw with the same weight on both sides
4. \_\_\_\_\_ a person pushing on a cement wall
5. \_\_\_\_\_ a book rests on a table
6. \_\_\_\_\_ a student slides a book across the table to a friend

## Bell Ringer 26: Friction

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

**Friction** is the force that opposes motion between two surfaces.

**Directions:** Complete the table for the four types of friction listed below. Explain the type of friction and give an example.

Type	Explanation	Example
static		
sliding		
rolling		
fluid		

## Physical Science

### Bell Ringer 27: Newton's First Law of Motion

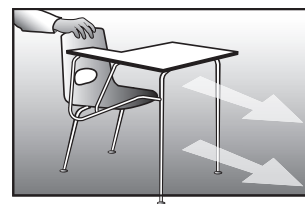
Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Newton's First Law of Motion** states that an object at rest tends to stay at rest, and an object moving at a constant velocity will continue moving at a constant velocity, unless it is acted upon by an unbalanced force.

**Directions:** Circle one of each pair of words or phrases within the parentheses to make each statement true.

- Another way to state Newton's First Law of Motion is that all objects have (mass / inertia).
- Inertia depends on the (weight / mass) of an object.
- The (less / greater) the mass of an object, the more inertia it has.
- Newton's First Law of Motion is also called the law of (inertia / velocity).
- The greater an object's mass, the (larger / smaller) the force needed to overcome the inertia.



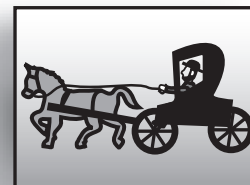
### Bell Ringer 28: Newton's Second Law of Motion

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

Date: \_\_\_\_\_

**Directions:** Identify the following statements as true or false. Then write "T" for true or "F" for false. If a statement is false, cross out the word that makes it false and write the word that makes it true.

- \_\_\_\_\_ Newton's Second Law of Motion explains the relationship between acceleration, mass, and matter.
- \_\_\_\_\_ To increase the acceleration of a wagon, you can decrease the force used to pull it.
- \_\_\_\_\_ To increase the acceleration of a wagon, you can decrease its mass.
- \_\_\_\_\_ If two bike riders pedal with the same force, the rider moving the least mass will accelerate faster.
- \_\_\_\_\_ Acceleration = net force/mass.
- \_\_\_\_\_ Acceleration is measured in the SI unit newton (N).



# Physical Science

## Bell Ringer 29: Newton's Third Law of Motion

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

**Newton's Third Law of Motion** states that forces are found in pairs. For every action (force) there is an equal and opposite reaction (force).

**Directions:** Complete the table by providing an action and reaction for each example.

Example	Action	Reaction
A fish swimming through the water.		
A dog leaps in the air to catch a ball.		
A cannon ball is shot from a cannon.		
You sit in a chair.		
A girl kicks a soccer ball tossed to her.		

## Bell Ringer 30: Momentum

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

Scientists define **momentum** as mass times velocity (Momentum =  $MV$ ). Momentum is measured in kilogram-meters per second ( $\text{kg}\cdot\text{m/s}$ ).

**Directions:** Calculate momentum for each problem. Label your answers correctly.

1. What is the momentum of a 12-kg dog running at 8 m/s? \_\_\_\_\_
2. What is the momentum of a 15-kg bicycle traveling at 3 m/s? \_\_\_\_\_
3. What is the momentum of a 50-kg dolphin swimming at 16.4 m/s? \_\_\_\_\_
4. What is the velocity of a 5.5-kg object that has the momentum of  $550 \text{ kg}\cdot\text{m/s}$ ?  
\_\_\_\_\_
5. Which has more momentum: a 129-kg football player who is running at 4 m/s or a 120-kg player running at 5 m/s? Explain your answer.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# Physical Science

## Bell Ringer 31: Work and Power

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

**Directions:** Circle one of each pair of words or phrases within the parentheses to make each statement true.

- (Power / Work) occurs when an object moves in the same direction as the force acting on it.
- The SI unit for power is (meter / watt).
- Power is a measure of how much (force is applied / work is done) within a given length of time.
- The SI unit for work is (joule / newton).
- (Power / Work) =  $\frac{\text{force} \times \text{distance}}{\text{time}}$
- The amount of work done on an object can be determined by multiplying force times (speed / distance).
- An Olympic athlete lifting a barbell above his head is an example of (power / work).

## Bell Ringer 32: Simple Machines

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

A **simple machine** is a device that makes work easier. There are six types of simple machines: **inclined plane**, **wedge**, **screw**, **lever**, **wheel and axle**, and **pulley**.

**Directions:** Under each picture, write the name of the type of simple machine represented.

1. flat screwdriver end



\_\_\_\_\_

2. hook screw



\_\_\_\_\_

3. bicycle wheel



\_\_\_\_\_

4. carrying a box up a ramp



\_\_\_\_\_

5. knife blade



\_\_\_\_\_

6. teeter totter



\_\_\_\_\_

7. door knob



\_\_\_\_\_

8. wheelbarrow



\_\_\_\_\_

9. device for lowering bucket



\_\_\_\_\_



# Physical Science

## Bell Ringer 33: Compound Machines

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

Date: \_\_\_\_\_

A **compound machine** is made from two or more simple machines.

**Directions:** Complete the table by writing the name of the simple machines found in each compound machine.

Compound Machine	Simple Machines Present in Each Compound Machine
scissors	
wheelbarrow	
shovel	
bicycle	
ax	

## Bell Ringer 34: Types of Energy

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

Date: \_\_\_\_\_

**Directions:** Solve the crossword puzzle using the clues below.

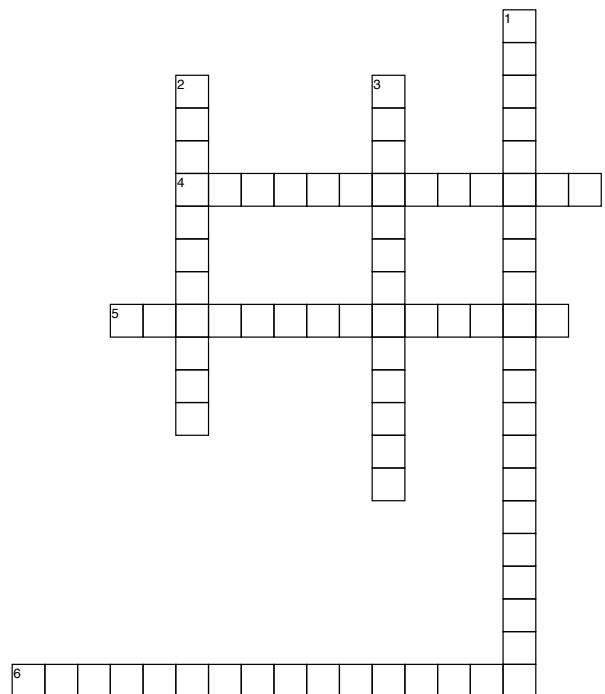
(All answers are two words.)

### Across

- the energy contained in the nuclei of atoms
- the energy stored in chemical bonds
- the energy produced by electric charges

### Down

- the energy carried by light and other kinds of electromagnetic waves
- the energy carried by sound waves
- the energy related to the temperature of a substance

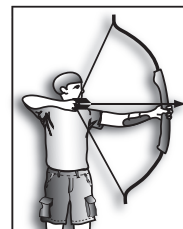


# Physical Science

## Bell Ringer 35: Potential vs. Kinetic Energy

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

**Directions:** Shade the circle for the correct answer to each question.



- What form of energy are kinetic energy and potential energy?  
 (a.) electromagnetic     (b.) mechanical     (c.) reflected
- Which of these is the energy an object has because it is moving?  
 (a.) kinetic energy     (b.) potential energy     (c.) work energy
- Which of these is the energy that results from the position or shape of an object?  
 (a.) kinetic energy     (b.) potential energy     (c.) kinetic and potential energy
- Which are factors that affect kinetic energy?  
 (a.) mass and velocity     (b.) speed and height     (c.) weight and height
- What type of potential energy does a bow have when an archer pulls back the arrow?  
 (a.) gravitational     (b.) elastic     (c.) thermal

## Bell Ringer 36: Heat Transfer

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

**Heat** is the transfer of **thermal energy** between substances that are at different temperatures. There are three methods of heat transfer: **conduction**, **convection**, and **radiation**.

**Directions:** Complete the table below. Classify the method used to transfer heat as conduction, convection, or radiation.

Example	Method of Transfer
1. rattlesnake uses infrared sensors to find prey in the dark	
2. hot air balloon rising into the air	
3. touching a hot pan from the oven	
4. sun heating the earth	
5. spoon becomes warm in a cup of hot soup	
6. heating a pot of water on the stove	

## Physical Science

### Bell Ringer 37: Wave Energy

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

Date: \_\_\_\_\_

**Directions:** Use the word bank to fill in the blanks in the paragraph about waves.

light  
wavevibrate  
energymedium  
solidselectromagnetic  
mechanical

A \_\_\_\_\_ is a disturbance that transfers \_\_\_\_\_ from place to place. The material through which a wave travels is called a \_\_\_\_\_. Gases, liquids, and \_\_\_\_\_ are all mediums through which waves can travel. Waves that travel through matter are called \_\_\_\_\_ waves. Mechanical waves are produced when a source of energy causes a medium to \_\_\_\_\_. An example of a mechanical wave is sound waves. Waves that can travel through empty space are called \_\_\_\_\_ waves. \_\_\_\_\_ travels as an electromagnetic wave.

### Bell Ringer 38: Characteristics of Waves

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

Date: \_\_\_\_\_

All **waves** have the following four characteristics: **amplitude**, **wavelength**, **frequency**, and **speed**.

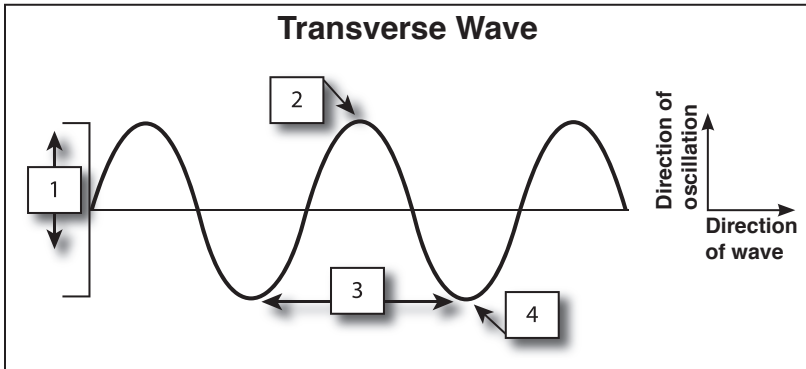
**Directions:** Circle one of each pair of words within the parentheses to make each statement true.

1. The (amplitude / wavelength) of a wave is the distance a wave oscillates from its resting position.
2. (Frequency / Wave speed) is measured in hertz (Hz).
3. (Amplitude / Wavelength) is the distance from any point on one wave to the corresponding point on an adjacent wave.
4. (Frequency / Wave speed) is the number of oscillations produced in a certain amount of time.
5. (Wavelength / Wave speed) is the distance a wave travels in a given amount of time.
6. The larger the (amplitude / wavelength), the more energy carried by the wave.

