Matter Glossary of terms

matter-*is anything that takes up space and has mass.*

atom- *all matter is made up of particles, the atom is the smallest unit of matter.*

mass-*is the measure of how much material makes up the object.*

volume-*the amount of a three-dimensional object takes up.*

density-*when the matter compares the mass to volume (the ratio of mass to volume).*

molecule-*a single atom or several atoms bound together electromagnetically, forming the smallest particle that has all the characteristic physical and chemical properties of an element or compound.*

properties of matter-*is something about an object that can be observes, such as its size, shape and colour.*

states of matter-*the form that matter takes whether it is solid, liquid or gas (or plasma).*

element-*any substance (now numbering 107) that cannot be chemically separated into simpler substances.*

periodic table of elements-*a table or chart in which the elements are arranged in physiochemical groups as determined by periodic law.*

periodic law-*the statement that the physical and chemical properties of elements are related to their atomic number and are arranged by these numbers.*

compound-*a substance formed by the union of two or more chemical elements in fixed proportions, with properties different from its original elements.*

mixture-*the product of mixing two or more items or substances together.*

symbol- *an abbreviation or image that represents an abstract concept(ex. H_2O is the symbol for water).*

physical change-*when the size or shape of an object changes but it remains its original form of matter,* reversible - can change back.

chemical change-*when the matter changes from one type of matter to a new type of matter,* non-reversible - can not change back.

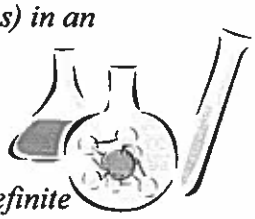
electron- *a negatively (-) charged particle that exists outside the nucleus of an atom.*

neutron-*an elementary particle having no charge, the mass of this particle is the same as or equal to the proton particle, which is present in the nucleus of an atom.*

proton-*a positively (+) charged particle that has the same mass as the neutron, which is present in the nucleus of an atom.*

nucleus-*the core of an atom which holds protons and neutrons.*

atomic number-*a number that represents the unit of positive charges particles (protons) in the nucleus equal to the number of negatively charged particles (electrons) in an element.*



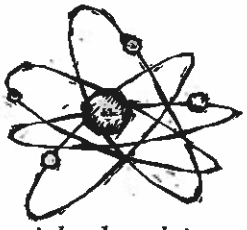
solid form of matter-*matter that has definite shape and volume.*

liquid form of matter-*matter that has no definite shape but they do have definite volume.*

gas form of matter-*matter that has no definite shape or volume.*

plasma form of matter-*matter that has no definite shape or volume but is electrically-charged particles (a molten state). This state of matter doesn't exist on earth but in space.*

Electron Cloud Model-*a theory of how all atoms are made of the same basic parts: protons, neutrons and electrons. The protons and neutrons are combined in the core, the nucleus.*



dissolve-*when particles break into parts and disintegrate.*

evaporation-*is the process of when a liquid changes states from liquid to a gas.*

water vapor: *water in its gas state.*

condensation-*is the process of when water vapor changes to a liquid.*

Name: _____

Describing Materials

Make a list of 10 different materials you see in the picture. Describe each material.

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

Make a list of all the changes you see happening to any of the materials.

_____

_____

_____

_____

_____

_____

_____

_____

Name: _____

Inventions From Before and After 1900

Inventions Before 1900	Inventions After 1900

Properties of Matter

Matter is anything that takes up space and has mass. ***Mass*** of matter is the amount of matter of an object. A scale is used to measure mass. ***Volume*** is the measurement of the amount of space an object takes up. To measure Volume of a regular shaped solid we measure its length x width x height.

V= L x W x H

Volume & Properties	Object
Length: width: Height: Volume= _____ x____x_____ _____ Describe the properties: - - - - - -	
Length: width: Height: Volume= _____ x____x_____ _____ Describe the properties: - - - - - -	
Length: width: Height: Volume= _____ x____x_____ _____ Describe the properties: - - - - - -	

Properties of Matter

Cube link	property	description
	mass	the amount of matter in an object
	volume	the amount of space an object takes up
	colour	the colour of the object
	texture	what an object feels like when you touch it
	hardness	the ability of an object to be scratched
	flexibility	How much an object can bend before it breaks
	absorbency	whether an object can soak up liquids
	strength	how strong or weak an object is
	buoyancy	whether or not an object floats

Now that you know the mass of 1 cube link. Make a sculpture, draw then predict mass. Repeat for #2.

My structure has _____ blocks. I predict it will weigh _____ MY STRUCTURE #1 actual mass: _____	My structure has _____ blocks. I predict it will weigh _____ MY STRUCTURE #2 actual mass: _____

Observations:

_____

_____

_____

_____

MATTER AND PHYSICAL PROPERTIES

A **solid** is a form of matter which keeps a definite shape. The molecules in a solid are always moving, just as they are in liquids and gases. The molecules in a solid are closer together and move more slowly. Most solids have molecules arranged in patterns like crystals. That is why solids are rigid and keep their shapes. Solids can change shape by having a force act on them such as hammering, sawing, and drilling.

Solids can be described and identified by their **physical properties**: color, texture, hardness, odor, and luster (how they reflect light).

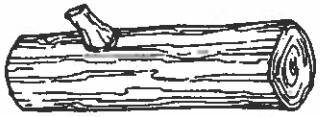
Describe a piece of classroom chalk by its physical properties.

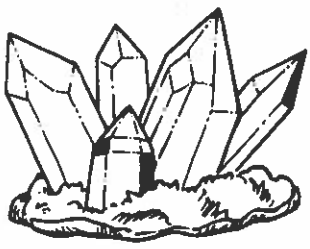
Determine those physical properties by using your senses.