# Physical Science

## Bell Ringer 39: Transverse vs. Longitudinal Waves

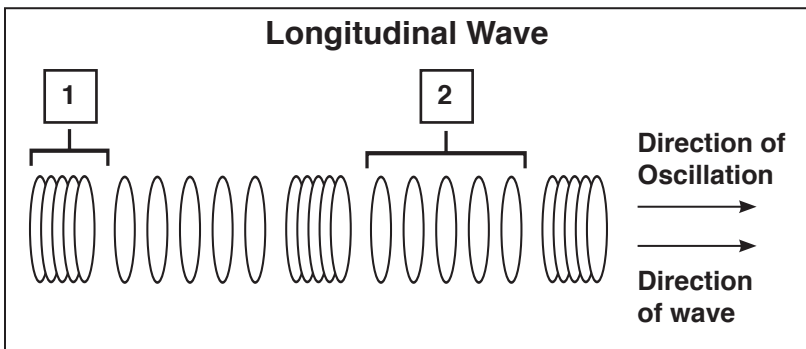
Name: \_\_\_\_\_  
Date: \_\_\_\_\_



**Directions:** Name the part of each wave numbered in the diagrams.

### Transverse Wave

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_



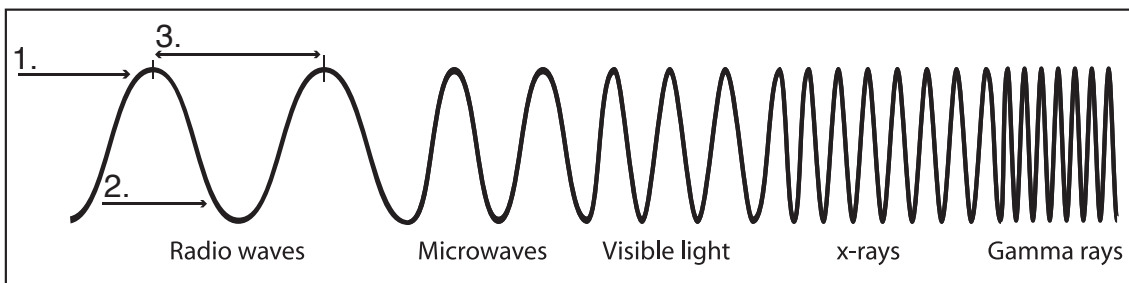
### Longitudinal Wave

1. \_\_\_\_\_
2. \_\_\_\_\_

## Bell Ringer 40: Electromagnetic Waves

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

**Directions:** First, label the electromagnetic wave diagram with the correct terms (*crest*, *trough*, and *wavelength*). Next, correctly identify the following statements as true or false. Then write “T” for true or “F” for false. If the statement is false, cross out the word that makes it false and write the word that makes it true.



4. \_\_\_\_ An electromagnetic wave is a longitudinal wave.
5. \_\_\_\_ All electromagnetic waves travel at the speed of light.
6. \_\_\_\_ Microwaves have the most energy, while radio waves have the least energy.
7. \_\_\_\_ The light we can see is visible light.

# Physical Science

## Bell Ringer 41: Light on Surfaces

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

Date: \_\_\_\_\_

**Directions:** Match the terms about light below with their descriptions.

- |                              |  |
|------------------------------|--|
| 1. _____ reflection          | a. You can see this phenomenon when you put a spoon in a glass of water.                       |
| 2. _____ transmission        | b. An apple looks red because all other colors are absorbed.                                   |
| 3. _____ absorption          | c. This is light reflected from a rough surface.   |
| 4. _____ law of reflection   | d. If you shine light on a surface, some of that light will bounce off.                        |
| 5. _____ specular reflection | e. An example is a sheet of waxed paper.   |
| 6. _____ diffuse reflection  | f. When light passes through matter.   |
| 7. _____ transparent         | g. Light will always be reflected by a surface at the same angle at which it hits the surface. |
| 8. _____ refraction          | h. This is light reflected from a smooth surface.  |
| 9. _____ opaque              | i. You can see through water, air, and glass because light passes through these materials.     |
| 10. _____ translucent        | j. Matter that does not transmit any light.  |

## Bell Ringer 42: Light and Color

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

Date: \_\_\_\_\_

**Directions:** Use the word bank to fill in the blanks in the two paragraphs about light and color.

bent      prism      reflected      spectrum  
 black      absorbed      frequencies      dispersion

White light is made up of many colors. When white light strikes an object, the object may absorb or reflect any or all of the parts of the color \_\_\_\_\_. That is why we see different colors. We see a red shirt because only red light is \_\_\_\_\_ off the shirt; all other colors of the spectrum making up white light are \_\_\_\_\_. White objects reflect all colors; \_\_\_\_\_ objects absorb all colors.

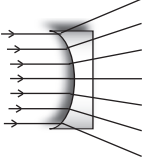
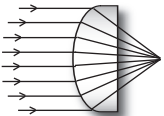
A \_\_\_\_\_ separates light into the colors of the visible spectrum; red, orange, yellow, green, blue, indigo, and violet. The separation of light by its frequency is called \_\_\_\_\_. Different colors of light have different \_\_\_\_\_. As the light enters at an angle and passes through the prism, it slows down and is \_\_\_\_\_, once going in and once going out of the prism.

# Physical Science

## Bell Ringer 43: Concave Lens vs. Convex Lens

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

**Directions:** Complete the table by filling in the correct information under each column heading.

Comparison	Concave Lens 	Convex Lens 
structure		
other name		
images formed		
meaning		
uses		

## Bell Ringer 44: Sound Energy

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

**Directions:** Answer the questions about sound.

- How is sound produced? \_\_\_\_\_  
\_\_\_\_\_
- How does the amplitude of a sound wave affect its loudness? \_\_\_\_\_  
\_\_\_\_\_
- How does the frequency of a sound wave determine its pitch? \_\_\_\_\_  
\_\_\_\_\_
- What is the unit of measure used for loudness? \_\_\_\_\_  
\_\_\_\_\_



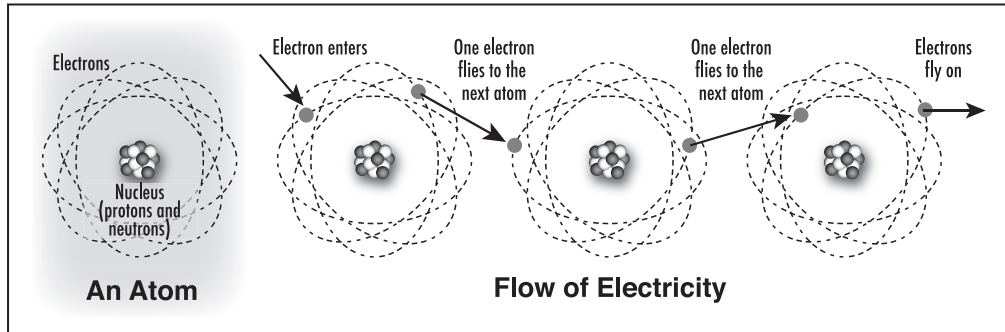
# Physical Science

## Bell Ringer 45: Electricity

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

Date: \_\_\_\_\_

**Directions:** Electricity is the interaction of electric charges. Explain using the diagram below.




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## Bell Ringer 46: Static Electricity

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

Date: \_\_\_\_\_

There are three methods by which charges can be transferred to build up **static electricity**: charging by **friction**, by **conduction**, and by **induction**.

**Directions:** Complete the table by explaining the methods of transferring charges and give an example of each.

Method	Explanation	Example
friction		
conduction		
induction		

# Physical Science

## Bell Ringer 47: Current Electricity

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

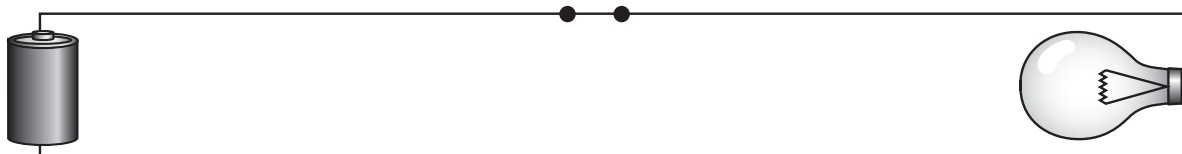
**Directions:** Match the terms with the correct descriptions.

- |                                  |   |
|----------------------------------|---|
| 1. ____ current electricity      | a. electric charges flow in one direction, then in the reverse direction, over and over again |
| 2. ____ electric current         | b. the amount of charge that moves past a certain point each second                           |
| 3. ____ ampere (amp A)           | c. the SI unit of measurement for current   |
| 4. ____ direct current (DC)      | d. a continuous flow of electric charge   |
| 5. ____ alternating current (AC) | e. a material which does not transfer electric charge well                                    |
| 6. ____ conductors               | f. is the measure of how difficult it is for charges to flow through a material               |
| 7. ____ insulators               | g. a material that permits an electric current to flow easily                                 |
| 8. ____ resistance               | h. the potential difference that causes charges to move in a circuit                          |
| 9. ____ voltage                  | i. the electric charges move in one direction   |

## Bell Ringer 48: Parts of a Circuit

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

Electric current flows through a path called a **circuit**.



**Directions:** Circle one of each pair of terms within the parentheses to make each statement true.

1. A(n) (closed circuit / open circuit) has a break in it.
2. A (battery / light bulb) pushes electric charges through a closed circuit.
3. Circuits deliver electrical energy to a (load / battery).
4. The (battery / wire) connects the energy source to the load.
5. The load in the diagram above is the (bulb / wire).
6. A(n) (energy source / switch) opens and closes a circuit.

# Physical Science

## Bell Ringer 49: Complete Circuits

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

Date: \_\_\_\_\_

Electric current flows through a path called a circuit. In a **complete circuit**, electrons flow in a path from the **source** to the **load** and then back to the source. The path must have no breaks.

**Directions:** Look closely at each diagram. Decide if the bulb will light. Circle yes if the bulb will light, or no if the bulb will not light.

1. yes / no    2. yes / no    3. yes / no    4. yes / no    5. yes / no    6. yes / no



## Bell Ringer 50: Series Circuit and Parallel Circuit

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

Date: \_\_\_\_\_

An **electrical circuit** is a complete path through which electrons flow from an energy source. Two kinds of basic circuits are **series** and **parallel**.

**Directions:** Identify each type of circuit shown below. Then answer the questions that follow.

1. \_\_\_\_\_

2. \_\_\_\_\_



3. What will happen if bulb B is removed from circuit number 1? \_\_\_\_\_

\_\_\_\_\_

4. What will happen if bulb C is removed from circuit number 2? \_\_\_\_\_

\_\_\_\_\_

# Physical Science

## Bell Ringer 51: Ohm's Law

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

George Ohm, a physicist, discovered a very important relationship between **voltage** (V), **current** (I), and **resistance** (R). Voltage is measured in **volts**, current is measured in **amps**, and resistance is measured in **ohms**. Electricians use **Ohm's Law** to determine the efficiency of electrical circuits for safety purposes.

**Formula for finding voltage**  
 $V = I \times R$

**Directions:** Calculate each problem. Remember to label answers with the correct unit of measurement.

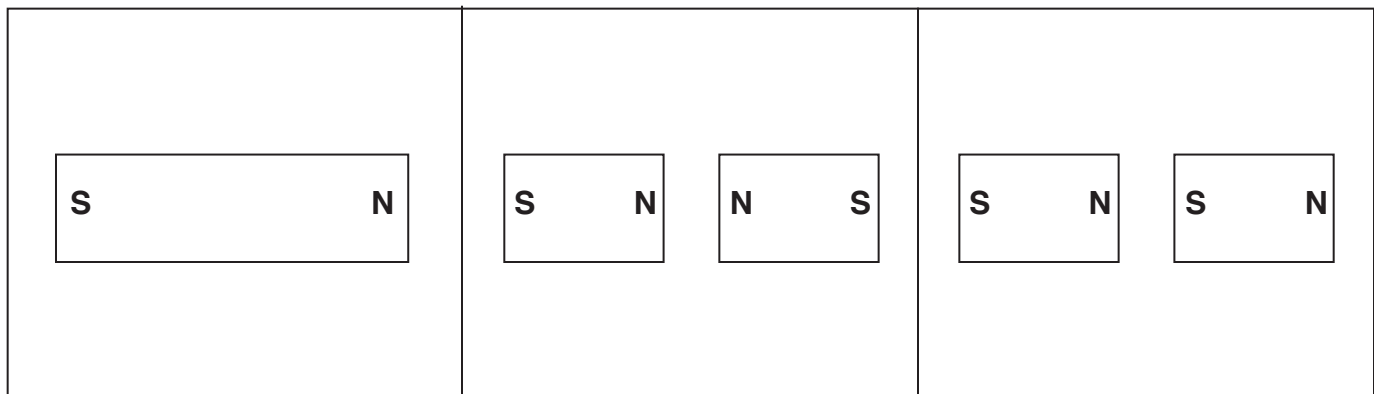
1. If you have a current of 1.2 amps flowing through a device with a resistance of 10 ohms, the voltage is \_\_\_\_\_.
2. Find the voltage if the current is 12.5 amps and resistance is 9.6 ohms. \_\_\_\_\_
3. Find the resistance if voltage is 120 volts and current is 12.8 amps. \_\_\_\_\_

## Bell Ringer 52: Magnetic Field

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

The space around a magnet where a magnet exerts a force is called a **magnetic field**. This invisible force exists around every magnet, and can be observed by sprinkling the magnets with iron filings.