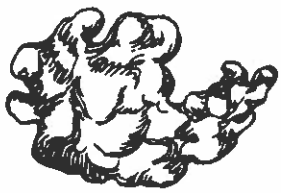
solid	color	texture	hardness	odor	luster
chalk					

Choose two other solids and describe them this way.

Some physical properties of solids can be determined by using special tools and laboratory tests. A magnet can be used to find out if metals are magnetic. The melting point of a substance is a physical property. Many substances have very high melting points, which help to identify them. Substances must be heated in a laboratory to reach high temperatures. Each kind of substance has a definite specific gravity, a number which compares the weight of its volume with an equal volume of water. A solid which cannot be identified by its physical properties can be identified by its chemical properties. Chemical properties can be determined by testing in a chemistry laboratory.



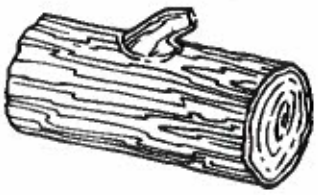




SOLIDS AND PHYSICAL PROPERTIES

Determine these physical properties of matter by using your senses. Write a word to describe each picture. Check your science text, if necessary.

TEXTURE



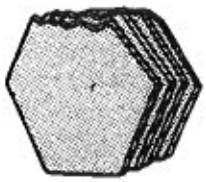
tree bark

1. _____

glass

2. _____

DEGREE OF HARDNESS



mica

3. _____

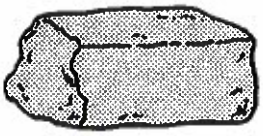
diamond

4. _____

LUSTER

quartz

5. _____



clay

6. _____

ODOR

sulfur

7. _____

COLOR

gold

_____

coal

9. _____

mercury

10. _____

copper

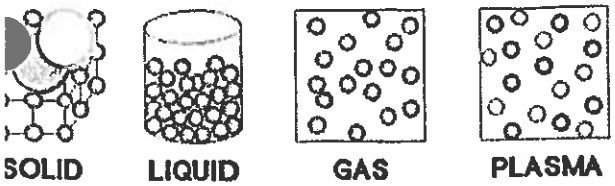
11. _____

Properties of Matter and Materials

Sample name and illustration	State: solid, liquid, or gas	Colour:	Texture	Hardness	Odor (smell)	Luster or shine

Observations: compare the three forms of matter. Why is their properties important for the purposes for which they are used?

States of Matter



Properties challenge

name: _____

Directions: look around the grade 4/5 classroom to identify what item or material is being investigated. Follow the properties clues.

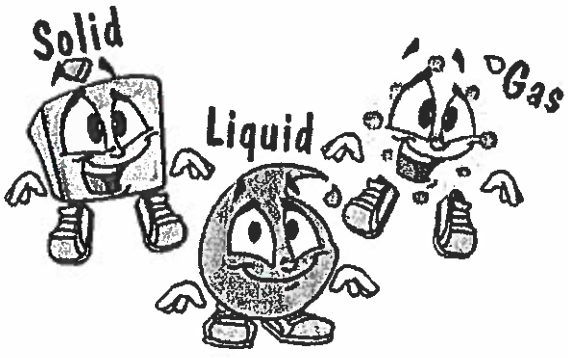
1. State: solid
2. Colour: red, black, and white
3. Texture: smooth, flat and 2 dimensional
4. Hardness: not hard, flimsy, can break easily with pressure
5. Odor: none
6. Luster: not shiny, is dull, not see through

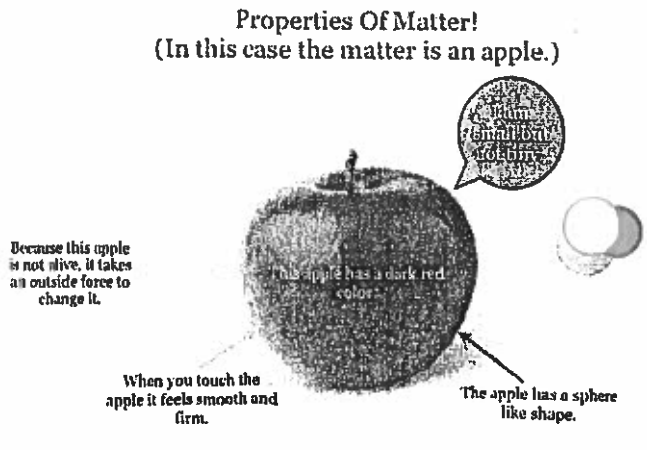
   Take 3 guesses of what I could be:

Your turn: Pick something in class and provide clues for partner:

1. State:
2. Colour:
3. Texture:
4. Hardness:
5. Odor:
6. Luster:

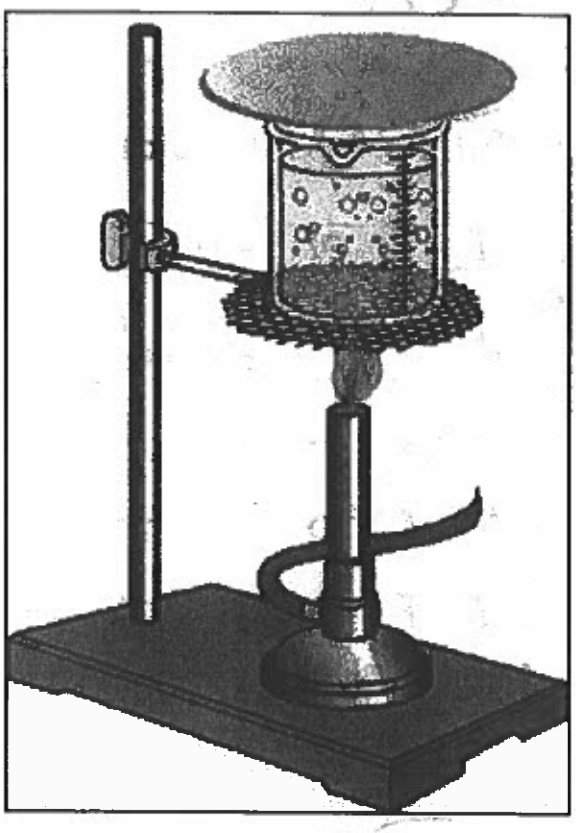
   Get partner to take 3 guesses from your clues





Reading Passage NAME: _____

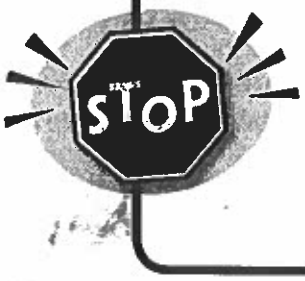
Physical Changes of Matter



Things can change in two ways: **physical changes** and **chemical changes**. A physical change makes something look different, but it is still the same material made of the same kinds of particles. A chemical change causes a whole new material to form. The new material is different because the particles are different. We will soon learn more about chemical changes. First we will look at physical changes.

We have studied how materials can change from solid to liquid to gas and back again. These are all physical changes because no new material is formed. Ice, liquid water, and steam are all made of water particles. Suppose an ice cube is melted, and then the melted water is all boiled away. Now all the water is water vapor. We could condense the water vapor back to liquid water and then freeze that water. The ice we get will be just the same as the ice we started with.

Adding heat causes materials to melt and boil. Adding or removing heat can cause other physical changes, too. Remember that heat makes particles move faster. Heat also makes particles move farther apart. When particles move farther apart the material takes up more space. A material that takes up more space has a bigger volume. You can see this happen to a balloon. If you take a balloon out of the refrigerator and place it in warm sunlight, it will get larger. When volume gets larger, density gets smaller because the particles are not as close together.



Is the density of steam MORE or LESS than the density of water? Explain your answer using the word "particles".

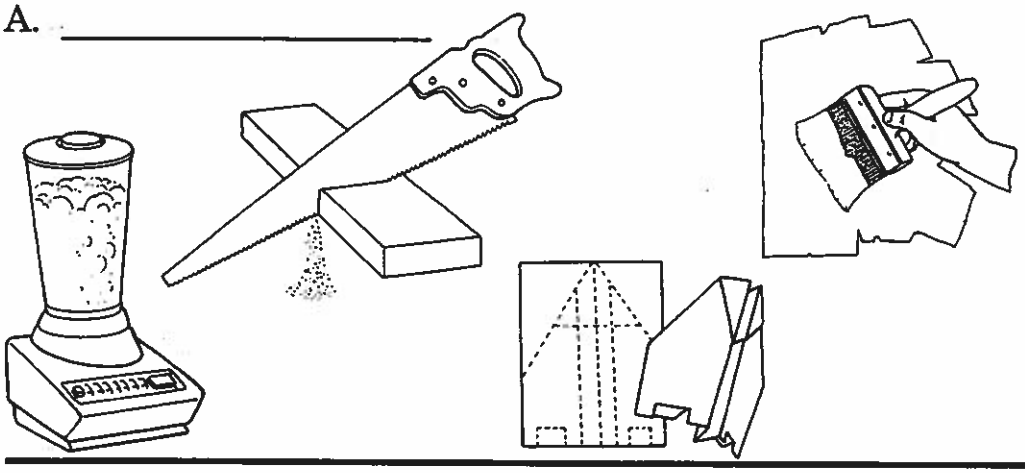
_____

_____

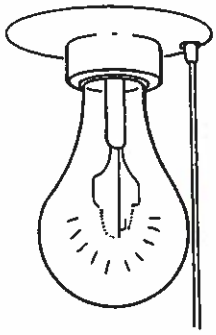
_____

Physical Changes

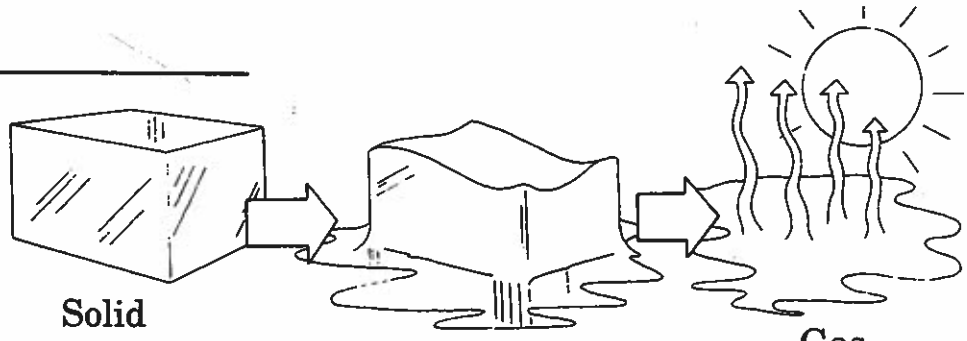
A. _____



B. _____



C. _____



1. Define physical change. _____

_____

2. Identify and label the types of physical changes shown on lines A, B, and C above.
3. Indicate by writing a Y for *yes* or an N for *no* whether the following are physical changes.

a. sharpening a pencil _____
b. evaporating water _____
c. burning a pencil _____
d. mixing sand and water _____
e. freezing water _____
f. spray painting a car _____
g. melting ice cream _____
h. rusting steel wool _____

4. Why are changes in phase physical changes? _____

_____

5. Why is rust forming on a nail not a physical change? _____

_____

6. Why are most physical changes easy to recognize? _____

_____

Name _____ Date _____

CHANGING STATES OF MATTER: CONDENSATION

Warm air cooled by contact with a cold surface will **condense**, giving up its water vapor as liquid drops. The liquid droplets on the surface are called **condensation**.