**Directions:** Draw the magnetic lines of force that would appear if the magnets below were sprinkled with iron filings.



# Physical Science

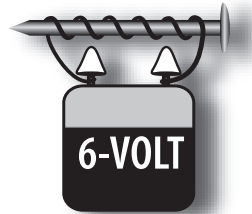
## Bell Ringer 53: Electromagnetism

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

Date: \_\_\_\_\_

Current electricity can be used to make an **electromagnet**.

**Directions:** List three ways to increase the strength of an electromagnet.



1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

## Bell Ringer 54: Renewable and Nonrenewable Resources

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

Date: \_\_\_\_\_

Everyday we use up huge amounts of different energy sources to make our lives more comfortable. The energy we use comes from **natural resources** (resources supplied by nature). Energy sources can be classified as **renewable** or **nonrenewable**.

**Directions:** Complete the table by filling in the correct information under each column heading.

Energy Source	Explanation	Example
renewable		
nonrenewable		

# Life Science

## Bell Ringer 55: Characteristics of Living Organisms

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

All living organisms are classified by six characteristics.

**Directions:** Complete the table. List the six characteristics of all living organisms and provide an example for each.

Characteristic	Example
1.	
2.	
3.	
4.	
5.	
6.	

## Bell Ringer 56: Classification Hierarchy

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

A **mnemonic device** is a memory technique to help you recall important information.

**Directions:** Create a mnemonic device to help you remember the levels of classification.

Levels	Example	Your Mnemonic Device
Kingdom	Keep	
Phylum	Putting	
Class	Cookies	
Order	Out	
Family	For	
Genus	Girl	
Species	Scouts	



# Life Science

## Bell Ringer 57: Fungi Kingdom

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

**Directions:** Use the words in the word bank to fill in the blanks in the paragraph about **fungi**.

celled                  chlorophyll                  decompose                  humid  
recyclers              saprophytes              soil                          walls

Fungi are sometimes called “nature’s \_\_\_\_\_” because they help to \_\_\_\_\_ organic materials. Most fungi are many-\_\_\_\_\_. They have cell \_\_\_\_\_ and are anchored in \_\_\_\_\_. They grow best in warm, \_\_\_\_\_ places. They do not contain \_\_\_\_\_, and therefore, cannot make their own food. They are \_\_\_\_\_ because they feed on decaying or dead tissues.



## Bell Ringer 58: Protist Kingdom

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

Some **protists** feed on other organisms; others make their food through photosynthesis.

**Directions:** Decide whether the protists listed below produce their own food or must capture their food. Write the name of the protists under the correct heading.

ciliates                  diatoms                  dinoflagellates                  euglena  
flagellates              protozoans              sarcodines                  sporozoans

**Animal-Like**  
(must capture food)

**Plant-Like**  
(produce their own food)

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

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

# Life Science

## Bell Ringer 59: Monera Kingdom

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

The **Monera Kingdom** is made up completely of bacteria.

**Directions:** Identify the following statements as true or false. Then write “T” for true or “F” for false. If a statement is false, cross out the word that makes it false and write the word that makes it true.

1. \_\_\_\_\_ Bacteria usually reproduce by fission.
2. \_\_\_\_\_ All bacteria contain DNA.
3. \_\_\_\_\_ There are two types of bacteria: eubacteria and archaebacteria.
4. \_\_\_\_\_ Eubacteria exist in extreme conditions.
5. \_\_\_\_\_ All bacteria make their own food.
6. \_\_\_\_\_ Bacteria come in three basic shapes: spheres, rods, and spirals.
7. \_\_\_\_\_ All bacteria make humans sick.
8. \_\_\_\_\_ Many cheeses are made using bacteria.

## Bell Ringer 60: Animal Kingdom

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

Organisms can be classified by the way they get their food. An **autotroph** (producer) is an organism that makes its own food by using the sun’s energy. A **heterotroph** (consumer) is an organism that gets energy from other organisms. Members of the animal kingdom are heterotrophs.

**Directions:** Complete the table by classifying each organism as an autotroph or heterotroph.

Organism	Autotroph or Heterotroph?
1. cow	
2. tree	
3. algae	
4. fungi	
5. cat	
6. pumpkin	

# Life Science

## Bell Ringer 61: Plant Kingdom

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

Date: \_\_\_\_\_

Most **plants** have four main parts.

**Directions:** Complete the table by filling in the function of each plant part.

Plant Part	Function
Root	
Leaf	
Stem	
Flower	

## Bell Ringer 62: Dicot/Monocot

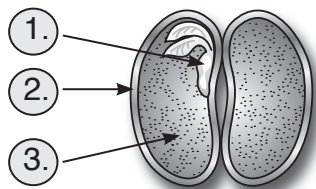
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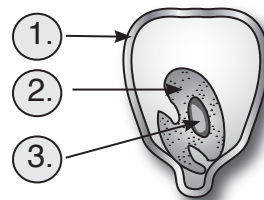
**Dicot** and **monocot** are both classifications for flowering plants.

**Directions:** Identify the parts of the dicot and monocot seeds. Record your answers in the table below.

**Dicot Seed**



**Monocot Seed**



Dicot Seed	Monocot Seed
1.	1.
2.	2.
3.	3.

# Life Science

## Bell Ringer 63: Angiosperm and Gymnosperm Plants

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

**Angiosperms** are flowering plants that produce their seeds in fruit. **Gymnosperms** are nonflowering plants, and the seeds are formed on a cone.

**Directions:** Use the words in the word bank to list each plant type under the correct heading. You may need to list more than one word on each line for all the answers to fit.

cactus    pine tree    cherry tree    vegetables    palm tree    grass  
tulips    fir tree    junipers    oak tree    spruce tree

### Angiosperms

### Gymnosperms

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

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

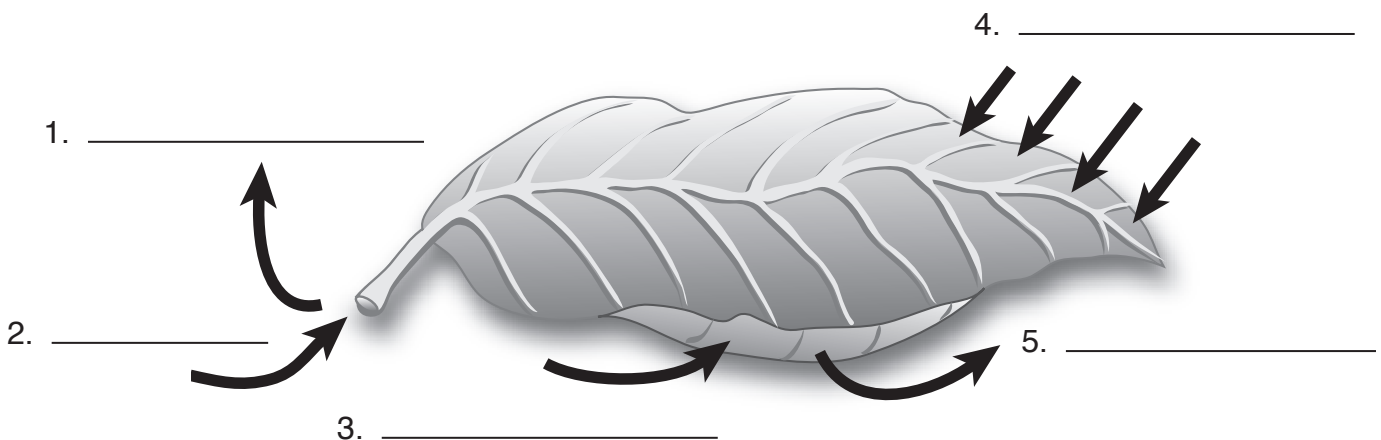
## Bell Ringer 64: Photosynthesis

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

**Photosynthesis** (the process by which plants make food) happens in the leaf.

**Directions:** Use the word bank to label the process of photosynthesis in the leaf diagram.

sunlight    glucose    water  
carbon dioxide    oxygen



# Life Science

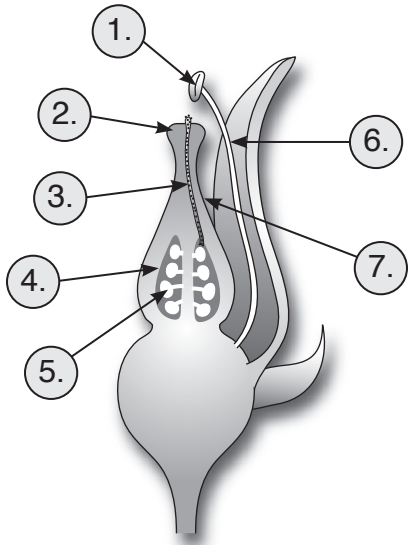
## Bell Ringer 65: Parts of a Flower

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

Date: \_\_\_\_\_

The **flower** is the part of the plant that produces the seeds.

**Directions:** Complete the table by writing each flower part and its function under the correct column.



Flower Part	Function
1.	
2.	
3.	
4.	
5.	
6.	
7.	

## Bell Ringer 66: Endoskeleton and Exoskeleton

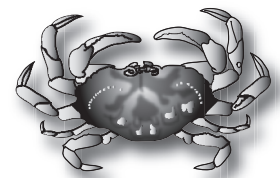
Name: \_\_\_\_\_

Date: \_\_\_\_\_

All **vertebrates** have a hard framework called an **endoskeleton** inside the body that supports muscles and soft body parts. The endoskeleton grows as the body of the animal grows. **Arthropods** (invertebrates) have a hard outer skeleton called an **exoskeleton** that supports the weight of the animal. Once formed, an exoskeleton cannot get larger, but the arthropod inside keeps growing. When it gets too large for the exoskeleton, the exoskeleton splits. The arthropod sheds the old exoskeleton, and it grows a new one.

**Directions:** Write endoskeleton or exoskeleton to classify the following organisms.

1. grasshopper \_\_\_\_\_
2. elephant \_\_\_\_\_
3. crab \_\_\_\_\_
4. snail \_\_\_\_\_
5. scorpion \_\_\_\_\_



# Life Science

## Bell Ringer 67: Cold- and Warm-Blooded

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

**Cold-blooded animals** take on the temperature of their surroundings. **Warm-blooded animals** try to keep the inside of their bodies at a constant temperature.

**Directions:** Write “C” or “W” to classify the organisms as cold-blooded or warm-blooded.

- 1. \_\_\_ snake                      2. \_\_\_ frog                      3. \_\_\_ alligator                      4. \_\_\_ pig
- 5. \_\_\_ polar bear                      6. \_\_\_ lizard                      7. \_\_\_ chicken                      8. \_\_\_ spider
- 9. \_\_\_ trout                      10. \_\_\_ deer                      11. \_\_\_ cat                      12. \_\_\_ moth
- 13. \_\_\_ tiger                      14. \_\_\_ bee                      15. \_\_\_ whale                      16. \_\_\_ bat
- 17. \_\_\_ shark                      18. \_\_\_ turtle                      19. \_\_\_ penguin                      20. \_\_\_ dog
- 21. \_\_\_ dolphin                      22. \_\_\_ eagle                      23. \_\_\_ shrimp                      24. \_\_\_ human
- 25. \_\_\_ horse                      26. \_\_\_ lion                      27. \_\_\_ camel                      28. \_\_\_ cow

## Bell Ringer 68: Vertebrates and Invertebrates

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

**Invertebrates** are animals that do not have a backbone.  
**Vertebrates** are animals that have a backbone.

**Directions:** Complete the table by classifying the animals as vertebrates or invertebrates.

Animal	Vertebrate or Invertebrate?
1. leech	
2. mouse	
3. octopus	
4. worm	
5. snake	
6. butterfly	
7. crab	



# Life Science

## Bell Ringer 69: Plant and Animal Cells

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

Date: \_\_\_\_\_

Plant and animal cells have many of the same structures.

**Directions:** Complete the table. Identify the structure as part of a plant or animal cell by writing “yes” or “no” under the correct column heading. Then describe the function of each cell structure.

Structure	Plant Cell (yes/no)	Animal Cell (yes/no)	Function of Structure
1. vacuole			
2. nucleus			
3. cell membrane			
4. cell wall			
5. chloroplast			
6. mitochondria			

## Bell Ringer 70: Cell Division—Mitosis

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

Date: \_\_\_\_\_

All living things grow and repair themselves by the process of **mitosis** (cell division). The cell contents and the DNA are divided equally between two daughter cells (new cells). There are four distinct stages of mitosis.

**Directions:** Write the name of each phase of mitosis under the correct illustration. Then write a paragraph explaining what is occurring during each phase.



1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

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# Life Science

## Bell Ringer 71: DNA, Genes, and Heredity

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

By studying **heredity**, scientists learned how traits are passed from parents to their offspring.

**Directions:** Use the word bank to fill in the blanks in the paragraph about heredity. Some words may be used more than once.

DNA    chromosomes    genes    traits    nucleus    blueprint

\_\_\_\_\_ are controlled by genes made up of DNA located on the \_\_\_\_\_ (rod-shaped strands) containing genetic material are located in the \_\_\_\_\_ of the cell. The chromosome is divided into small sections called \_\_\_\_\_. The \_\_\_\_\_ consist of a long strand of \_\_\_\_\_. The \_\_\_\_\_ contains the genetic \_\_\_\_\_ for how an organism looks and functions (traits).

## Bell Ringer 72: Consumers, Producers, and Decomposers

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

The **food chain** consists of three levels: producers, consumers, and decomposers. A **producer** is an organism that changes the sun's energy into food. A **consumer** is an organism that gets energy from eating plants and other animals. A **decomposer** is an organism that gets energy from dead or decaying organisms.

**Directions:** Complete the table by classifying each living thing as a producer, consumer, or decomposer.

Living Thing	Producer, Consumer, or Decomposer
1. bacteria	
2. rose bush	
3. mushroom	
4. green algae	
5. dragonfly	
6. rabbit	

# Life Science

## Bell Ringer 73: Herbivores, Carnivores, and Omnivores

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

Date: \_\_\_\_\_

There are three kinds of consumers: **herbivores**, **carnivores**, and **omnivores**.

**Directions:** Write a definition and give two examples for each type of consumer.

Herbivore: \_\_\_\_\_

\_\_\_\_\_

Carnivore: \_\_\_\_\_

\_\_\_\_\_

Omnivore: \_\_\_\_\_

\_\_\_\_\_

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## Bell Ringer 74: Food Chains, Food Webs, and Energy Pyramids

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

Date: \_\_\_\_\_

**Food chains**, **food webs**, and **energy pyramids** are tools used to represent the flow of energy from the sun to organisms and from one organism to another organism.

**Directions:** Complete the boxes below by constructing an example of each flow of energy. You do not have to draw pictures; you can use names and draw arrows between them.

**Food Chain**

**Food Web**

**Energy Pyramid**

## Life Science

### Bell Ringer 75: Symbiotic Relationships

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

Date: \_\_\_\_\_

**Symbiosis** is a close relationship between two species where at least one of the organisms is benefiting. There are three different types of symbiosis. **Commensalism** is a relationship between two kinds of organisms that benefits one without harming the other. **Mutualism** is a relationship that benefits both. **Parasitism** is a relationship in which one organism benefits while the other may be harmed by the relationship.

**Directions:** Write *commensalism*, *mutualism*, or *parasitism* to identify the symbiotic relationship described.

1. \_\_\_\_\_ Ticks feed on dog blood. This helps the tick but harms the dog.
2. \_\_\_\_\_ Barnacles latch on to whales for a free meal. This does not help or hurt the whale.
3. \_\_\_\_\_ Oxpecker birds remove the ticks from rhinoceroses. Both benefit.
4. \_\_\_\_\_ Fleas feed on mice's blood. The fleas benefit, and the mice are harmed.

### Bell Ringer 76: Carbon Dioxide-Oxygen Cycle

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

Date: \_\_\_\_\_

The continuous movement of carbon dioxide and oxygen between living things and the environment is known as the **carbon dioxide-oxygen cycle**.

**Directions:** Draw a diagram of the carbon dioxide-oxygen cycle in the box below. You do not have to draw pictures; you can use names and draw arrows between them.

# Life Science

## Bell Ringer 77: Ecological Succession

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

Date: \_\_\_\_\_

**Ecological succession** (a series of environmental changes that occur in an ecosystem) is the result of the activities of man, other living things, or when natural disasters occur such as forest fires, floods, climate changes, or volcanic eruptions. These activities may reduce an area to bare soil and rock. The first organisms to return to a disrupted area, such as grasses, form a **pioneer community**. Eventually, animals return, and given a sufficient amount of time, new communities form. A **climax community** or stable community finally forms that may remain the same for many years.

**Directions:** In 1980, Mount St. Helens erupted, destroying a forest biome. Explain how the process of ecological succession will change the area back to a thriving forest once again.

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## Bell Ringer 78: Biomes

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

Date: \_\_\_\_\_

A **biome** is a large region where plants, animals, insects, and people live in a distinct type of climate.

**Directions:** Match the clue to the correct biome.

- |                            |   |
|----------------------------|---|
| 1. _____ tundra            | a. reptiles, such as snakes and lizards, are well adapted to this biome |
| 2. _____ desert            | b. found in groups called chains or ranges                              |
| 3. _____ mountain          | c. trees remain green throughout the year                               |
| 4. _____ coniferous forest | d. hot, dry climate perfect for growing food                            |
| 5. _____ deciduous forest  | e. encircles the Arctic Ocean   |
| 6. _____ grasslands        | f. more than 60 inches of rainfall each year                            |
| 7. _____ rain forest       | g. trees drop their leaves in the fall                                  |

# Earth and Space Science

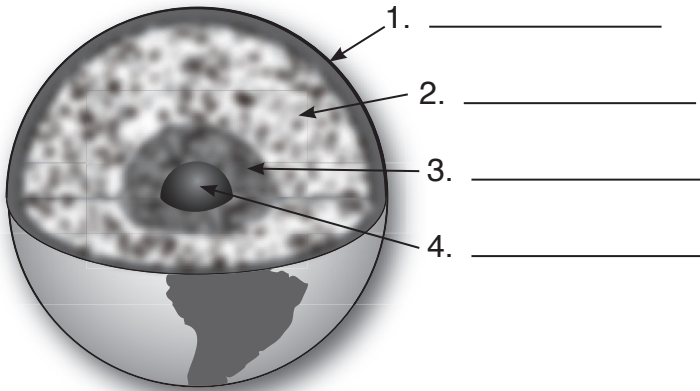
## Bell Ringer 79: Earth Structure and Composition

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

The earth has four distinct layers: the **crust**, **mantle**, **outer core**, and **inner core**.

**Directions:** Label the diagram of the earth’s layers. Then describe the composition of each layer.

**Earth’s Layers**



**Layer Composition**

1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_  
4. \_\_\_\_\_

## Bell Ringer 80: Plate Tectonics

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

Scientists use **plate tectonics** to explain how the continents were able to move to their present locations.

**Directions:** Complete the table by writing a definition for each plate tectonic vocabulary word.

Vocabulary	Definition
1. subduction	
2. Pangaea	
3. transform boundary	
4. convergent boundary	
5. divergent boundary	
6. lithosphere	

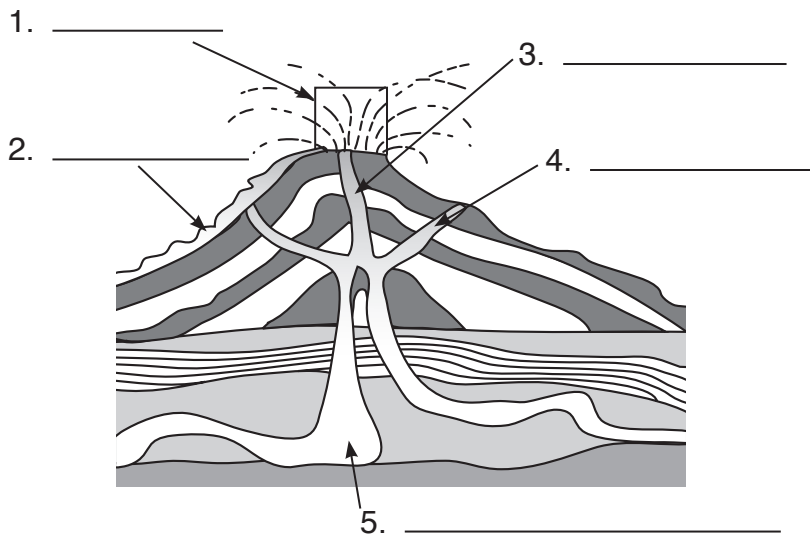
# Earth and Space Science

## Bell Ringer 81: Parts of a Volcano

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

**Volcanoes** are mountains formed by material that erupts and builds up over time. They are caused by the action of **magma** below the surface of the earth.

**Directions:** Label the volcano diagram and write a definition for each word.



Definition
1.
2.
3.
4.
5.

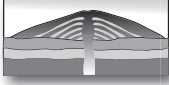


## Bell Ringer 82: Types of Volcanoes

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

Scientists classify volcanoes into three types based on how they form and the type of material of which they are built.

The three basic forms of volcanoes are **shield**, **cone**, and **composite**.

**Directions:** Complete the table by providing an example of each type of volcano and the location of that volcano.

Volcano Type	Volcano Name	Volcano Location
 shield		
 cone		
 composite		

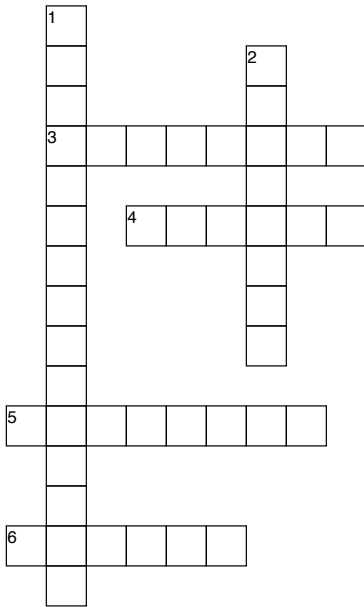
# Earth and Space Science

## Bell Ringer 83: Minerals

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

**Minerals** can be identified by several physical properties.

**Directions:** Solve the crossword puzzle using the clues below.



### Across

3. how a mineral breaks into pieces along smooth planes
4. how light is reflected from a mineral's surface
5. measure of how easily a mineral can be scratched
6. color of a mineral when crushed to a powder

### Down

1. a comparison of density to the density of an equal volume of water (two words)
2. tendency of a mineral to break with jagged edges

## Bell Ringer 84: Types of Rocks

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

A **rock** is a solid mixture of minerals, mineraloids, glass, or organic matter. Geologists classify rocks into one of three groups based on how they are formed.