Blow your warm breath on a cold windowpane or mirror. The warm air you exhale (breathe out) will give up tiny water droplets on the cool surfaces. The loss of heat in a gas condenses the water vapor in the gas so that it becomes visible water droplets. Condensation is the opposite of **evaporation**. Remember, evaporation changes a liquid to a gas. Molecules on the surface of a liquid rise into the air.

ACTIVITY

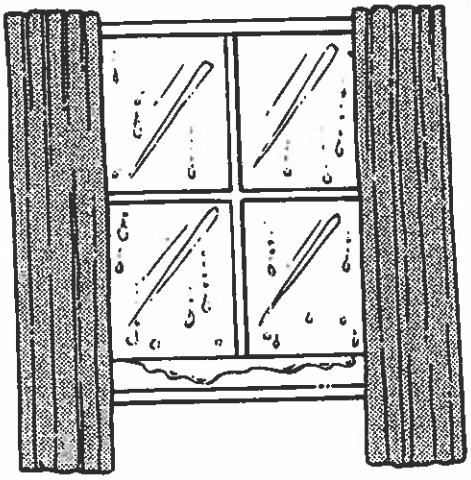
1. Why are coasters used under glasses filled with cold liquid and ice cubes?

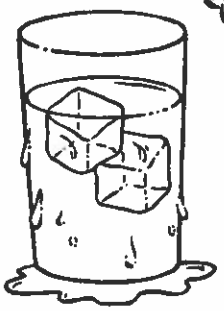
_____

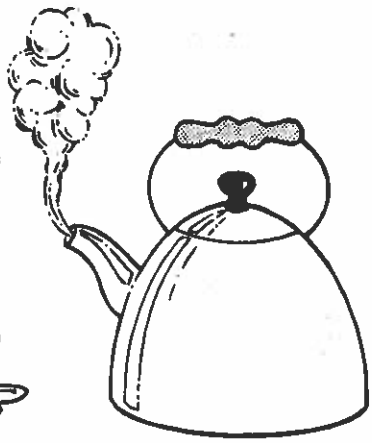
_____

Write **C** under the pictures showing condensation.

Write **E** under the pictures showing evaporation.