**Directions:** Circle one of each pair of words within the parentheses to make each statement true.

1. Igneous rocks are formed by (sediments pressing / cooling magma).
2. (Igneous rocks / Metamorphic rocks) have been formed by pressure and heat.
3. Rocks that form below the earth's surface are (extrusive / intrusive) igneous rocks.
4. Detrital (sedimentary / metamorphic) rocks are made from broken fragments of other rocks.
5. Gneiss and slate are examples of (igneous rocks / metamorphic rocks).
6. (Extrusive / Intrusive) rocks are formed when lava cools on or near the earth's surface.
7. Sedimentary rocks are formed by (temperature and pressure / sediments pressing).



# Earth and Space Science

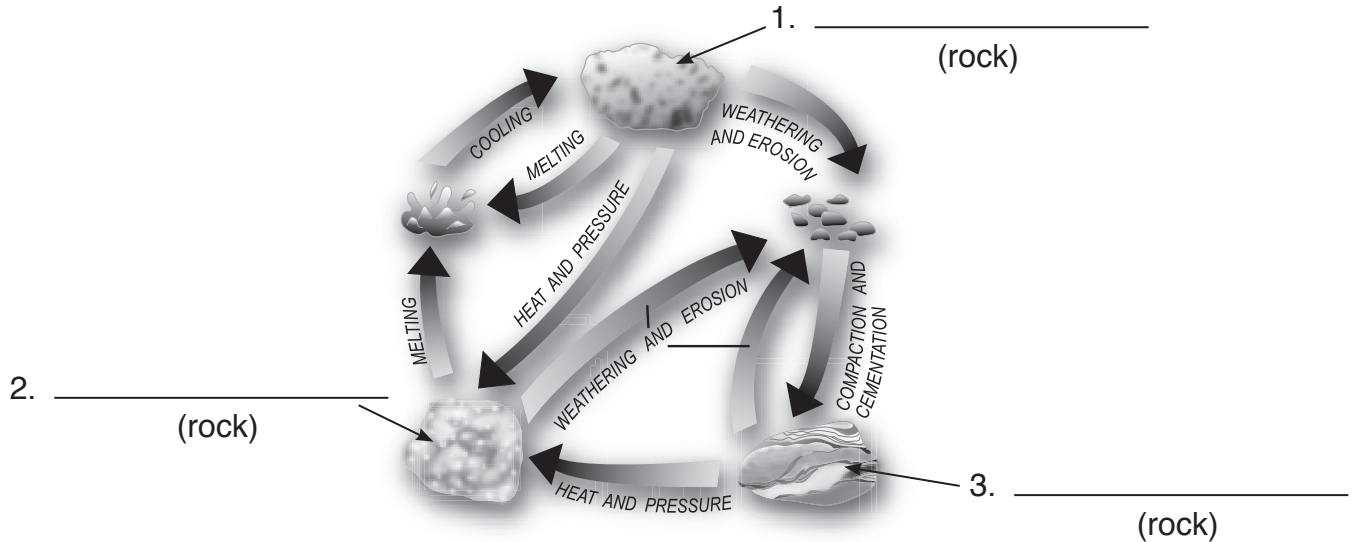
## Bell Ringer 85: Rock Cycle

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

Date: \_\_\_\_\_

The process of constant change in form and structure of rocks is called the **rock cycle**.

**Directions:** Identify and label the diagram with the type of rocks being formed.



## Bell Ringer 86: Earthquakes

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

Date: \_\_\_\_\_

The shaking, trembling, or rolling movements usually caused by bodies of rock slipping past each other at faults are called **earthquakes**.

**Directions:** Match each term with its definition.

- |                       |   |
|-----------------------|---|
| 1. _____ focus        | a. a scientist who studies earthquakes  |
| 2. _____ seismic      | b. the waves produced by an earthquake  |
| 3. _____ epicenter    | c. the seismic waves that cause rocks to move in the same direction as the waves                        |
| 4. _____ surface      | d. the seismic waves that cause rock particles to vibrate at right angles to the direction of the waves |
| 5. _____ secondary    | e. the seismic waves that reach Earth's surface and travel outward                                      |
| 6. _____ seismologist | f. the surface point directly above an earthquake's focus   |
| 7. _____ primary      | g. the point inside the earth where the energy release occurs   |

# Earth and Space Science

## Bell Ringer 87: Chemical and Mechanical Weathering

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

**Chemical** and **mechanical weathering** are forces that break up rock.

**Directions:** Identify the following statements as true or false. Then write “T” for true or “F” for false. If a statement is false, cross out the word that makes it false and write the word that makes it true.

1. \_\_\_\_\_ Water is needed for chemical weathering to take place.
2. \_\_\_\_\_ Ice wedging is an example of chemical weathering.
3. \_\_\_\_\_ Abrasion is the process of wearing rock down by friction.
4. \_\_\_\_\_ Rusting is an example of mechanical weathering.
5. \_\_\_\_\_ Chemical weathering formed Carlsbad Caverns in New Mexico.
6. \_\_\_\_\_ Exfoliation is the process in which layers of rock gradually break off.

## Bell Ringer 88: Erosion and Deposition

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

**Erosion** is the wearing away of the earth’s surface by wind, water, ice, or gravity. Erosion takes away the soil in one place and deposits it in another.

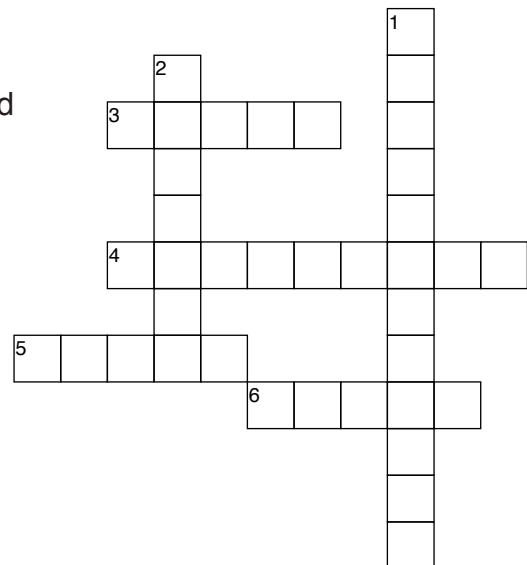
**Directions:** Solve the crossword puzzle using the clues below.

**Across**

3. the part of vegetation that helps hold soil together
4. this is vegetation planted to slow the force of the wind
5. when sediments slowly inch their way down a slope due to gravity
6. fine-grained particles tightly packed by wind

**Down**

1. when rainwater carves a broad, deep gash in the land as it moves large amounts of soil (two words)
2. a ridge of material deposited at the end of a glacier



# Earth and Space Science

## Bell Ringer 89: Ocean Currents

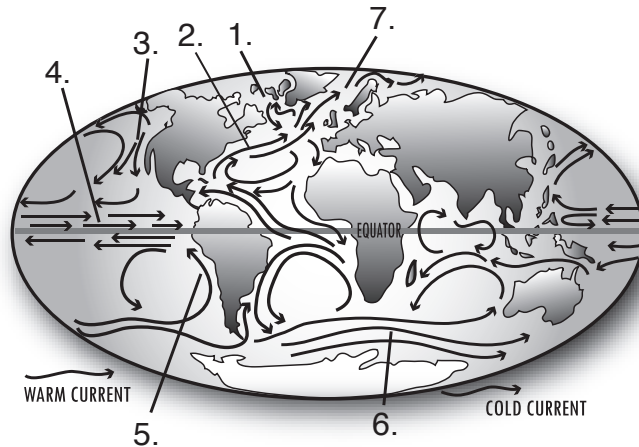
Name: \_\_\_\_\_

Date: \_\_\_\_\_

The temperature of ocean currents directly affects the temperature of the air above them. In general, **warm ocean currents** flow away from the equator, and **cold ocean currents** flow toward the equator.

**Directions:** Identify and name each ocean current in the diagram. Use your science textbook or the Internet if you need help.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_



## Bell Ringer 90: Parts of the Ocean Floor

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

Date: \_\_\_\_\_

The topography of the ocean floor is similar to many of the landforms on Earth.

**Directions:** Draw and label a diagram of the ocean floor in the box below. Use the ocean feature words from the word bank. Use your science textbook or the Internet if you need help.

abyssal plain  
mid-ocean ridge

continental shelf  
submarine canyon

continental slope  
trench

# Earth and Space Science

## Bell Ringer 91: Earth's Atmosphere

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

Date: \_\_\_\_\_

The earth is surrounded by different layers of air called the **atmosphere**.

**Directions:** Circle the correct answer for each multiple-choice question.

1. In which layer do most airplanes fly?
  - a. stratosphere
  - b. troposphere
  - c. mesosphere
  - d. ionosphere
2. Which layer has the coldest temperatures?
  - a. exosphere
  - b. thermosphere
  - c. ozonosphere
  - d. mesosphere
3. Which layer reflects radio waves back to Earth?
  - a. magnetosphere
  - b. ionosphere
  - c. troposphere
  - d. thermosphere
4. In which layer do we live?
  - a. mesosphere
  - b. stratosphere
  - c. troposphere
  - d. exosphere
5. Which layer has most of Earth's weather?
  - a. troposphere
  - b. exosphere
  - c. ozonosphere
  - d. thermosphere

## Bell Ringer 92: The Water Cycle

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

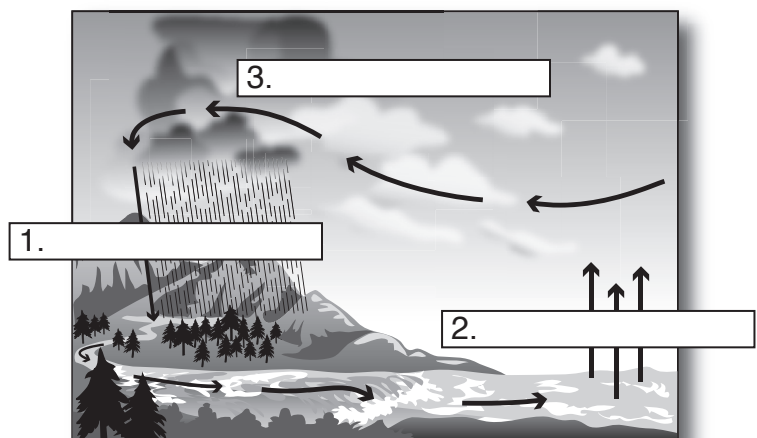
Date: \_\_\_\_\_

The **water cycle** is an exchange of water between land, bodies of water, and the atmosphere.

**Directions:** Label the water cycle diagram. Then write a description for each process you labeled in the water cycle diagram.

### Description

1. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
2. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
3. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



# Earth and Space Science

## Bell Ringer 93: Factors Affecting Climate

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

Date: \_\_\_\_\_

**Climate** is the average weather pattern of a region over a long period of time. Several factors affect the climate of a region.

**Directions:** Explain how the following factors affect the climate of a region.

1. latitude \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
  
2. elevation \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
  
3. topography \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Bell Ringer 94: Weather Maps and Symbols

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

Date: \_\_\_\_\_

**Weather boxes** are organized collections of symbols meteorologists use to represent collected weather data.

**Directions:** Using the appropriate weather symbols, create a weather box for each of the cities listed in the table.

City	Cloud Cover	Temperature	Barometric Pressure	Type of Weather	Wind Speed/ Direction
Denver, CO	100%	45	29.1 ↓	Snow	15 mph W
Milwaukee, WI	50%	35	30.1 steady		11 mph NW
San Antonio, TX	Clear	80	30.0 ↑	Sunny	5 mph SW

**Denver, CO**

**Milwaukee, WI**

**San Antonio, TX**

# Earth and Space Science

## Bell Ringer 95: Air Masses

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

Date: \_\_\_\_\_

An **air mass** is a large body of air that has the same temperature and amount of moisture as the surface over which it develops.