2. _____ 3. _____ 4. _____ 5. _____

6. Where do the water droplets on the outside of the glass come from?

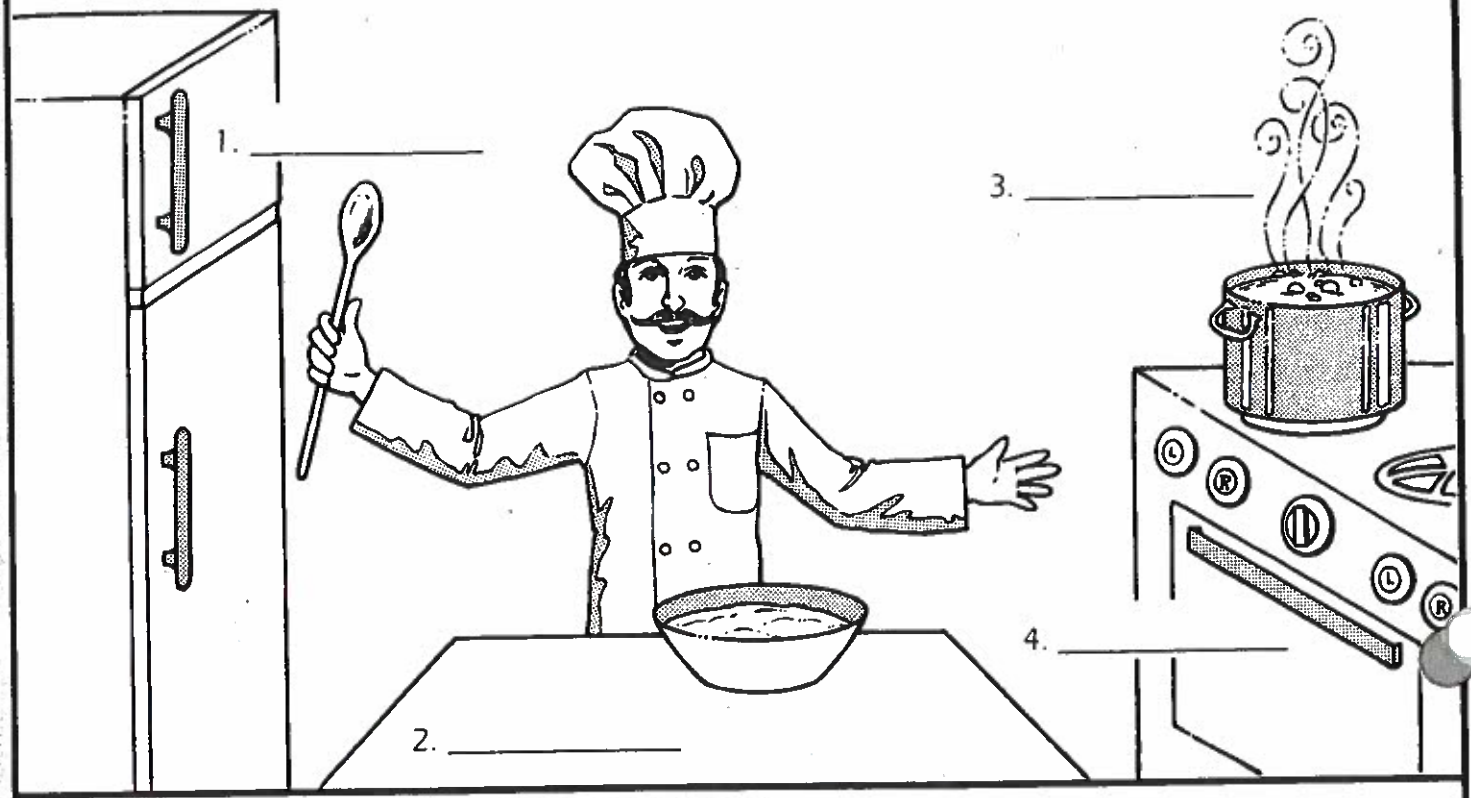
_____

_____

Name _____ Date _____

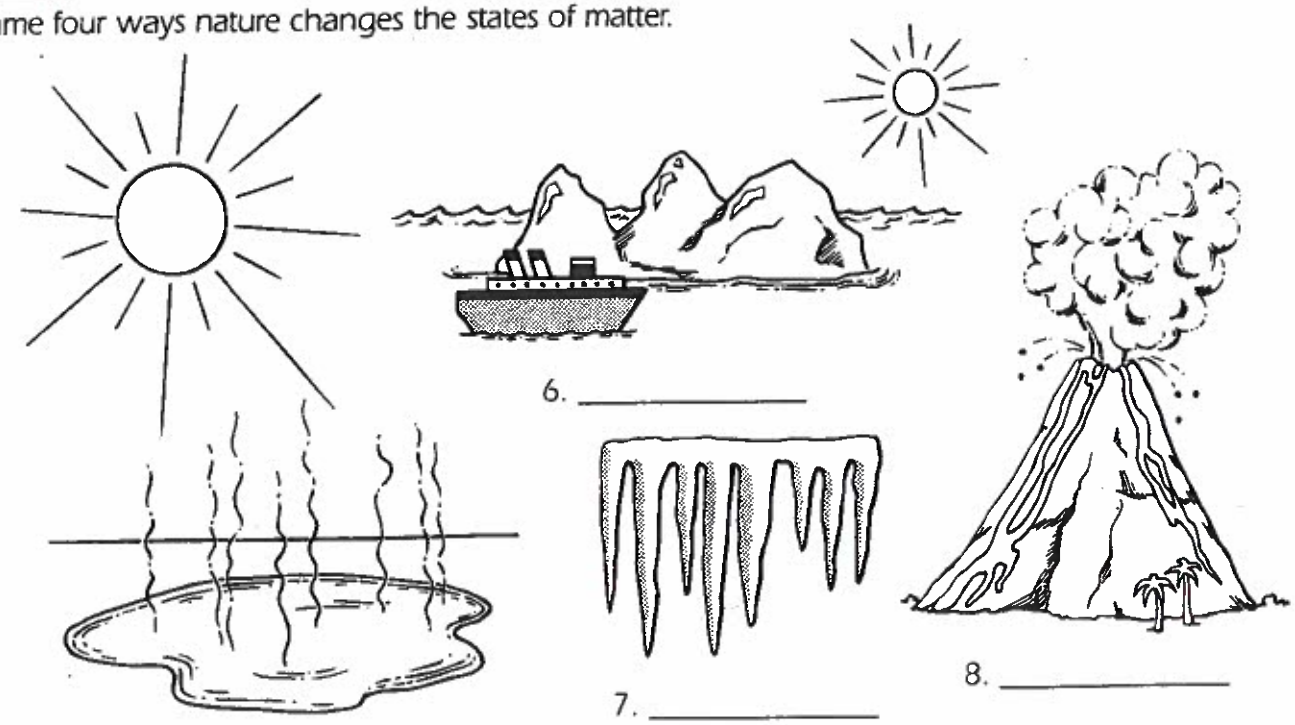
PEOPLE AND NATURE CHANGE THE STATES OF MATTER

Name four ways people can change the states of matter.



1. _____
2. _____
3. _____
4. _____

Name four ways nature changes the states of matter.



5. _____
6. _____
7. _____
8. _____

NAME: _____

Chemical Changes and Chemical Properties

Did you know that chemical changes are taking place all around you all the time? There are also millions of chemical changes happening inside you right now. Chemical changes are also called **chemical reactions.**

You have seen many chemical changes that happen when oxygen in the air **combines** with other materials. Oxygen combines slowly with some metals to form **metal oxides**. Oxygen and iron form the oxide we call rust. Have you ever noticed that old pennies are not as shiny as new ones? This is because copper in the penny has reacted with oxygen and other gases. Together they form an outside layer of new materials on the penny.

The chemical reaction we see with pennies is **slow**. What about **fast** oxygen reactions? Anything that burns is reacting quickly with oxygen. This includes wood, wax candles, coal, charcoal, oil, gasoline, and gas used for cooking and heating. The gas carbon dioxide is a new material formed by burning. Water vapor is also formed in most burning reactions. Some materials can react with oxygen very, very fast. Then we have an explosion!

We breathe in oxygen which goes all through our body to react with food molecules. This reaction gives us energy. It also forms water and carbon dioxide which we breathe out. Many other chemical changes are taking place all the time in every cell of your body. Some of these changes are: how you grow, how you get sick and then get well, and how you get rid of waste materials.

NAME: _____

Reading Passage

Chemical Changes and Chemical Properties

Many chemical changes happen in plants, too. The most important one for humans is when plants change carbon dioxide and water into food molecules and oxygen. We need the food to eat and the oxygen to breathe.

Name one way in which oxygen from the air reacts SLOWLY with another material. Name one way in which oxygen reacts QUICKLY with another material. Name one way in which oxygen reacts EXPLOSIVELY with another material.

_____

_____

Here is yet another kind of chemical change: new materials are formed when large molecules break into smaller ones. Rotting is this kind of chemical change. For example, when dead leaves rot, molecules break apart into smaller molecules. Some of these molecules then go down into the soil and up through the roots to help make new leaves.

All of these kinds of chemical changes that can happen to a material are called the material's **chemical properties**. If a material can burn, it is **flammable**. If a material will not rust or rot, it is **rust resistant** or **rot resistant**. Materials that do not react at all chemically are called **inert**.