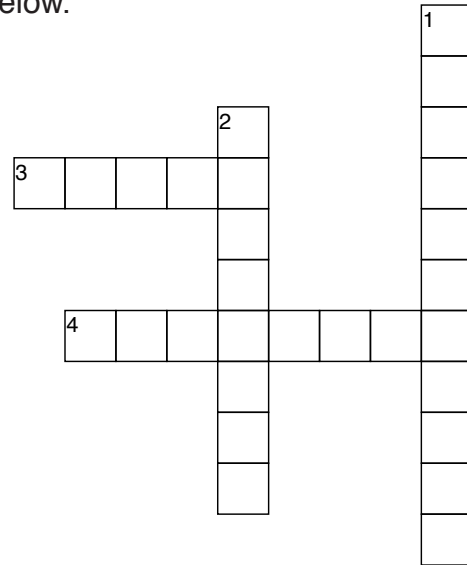
**Directions:** Solve the crossword puzzle using the clues below.

### Across

3. air mass that forms north or south of the 50 degree latitudes and is cold
4. air mass that forms over oceans and is humid

### Down

1. air mass that forms over land and is dry
2. air mass that forms over the tropics and is warm



## Bell Ringer 96: Cold and Warm Fronts

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

Date: \_\_\_\_\_

**Fronts** are found along leading edges of the air masses. The temperature and pressure of the air mass dictates the name of the front.

**Directions:** Identify each clue as a cold front or a warm front. Write “C” for cold front or “W” for warm front.

1. \_\_\_\_ a fast-moving cold air mass meets a slow-moving warm air mass
2. \_\_\_\_ a faster-moving warm air mass collides with a slower-moving cold air mass
3. \_\_\_\_ moderate rains arrive lasting for hours or days
4. \_\_\_\_ a tornado could happen
5. \_\_\_\_ strong winds followed by heavy rain and thunderstorms
6. \_\_\_\_ a front passes and the weather turns cooler
7. \_\_\_\_ a front passes and the temperature becomes warm and humid
8. \_\_\_\_ a front that farmers usually prefer



# Earth and Space Science




## Bell Ringer 97: Types of Clouds

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

Date: \_\_\_\_\_

**Clouds** are masses of water droplets or ice crystals located in the troposphere layer of the atmosphere. There are many different types of clouds; they can be used to forecast the weather.

**Directions:** Complete the table with the name of the cloud type, description of the cloud, and the forecast associated with the cloud type.

Name of Cloud Type	Description	Forecast
1. _____ 		
2. _____ 		
3. _____ 		

## Bell Ringer 98: Types of Precipitation

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

Date: \_\_\_\_\_

**Precipitation** is water falling from clouds in the form of rain, snow, ice, or drizzle.

**Directions:** Identify the following statements as true or false. Then write “T” for true or “F” for false. If a statement is false, cross out the word that makes it false and write the word that makes it true.

1. \_\_\_\_ Rain is water vapor turning directly to ice crystals.
2. \_\_\_\_ Hail is round pellets of ice.
3. \_\_\_\_ Raindrops that freeze when they touch a cold surface are called freezing rain.
4. \_\_\_\_ Drops of water smaller than 0.5 mm in diameter are rain.
5. \_\_\_\_ Raindrops that freeze as they fall are called sleet.
6. \_\_\_\_ Drops of water at least 0.5 mm in diameter are drizzle.
7. \_\_\_\_ Hailstones are formed in strong thunderstorms.
8. \_\_\_\_ Snow forms in clouds where moisture in the air freezes into ice crystals.



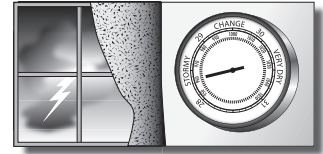
# Earth and Space Science

## Bell Ringer 99: Weather Instruments

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

**Meteorologists** use many weather instruments to help them gather information about weather and climate.

**Directions:** Match the weather instrument to its function.



- |                          |   |
|--------------------------|---|
| 1. _____ wind vane       | a. measures air pressure  |
| 2. _____ thermometer     | b. measures amount of rainfall                                  |
| 3. _____ anemometer      | c. measures temperature   |
| 4. _____ rain gauge      | d. measures wind direction                                      |
| 5. _____ hygrometer      | e. measures temperature, air pressure, humidity, and wind speed |
| 6. _____ barometer       | f. measures humidity  |
| 7. _____ weather balloon | g. measures wind speed  |

## Bell Ringer 100: Air Pressure

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

**Air pressure** is also known as atmospheric pressure or barometric pressure. It is a measure of the weight of air pressing down on a given area of Earth's surface.

**Directions:** Complete the table by filling in the weather conditions associated with barometric pressure.

Barometric Pressure	Weather
1. falling air pressure	
2. sudden fall in air pressure	
3. air pressure rises	
4. air pressure is steady	



# Earth and Space Science

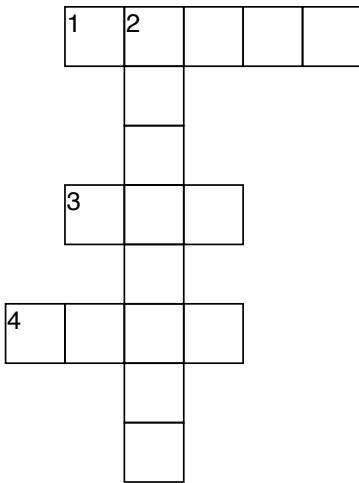
## Bell Ringer 101: Days—Rotation

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

Date: \_\_\_\_\_

The **rotation** of a planet on its **axis**, an invisible line drawn between its north and south poles, results in days and nights on the planet's surface.

**Directions:** Solve the crossword puzzle using the clues below.



**Across**

1. the path of a planet around the sun
3. the amount of time for Earth to make one complete rotation
4. an imaginary line drawn between a planet's north and south poles

**Down**

2. this is responsible for Earth's day and night



## Bell Ringer 102: Seasons—Revolution

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

Date: \_\_\_\_\_

The earth **revolves** around the sun in a yearly cycle producing the four seasons: summer, autumn, winter, and spring.

**Directions:** Complete the table by filing in the date of the first day of the season, the tilt of the earth on that day, and the length of that day (daylight hours).

First Day of the Season	Date	Tilt of Earth	Length of Day
1. summer solstice			
2. autumnal equinox			
3. winter solstice			
4. vernal equinox			

# Earth and Space Science

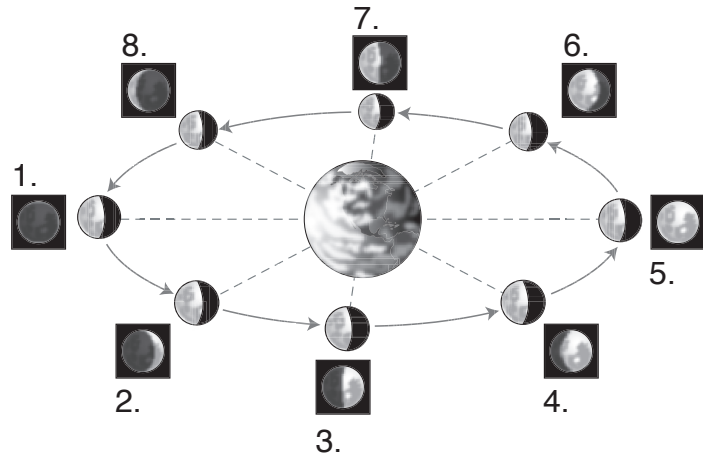
## Bell Ringer 103: Moon Phases

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

When the moon moves around the earth, we see the sunlight from different angles. The different shapes that the moon appears to have are called the **phases of the moon**.

**Directions:** Identify each phase of the moon in the diagram.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_

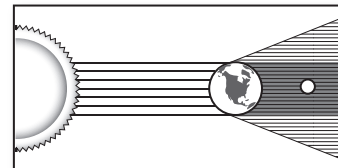
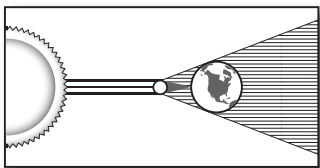


## Bell Ringer 104: Lunar and Solar Eclipses

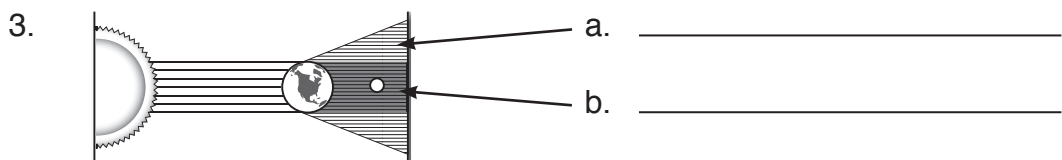
Name: \_\_\_\_\_  
Date: \_\_\_\_\_

A **lunar eclipse** occurs when Earth passes between the moon and the sun casting a shadow on the moon. A **solar eclipse** is a blackout of the sun's light when the moon passes between the earth and the sun. The moon's shadow extends all the way to the earth and causes a brief period of darkness for people who are under it.

**Directions:** Identify the type of eclipse shown in diagrams 1 and 2. Label the parts of the shadow cast by the eclipse in diagram 3.



1. \_\_\_\_\_
2. \_\_\_\_\_



# Earth and Space Science

## Bell Ringer 105: Solar System

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

Date: \_\_\_\_\_

There are eight **planets** in our **solar system**.

**Directions:** Complete the table by adding the correct information under each column heading.

Planet	Symbol	Distance From Sun	Length of Day	Length of Year	Number of Moons	Number of Rings
Mercury						
Venus						
Earth						
Mars						
Jupiter						
Saturn						
Uranus						
Neptune						

## Bell Ringer 106: Parts of the Sun

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

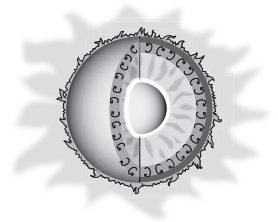
Date: \_\_\_\_\_

The **sun** is a star at the center of our solar system. It has many different parts.

**Directions:** Write a term from the word bank on the line before the part of the sun being described.

sunspot	corona	photosphere	solar flare
chromosphere	prominence	coronal hole	core

- \_\_\_\_\_ the outermost and largest layer
- \_\_\_\_\_ a dark-appearing spot
- \_\_\_\_\_ a bright, arching column that blasts material in space
- \_\_\_\_\_ the layer from which light is given off
- \_\_\_\_\_ layer between the photosphere and corona
- \_\_\_\_\_ intense bright spot in the sun's chromosphere
- \_\_\_\_\_ center portion of the sun where hydrogen is turned into helium



## Answer Keys

### Scientific Inquiry

#### Bell Ringer 1 (p. 1)

Steps: 6, 2, 5, 4, 1, 3

#### Bell Ringer 2 (p. 1)

1. safety goggles: proper eye protection should be worn
2. lab apron: wear to protect clothing and body
3. poison: substance may be poisonous if touched, inhaled, or swallowed
4. electrical: possible electrical shock or burn
5. flame: open flames, may cause fire
6. heat-resistant gloves: hand protection needed when handling hot or extreme cold
7. fumes: harmful vapors, work in ventilated area
8. sharp objects: tools or glassware that can cut

#### Bell Ringer 3 (p. 2)

- |                       |                         |
|-----------------------|-------------------------|
| 1. graduated cylinder | 2. ring stand           |
| 3. horseshoe magnet   | 4. spring scale         |
| 5. microscope         | 6. safety goggles       |
| 7. pipette            | 8. test tube            |
| 9. forceps            | 10. triple-beam balance |
| 11. magnifying glass  | 12. beaker              |