These are the four important things we have been reading about:

1. **Physical properties** tell how a material looks and acts as long it does not change into a new material.
2. **Physical changes** are the ways a material can change into a new form but still be the same material. Physical changes do not change the way atoms are stuck together in molecules.
3. **Chemical properties** tell how and when a material can change into a new material.
4. **Chemical changes** cause a new material to be formed. In chemical changes atoms always change the way they are stuck together to form molecules.

NAME: _____

Before You Read

Chemical Changes and Chemical Properties

1. Circle T if the statement is TRUE or F if it is FALSE.

T F **a)** "Chemical reaction" means the same as "chemical change."

T F **b)** Plants use chemical changes to make food.

T F **c)** Only physical changes happen inside our bodies.

T F **d)** Water combines with hydrogen to make oxygen.

T F **e)** Chemical changes tell how and when a material can change into a new material.

2. Put a check mark next to the answer that is most correct.

a) Which chemical change happens most slowly?

- ○ **A** a nail rusting
- ○ **B** bread baking
- ○ **C** an egg cooking
- ○ **D** a candle burning

b) What gas do we breathe in that helps our bodies get energy from food?

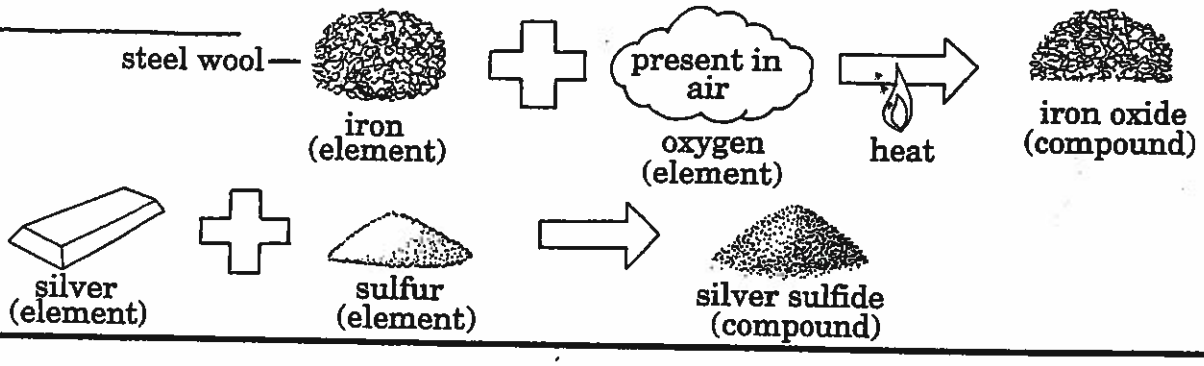
- ○ **A** hydrogen
- ○ **B** oxygen
- ○ **C** water vapor
- ○ **D** carbon dioxide

c) Which is a chemical property?

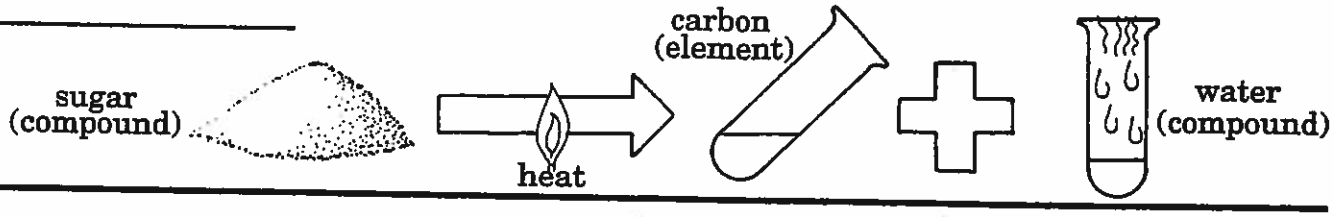
- ○ **A** freezes at 32°F (0°C)
- ○ **B** can be stretched
- ○ **C** dissolves in water
- ○ **D** able to burn

Chemical Changes

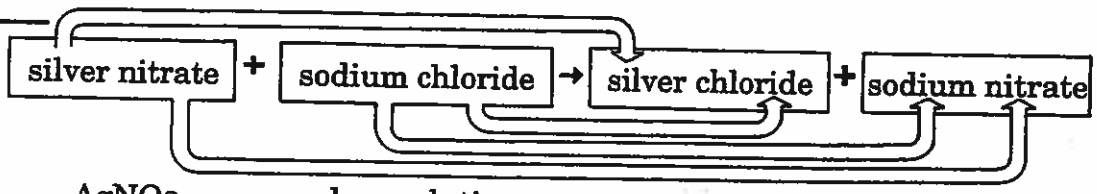
A. _____



B. _____



C. _____



1. How is a chemical change different from a physical change? _____

_____

2. On lines A, B, and C above, write the type of chemical reaction.
3. Write the word or phrase from Column B in the space before its description in Column A.

Column A	Column B
_____ a. two elements from a compound	physical change
_____ b. compound breaks down into elements	decomposition reaction
_____ c. changing of partners process	displacement reaction
_____ d. rusting metal	composition reaction
_____ e. making a milkshake	chemical change

4. Write the correct type of chemical reaction next to each example given below:
   a. sulfuric acid + zinc = hydrogen + zinc sulfate _____
   b. starches in food + saliva in mouth = simple sugars _____
   c. sodium + chlorine = sodium chloride _____
   d. mercuric oxide + heat = mercury + oxygen _____

Copper and Ice Changes

Station	Draw what happened	Reversible or non-reversible	Changes slow or fast (explain)
Station 1: Copper Changes 			
Station 2: Ice Water 			

Name _____ Date _____

CHANGING STATES OF MATTER: CONDENSATION

Warm air cooled by contact with a cold surface will **condense**, giving up its water vapor as liquid drops. The liquid droplets on the surface are called **condensation**.

Blow your warm breath on a cold windowpane or mirror. The warm air you exhale (breathe out) will give up tiny water droplets on the cool surfaces. The loss of heat in a gas condenses the water vapor in the gas so that it becomes visible water droplets. Condensation is the opposite of **evaporation**. Remember, evaporation changes a liquid to a gas. Molecules on the surface of a liquid rise into the air.

ACTIVITY

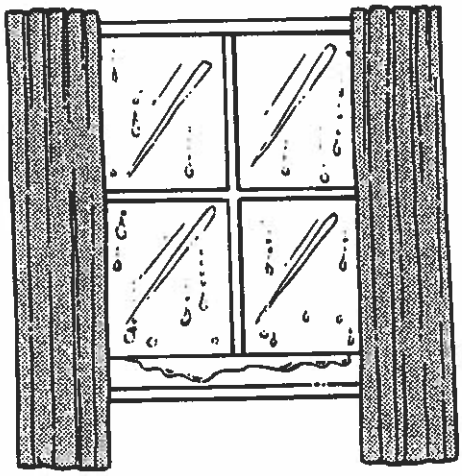
1. Why are coasters used under glasses filled with cold liquid and ice cubes?

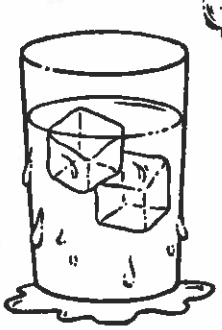
_____

_____

Write **C** under the pictures showing condensation.

Write **E** under the pictures showing evaporation.





2. _____ 3. _____ 4. _____ 5. _____

6. Where do the water droplets on the outside of the glass come from?

_____

_____

Name _____ Date _____

USING THE THREE STATES OF WATER



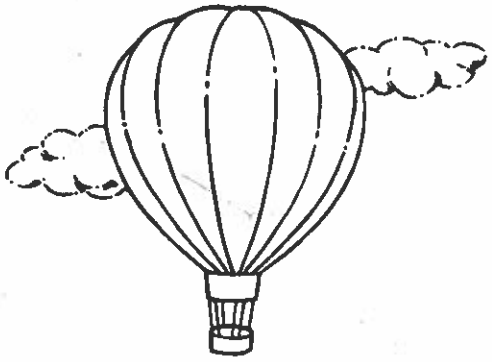
	Solid ice	Liquid water	Gas water vapor—steam
Sports	-skat:		
Tools Or Machines			
Products			
Foods			
Health			

Name _____ Date _____

THE EXPANSION OF MATTER

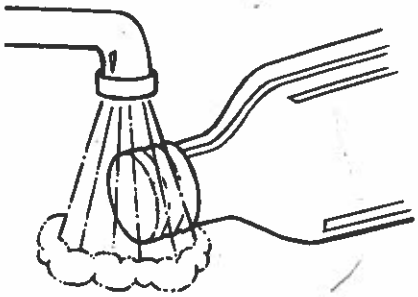
Solids, liquids, and gases take up more space when they are heated. This is called the **expansion** of matter. When something expands, it gets bigger.

Use these words to fill in the blanks: expand, expands, expansion

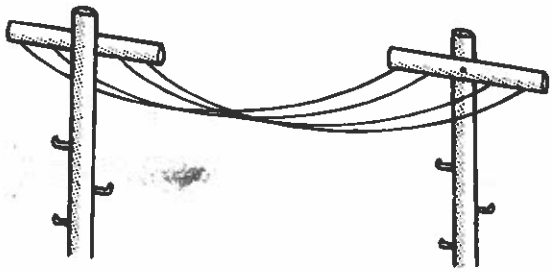


1. The air inside a hot air balloon _____ when it is heated, sending the balloon up!

2. Wood _____ in hot weather, causing doors and drawers to stick.



3. A tight metal lid will _____ if heated by hot water.



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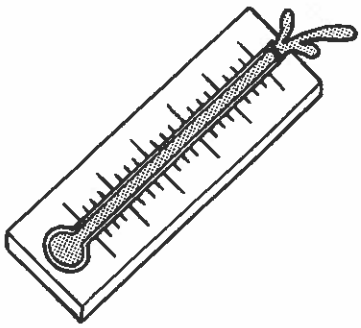

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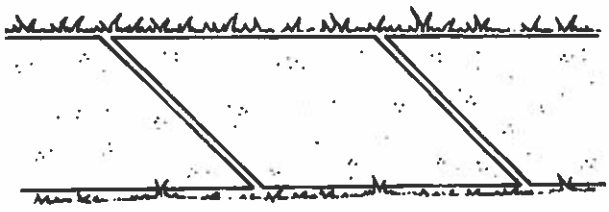

6. Concrete sidewalks and driveways are made in sections with room for _____ between them.

Name _____ Date _____

CONTRACTION OF SOLIDS, LIQUIDS, GASES

Matter becomes smaller because of the pulling together of its parts. We say matter **contracts**.

Matter contracts as heat is removed from it, the molecules in matter move closer together as matter gets colder.

This experiment shows how air contracts.

ACTIVITY

1. Blow up two balloons to the same size. Knot the ends tightly. Touch the balloons as little as possible.
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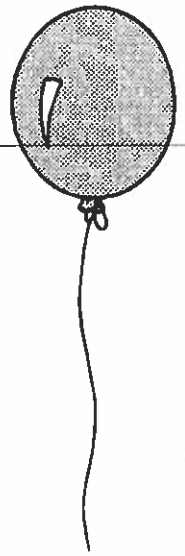

OBSERVATIONS

A. What happened to the balloon in the refrigerator?

_____

B. How does it compare to the balloon left in the room?

_____

C. What happens when both balloons stay in the room?

_____

NOTE

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Water is a liquid which contracts as it begins to become a solid—ice—but then expands as ice. It is important to remember that ice takes up more space than water.