#### Bell Ringer 4 (p. 2)

1. A. 0.7 cm B. 1.7 cm C. 3.2 cm D. 5.0 cm  
E. 7.0 cm F. 8.6 cm
2. Teacher check
3. 38 mL
4. 55 grams

### Physical Science

#### Bell Ringer 5 (p. 3)

These words should be circled: paper, milk, steel, peach, skin, glue, rock, book, rose, planet, mud, hair, water, leaf, spit, pencil, blood, diamond, tape, sand, germs, tree, nest

#### Bell Ringer 6 (p. 3)

- |      |      |      |      |
|------|------|------|------|
| 1. g | 2. e | 3. a | 4. f |
| 5. c | 6. b | 7. d |      |

#### Bell Ringer 7 (p. 4)

1. ability to react with oxygen, causing rust
2. ability to be poisonous
3. ability to spontaneously emit energetic particles by the disintegration of their atomic nuclei
4. ability to break down naturally
5. ability to catch fire

#### Bell Ringer 8 (p. 4)

- |           |           |           |
|-----------|-----------|-----------|
| 1. solid  | 2. gas    | 3. plasma |
| 4. liquid | 5. plasma | 6. gas    |
| 7. liquid | 8. solid  |           |

#### Bell Ringer 9 (p. 5)

Physical Change: freezing water, crushing rock, shredding paper, drying clothes, ice melting, folding paper

Chemical Change: burning paper, rotting wood, bread molding, cake baking, iron rusting, exploding fireworks

#### Bell Ringer 10 (p. 5)

matter, atoms, electrons, protons, neutrons, nucleus, electron cloud, valence energy

#### Bell Ringer 11 (p. 6)

proton: positive, nucleus

neutron: neutral, nucleus

electron: negative, electron cloud

#### Bell Ringer 12 (p. 6)

Element: Au, Fe

Molecule: O<sub>2</sub>, H<sub>2</sub>

Compound: NaHCO<sub>3</sub>, C<sub>12</sub>H<sub>22</sub>O<sub>11</sub>

#### Bell Ringer 13 (p. 7)

- |          |             |             |
|----------|-------------|-------------|
| 1. ionic | 2. ionic    | 3. covalent |
| 4. ionic | 5. covalent | 6. covalent |
| 7. ionic |             |             |

#### Bell Ringer 14 (p. 7)

- |                |          |                    |
|----------------|----------|--------------------|
| 1. 92          | 2. U     | 3. Actinide series |
| 4. solid       | 5. metal | 6. natural         |
| 7. radioactive |          |                    |

#### Bell Ringer 15 (p. 8)

- |      |      |      |      |
|------|------|------|------|
| 1. f | 2. g | 3. a | 4. c |
| 5. e | 6. b | 7. d |      |

#### Bell Ringer 16 (p. 8)

Homogeneous: toothpaste, perfume, air,

Heterogeneous: granite, Italian dressing, sand

#### Bell Ringer 17 (p. 9)

Examples may vary.

Solution: a mixture where one of the substances dissolves in the other

Colloid: a mixture where very small particles of one substance are evenly distributed throughout another substance

Alloy: a mixture of elements that has the characteristic of a metal

Suspension: a mixture between a liquid and particles of a solid

#### Bell Ringer 18 (p. 9)

Acid: any compound that produces hydrogen ions in water; corrosive/burns; sour; pink; answer will vary (vinegar, battery acid, citrus fruits); 0-7; answer will vary (metals, carbonates, bases); H+

Base: any compound that produces hydroxide ions in water; slippery (caustic); bitter; blue; answer will vary (soap, shampoo window cleaner,

drain cleaner, antacids, baking soda); 7-14; answer will vary (fats, oils, acids); OH-

**Bell Ringer 19 (p. 10)**

1. acidic      2. basic      3. basic
4. basic      5. acidic      6. basic
7. acidic      8. neutral (slightly basic)
9. neutral

**Bell Ringer 20 (p. 10)**

1. c      2. a      3. d      4. e
5. b
6. Weight is a force in the downward direction. Buoyant force is in the upward direction. The iceberg floats because the upward force of the water is equal to the weight (the downward force) of the iceberg.

**Bell Ringer 21 (p. 11)**

An aircraft can achieve lift because air flows faster over the top of the wing and slower underneath. Fast-moving air equals low air pressure while slow-moving air equals high air pressure. Lower pressure is caused by the increased speed of the air over the wing. The high air pressure underneath the wings will therefore push the aircraft up through the lower air pressure.

**Bell Ringer 22 (p. 11)**

When you pump a bike tire, you apply force on the pump that in turn exerts a force on the air going inside the tire. The air responds by pushing not only on the pump but also against the walls of the tire. As a result, the pressure increases by an equal amount throughout the tire, and the tire inflates.

**Bell Ringer 23 (p. 12)**

force, Newton, gravity, Gravitation, attract, mass, distance

**Bell Ringer 24 (p. 12)**

1. mass      2. mass      3. weight
4. weight      5. weight      6. mass
7. mass      8. weight

**Bell Ringer 25 (p. 13)**

1. balanced      2. unbalanced
3. balanced      4. balanced
5. balanced      6. unbalanced

**Bell Ringer 26 (p. 13)**

static: friction that acts on objects that are not moving, answers will vary

sliding: occurs when two solid surfaces slide over each other, answers will vary

rolling: occurs when an object rolls across a surface, answers will vary

fluid: occurs when a solid object moves through a fluid, answers will vary

**Bell Ringer 27 (p. 14)**

1. inertia      2. mass      3. greater
4. inertia      5. larger

**Bell Ringer 28 (p. 14)**

1. False; matter should be force
2. False; decrease should be increase
3. True      4. True      5. True
6. False; Newton should be meter per second per second ( $m/s^2$ ).

**Bell Ringer 29 (p. 15)**

1. Action: A fish exerts a force backward on the water using its fins.  
Reaction: The water exerts an equal force forward on the fins.
2. Action: The dog exerts a force downward on the ground.  
Reaction: The ground exerts an equal force upward on the dog.
3. Action: The explosion exerts a force on the cannon backward.  
Reaction: The explosion exerts an equal force forward on the ball.
4. Action: Your body exerts a force downward on the chair.  
Reaction: The chair exerts an equal force upward on your body.
5. Action: Her foot exerts a force forward on the ball.  
Reaction: The ball exerts a force backward on her foot.

**Bell Ringer 30 (p. 15)**

1.  $96 \text{ kg}\cdot\text{m/s}$       2.  $45 \text{ kg}\cdot\text{m/s}$
3.  $820.0 \text{ kg}\cdot\text{m/s}$       4.  $100 \text{ m/s}$
5. The momentum of the 129-kg player running at 4 m/s is  $516 \text{ kg}\cdot\text{m/s}$ . The momentum of a 120-kg player running at 5 m/s is  $600 \text{ kg}\cdot\text{m/s}$ . Therefore, the 120-kg player running at 5 m/s has more momentum.

**Bell Ringer 31 (p. 16)**

1. Work      2. watt      3. work is done
4. joule      5. Power      6. distance
7. work

**Bell Ringer 32 (p. 16)**

1. wedge      2. screw
3. wheel and axle      4. inclined plane
5. wedge      6. lever
7. wheel and axle      8. lever, wheel and axle
9. wheel and axle, pulley

**Bell Ringer 33 (p. 17)**

Scissors: lever and wedge

Wheelbarrow: lever, wheel and axle

Shovel: lever, wedge

Bicycle: lever (brake handles), wheel and axle (wheels and pedals), screw (seat adjustment)

Ax: lever and double wedge

**Bell Ringer 34 (p. 17)**

- Across: 4. nuclear energy  
5. chemical energy 6. electrical energy  
Down: 1. electromagnetic energy  
2. sound energy 3. thermal energy

**Bell Ringer 35 (p. 18)**

1. b 2. a 3. b 4. a  
5. b

**Bell Ringer 36 (p. 18)**

1. radiation 2. convection  
3. conduction 4. radiation  
5. conduction 6. convection

**Bell Ringer 37 (p. 19)**

wave, energy, medium, solids, mechanical, vibrate, electromagnetic, Light

**Bell Ringer 38 (p. 19)**

1. amplitude 2. Frequency  
3. Wavelength 4. Frequency  
5. Wave speed 6. amplitude

**Bell Ringer 39 (p. 20)**

- Transverse Wave: 1. amplitude  
2. crest 3. wavelength 4. trough  
Longitudinal Wave: 1. compression  
2. rarefaction

**Bell Ringer 40 (p. 20)**

1. crest 2. trough 3. wavelength  
4. False; longitudinal should be transverse  
5. True 6. False; Microwaves should be Gamma rays  
7. True

**Bell Ringer 41 (p. 21)**

1. d 2. f 3. b 4. g  
5. h 6. c 7. i 8. a  
9. j 10. e

**Bell Ringer 42 (p. 21)**

spectrum, reflected, absorbed, black, prism, dispersion, frequencies, bent

**Bell Ringer 43 (p. 22)**

Structure: Concave lens is thinner in the middle and thicker at the edges. A convex lens is thicker in the middle and thinner at the edges.

Other Name: A concave lens is called a diverging lens. A convex lens is called a converging lens.

Images Formed: Concave lenses form virtual images. Images are always upright. Convex lens can form virtual images that are upright and real images that are inverted.

Meaning: Concave – curve inward

Convex – curve outward

Uses: Concave lenses used in glasses (correct short sight), spy hole in doors, and some telescopes. Convex lenses used in glasses (correction of long sight), eye of camera, magnifying glass

**Bell Ringer 44 (p. 22)**

1. Sound is produced when an object vibrates.
2. The greater the amplitude of the sound wave, the louder the sound.
3. The higher the frequency of a sound wave, the higher the pitch.
4. Loudness is measured in decibels (dB).

**Bell Ringer 45 (p. 23)**

Electricity is produced from the movement of electrons from one atom to another. When an atom is in balance, it has an equal number of protons and electrons. When an atom is not balanced, it needs to gain an electron. Electrons can be made to move from one atom to another. A proton with a positive charge from one atom attracts an electron with a negative charge from another atom. When the electron moves between the two atoms, a current of electricity is created. As one electron is attracted to an atom and another electron is lost, it creates a flow of electrons.

**Bell Ringer 46 (p. 23)**

Friction: Transfer of electrons from one object to another by rubbing. Examples will vary but may include clothes rubbing together in a dryer

Conduction: Electrons transfer from an object that has negative charges to a positively charged object. Examples will vary but may include walking across carpet in socks and foot gets shocked.

Induction: Electrons move to one part of an object because it is in the electric field of another. Examples will vary but may include getting shocked when touching a metal door knob with fingertips.

**Bell Ringer 47 (p. 24)**

1. d 2. b 3. c 4. i  
5. a 6. g 7. e 8. f  
9. h

**Bell Ringer 48 (p. 24)**

1. open circuit 2. battery  
3. load 4. wire  
5. bulb 6. switch

**Bell Ringer 49 (p. 25)**

1. no 2. no 3. yes 4. yes  
5. no 6. no

(The positive wire or positive end of the battery must touch the silver tip of the lightbulb. The negative wire must touch the metal side of the bulb base.)



**Bell Ringer 50 (p. 25)**

1. series
2. parallel
3. None of the lights will light.
4. The other lights will stay on.

**Bell Ringer 51 (p. 26)**

1. 12 volts
2. 120 volts
3. 9.375 ohms

**Bell Ringer 52 (p. 26)**



**Bell Ringer 53 (p. 27)**

Add more wire, batteries, or nails.

**Bell Ringer 54 (p. 27)**

Renewable resources: are not limited and can be replaced by natural processes.

Examples will vary but may include solar, biomass, geothermal, hydro, wind, tidal/ocean, nuclear

Nonrenewable resources: are limited and cannot be replaced in a timely manner by natural processes.

Example: fossil fuels (oil, gas, coal, etc.)

**Life Science**

**Bell Ringer 55 (p. 28)**

Examples will vary. Answers may be in any order but should include:

1. Living organisms are made of cells.
2. Living organisms obtain and use energy.
3. Living organisms grow and develop.
4. Living organisms reproduce.
5. Living organisms respond to their environment.
6. Living organisms adapt to their environment.

**Bell Ringer 56 (p. 28)**

Answers will vary.

**Bell Ringer 57 (p. 29)**

recyclers, decompose, celled, walls, soil, humid, chlorophyll, saprophytes

**Bell Ringer 58 (p. 29)**

Animal-Like: protozoans, flagellates, sporozoans, ciliates, sarcodines

Plant-Like: euglena, dinoflagellates, diatoms

**Bell Ringer 59 (p. 30)**

1. T
2. T
3. T
4. F; Eubacteria should be Archaeobacteria
5. F; All should be Some
6. T
7. F; All should be Some
8. T

**Bell Ringer 60 (p. 30)**

1. heterotroph
2. autotroph
3. autotroph
4. heterotroph
5. heterotroph
6. autotroph

**Bell Ringer 61 (p. 31)**

Root: anchors the plant in the ground

Leaf: makes food for the plant

Stem: supports the plant and holds the leaves up to the light

Flower: reproductive organ of a flowering plant

**Bell Ringer 62 (p. 31)**

Dicot Seed: 1. embryo 2. seed coat  
3. cotyledon

Monocot Seed: 1. seed coat 2. cotyledon  
3. embryo

**Bell Ringer 63 (p. 32)**

Angiosperms: vegetables, palm tree, cactus, grass, oak tree, cherry tree, tulips

Gymnosperms: pine tree, spruce tree, fir tree, junipers

**Bell Ringer 64 (p. 32)**

1. glucose
2. water
3. carbon dioxide
4. sunlight
5. oxygen

**Bell Ringer 65 (p. 33)**

1. anther: part of the stamen where pollen is produced
2. stigma: part of the pistil where pollen germinates
3. pollen grains: microscopic bodies that contain the male reproductive cell
4. ovary: the enlarged base part of the pistil where ovules are produced
5. ovules/egg cells: join with male cells (sperm) to reproduce
6. filament: stalk-like structure that supports the anther
7. style: the stalk that supports the stigma and connects it to the ovary

**Bell Ringer 66 (p. 33)**

1. exoskeleton
2. endoskeleton
3. exoskeleton
4. exoskeleton
5. exoskeleton

**Bell Ringer 67 (p. 34)**

- |       |       |       |       |
|-------|-------|-------|-------|
| 1. C  | 2. C  | 3. C  | 4. W  |
| 5. W  | 6. C  | 7. W  | 8. C  |
| 9. C  | 10. W | 11. W | 12. C |
| 13. W | 14. C | 15. W | 16. W |
| 17. C | 18. C | 19. W | 20. W |
| 21. W | 22. W | 23. C | 24. W |
| 25. W | 26. W | 27. W | 28. W |

**Bell Ringer 68 (p. 34)**

1. invertebrate
2. vertebrate
3. invertebrate
4. invertebrate
5. vertebrate
6. invertebrate
7. invertebrate

**Bell Ringer 69 (p. 35)**

1. vacuole: yes; yes; storage structure for the cell
2. nucleus: yes; yes; controls the cell's activities
3. cell membrane: yes; yes; controls what materials go in and out of cells
4. cell wall: yes; no; provides support and gives shape to plants
5. chloroplasts: yes; no; where a plant cell's food (sugar) is made
6. mitochondria: yes; yes; use food molecules to make and release energy

**Bell Ringer 70 (p. 35)**

1. prophase
2. metaphase
3. anaphase
4. telophase

Paragraph: During prophase, the nucleus prepares for cell division; the chromosome copies are held together at their centers. During metaphase, the two copies of each chromosome line up in the center of the cell. The copies separate during anaphase; one complete set of chromosomes is pulled to one side of the cell while the other set is pulled to the other side. In the final stage of telophase, the cytoplasm pinches in at the center of the cell, splitting the original cell in half. Upon completion, two new daughter cells are formed; they are identical to the parent cell.

**Bell Ringer 71 (p. 36)**

Traits, chromosomes, Chromosomes, nucleus, genes, genes, DNA, DNA, blueprint

**Bell Ringer 72 (p. 36)**

1. decomposer
2. producer
3. decomposer
4. producer
5. consumer
6. consumer

**Bell Ringer 73 (p. 37)**

An herbivore is an organism that eats plants. (Examples may vary.)

A carnivore is an organism that eats other animals. (Examples may vary.)

An omnivore is an organism that eats plants and animals. (Examples may vary.)

**Bell Ringer 74 (p. 37)**

Answers may vary.

**Bell Ringer 75 (p. 38)**

1. parasitism
2. commensalism
3. mutualism
4. parasitism

**Bell Ringer 76 (p. 38)**

Illustrations may vary.

**Bell Ringer 77 (p. 39)**

Pioneer organisms such as grasses will return, eventually animals return, and given sufficient amount of time, a new community will form. Finally, a stable community of plants and animals will remain with little change for years.

**Bell Ringer 78 (p. 39)**

1. e
2. a
3. b
4. c
5. g
6. d
7. f

**Earth and Space Science****Bell Ringer 79 (p. 40)**

1. crust: earth's cool outer layer of mostly solid rock
2. mantle: earth's vast middle layer of solid rock
3. outer core: melted iron and nickel
4. inner core: solid iron and nickel

**Bell Ringer 80 (p. 40)**

1. the movement of one plate under another
2. a supercontinent that broke apart over 200 million years ago to form smaller continents
3. when plates slide past one another
4. when two plates collide
5. when two plates move away from each other
6. area where the earth's crust and mantle bond together

**Bell Ringer 81 (p. 41)**

1. crater: the steep-walled depression at the top of a volcanic vent
2. lava flow: molten rock from a volcano flowing onto the earth's surface
3. pipe-vent: at the heart of a volcano where material wells up from beneath the surface
4. side vent: an opening exposed on the earth's surface where volcanic material is emitted
5. magma chamber: a large underground pool of liquid rock found beneath the surface of the earth

**Bell Ringer 82 (p. 41)**

Answers will vary.

**Bell Ringer 83 (p. 42)**

- Across: 3. cleavage 4. luster  
5. hardness 6. streak

- Down: 1. specific gravity 2. fracture



**Bell Ringer 84 (p. 42)**

1. cooling magma
2. Metamorphic rocks
3. intrusive
4. sedimentary
5. metamorphic rocks
6. Extrusive
7. sediments pressing

**Bell Ringer 85 (p. 43)**

1. igneous
2. metamorphic
3. sedimentary

**Bell Ringer 86 (p. 43)**

1. g
2. b
3. f
4. e
5. d
6. a
7. c

**Bell Ringer 87 (p. 44)**

1. T
2. F; chemical should be mechanical
3. T
4. F; mechanical should be chemical
5. T
6. T

**Bell Ringer 88 (p. 44)**

- Across:
3. roots
  4. windbreak
  5. creep
  6. loess
- Down:
1. gully erosion
  2. moraine

**Bell Ringer 89 (p. 45)**

1. Labrador Current
2. Gulf Stream
3. California Current
4. Equatorial Counter Current
5. Peru (Humboldt) Current
6. Antarctic Circumpolar Current
7. North Atlantic Current

**Bell Ringer 90 (p. 45)**

Diagram for ocean floor may vary.

**Bell Ringer 91 (p. 46)**

1. a
2. d
3. b
4. c
5. a

**Bell Ringer 92 (p. 46)**

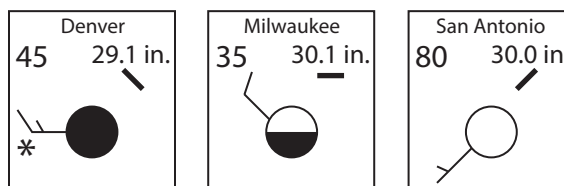
1. precipitation: water released from clouds in the form of rain, freezing rain, sleet, snow, or hail.
2. evaporation: sun heats up water in rivers, lakes, or oceans and turns it into steam
3. condensation: water vapor is turned back into liquid form, as the temperature in the atmosphere drops. Clouds form as a result.

**Bell Ringer 93 (p. 47)**

1. Latitude affects climate depending on how close you are to the equator. If you are close to the equator, then the climate is warmer. If you are farther away, then it is cooler.

2. The higher the elevation, the cooler the temperatures.
3. Mountains, valleys, and local topography affect air movement, precipitation, and temperature. This results in areas that are wetter, drier, or warmer than surrounding flatlands.

**Bell Ringer 94 (p. 47)**



**Bell Ringer 95 (p. 48)**

- Across:
3. polar
  4. maritime
- Down:
1. continental
  2. tropical

**Bell Ringer 96 (p. 48)**

1. C
2. W
3. W
4. C
5. C
6. C
7. W
8. W

**Bell Ringer 97 (p. 49)**

1. cumulus; big, scattered clouds with flat bottoms and round tops found about a mile above the earth; fair weather
2. cirrus; made up of tiny ice crystals, white feathery-looking clouds; found very high in the sky, about five to ten miles up; possible change in weather soon
3. stratus; cover the sky in a layer, rain and snow come from these clouds; found closer to earth, about 2,000 to 7,000 feet high; stormy weather

**Bell Ringer 98 (p. 49)**

1. F; Rain should be Snow
2. T
3. T
4. F; rain should be drizzle
5. T
6. F; drizzle should be rain
7. T
8. T

**Bell Ringer 99 (p. 50)**

1. d
2. c
3. g
4. b
5. f
6. a
7. e

**Bell Ringer 100 (p. 50)**

1. warmer, wetter weather
2. stormy weather is on its way
3. fair weather is on its way
4. no change in weather

**Bell Ringer 101 (p. 51)**

- Across:
1. orbit
  3. day
  4. axis
- Down:
2. rotation

**Bell Ringer 102 (p. 51)**

(Dates may vary slightly from year to year.)

1. June 21; the Northern Hemisphere is tilted toward the sun; the longest day of the year in the Northern Hemisphere (most hours of daylight)
2. September 22; not tilted toward or away from the sun; equal lengths of day and night all over Earth
3. December 21; Northern Hemisphere is tilted away from the sun; the shortest day of the year in the Northern Hemisphere (least hours of daylight)
4. March 21; not tilted toward or away from the sun; equal lengths of day and night all over Earth

**Bell Ringer 103 (p. 52)**


1. new moon
2. waxing crescent moon
3. first quarter moon
4. waxing gibbous moon
5. full moon
6. waning gibbous moon
7. third quarter moon
8. waning crescent moon


**Bell Ringer 104 (p. 52)**


1. solar eclipse      2. lunar eclipse
3. a. penumbra      b. umbra


**Bell Ringer 105 (p. 53)**


(Numbers may change as new discoveries are made.)


Mercury:  36 million miles; 58.7 earth-days;  
88 Earth days; 0 moons; 0 rings


Venus:  67.2 million miles; 243 earth-days;  
224.7 earth-days; 0 moons; 0 rings


Earth:  93 million miles;  
23 hours, 56 minutes; 365.25 days; 1 moon;  
0 rings

Mars:  143 million miles;  
24 hours, 37 minutes; 687 earth-days  
(1.88 earth-years); 2 moons; 0 rings

Jupiter:  484 million miles;  
9 hours, 50 minutes; 11.9 earth-years;  
50 known moons, 17 awaiting confirmation;  
3 rings

Saturn:  887 million miles;  
10 hours, 39 minutes; 29.5 earth-years;  
53 known moons, 9 awaiting confirmation;  
7 rings

Uranus:  1,784 million miles;  
17 hours, 14 minutes; 84 earth-years;  
27 moons; 13 rings

Neptune:  2,794 million miles;  
16 hours, 7 minutes; 163.7 earth-years;  
13 moons, 1 awaiting confirmation;  
9 rings

(Pluto is no longer considered a planet.)

**Bell Ringer 106 (p. 53)**

1. corona                      2. sunspot
3. prominence              4. photosphere
5. chromosphere          6. solar flare
7. core

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