Use what you learned about expansion and contraction to answer these questions.

1. Why do water pipes in vacant houses break in the winter?

_____

_____

2. Why are potholes formed during cold, stormy winters?

_____

_____

3. Why isn't bottled soda filled closer to the top of the bottle?

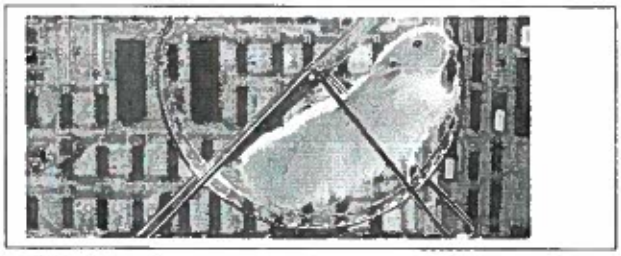
_____

_____

Name: _____

Classifying Common Materials by State

Material	State	Explanation
butter at room temperature		
butter in the refrigerator		
candle		
coin		
dish soap		
gelatin		
ice pop		
lemonade		
milkshake		
smoke		
steam		



Using Changes

1. Define:

Raw materials:_____

what are two examples of raw materials:_____

Manufactures materials: _____

what are two examples of manufactured materials:_____

2.What new materials have been developed in your lifetime? In your parents?

_____

_____

3.What do you think would happen if companies stopped developing new materials and products?

_____

_____

4.Give an example of a raw material and a manufactured material you use every day.

5.An alloy is a manufactured from raw materials. Choose one of the following alloys to research:

*brass *sterling silver

*stainless steel· *bronze

Answer each of the following questions:

a) What is this alloy used for? When was it first used?

b) What materials make up this alloy?

c) What are the properties of the materials that make up the alloy?

d) Describe the properties of the alloy itself?

e) How are the properties of the materials that make up the alloy different from the properties of the alloy itself?

Name _____ Date _____

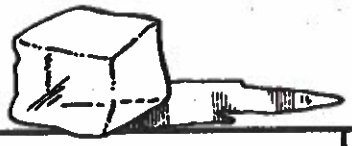
Review Changing States of Matter

Fill in the missing information on the chart.

State	by	to	Name of Process
Liquid	add heat	Gas	evaporation
Gas	remove heat (cooling)	Liquid	
Solid	add heat	Liquid	
Liquid	remove heat (cooling)	Solid	
Animal Fat		Grease	
Nitrogen Gas		Liquid Nitrogen	
Water	heat		
Block of Paraffin Wax	heat		

Name _____ Date _____

USING THE THREE STATES OF WATER



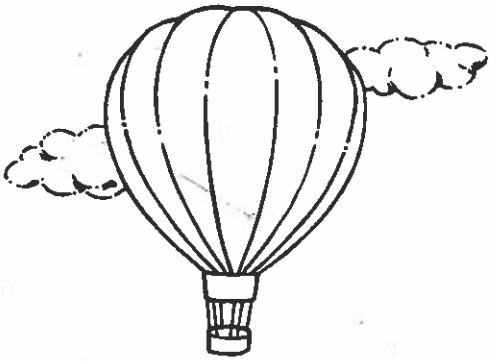
	Solid ice	Liquid water	Gas water vapor—steam
Sports			
Tools Or Machines			
Products			
Foods			
Health			

Name _____ Date _____

THE EXPANSION OF MATTER

Solids, liquids, and gases take up more space when they are heated. This is called the **expansion** of matter. When something expands, it gets bigger.

Use these words to fill in the blanks: expand, expands, expansion



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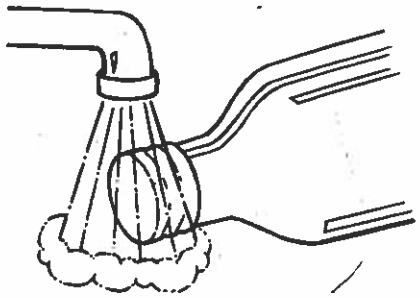

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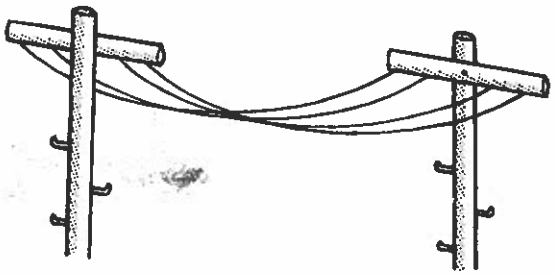
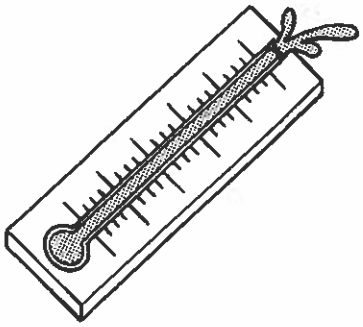


4. Outside electric lines _____ in hot weather and sag between the poles.



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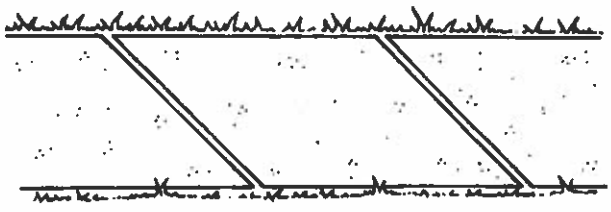

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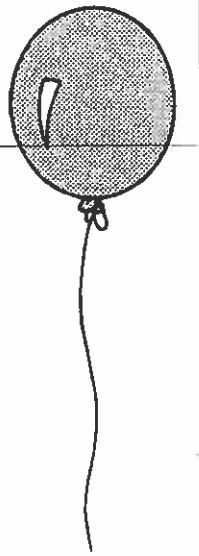

OBSERVATIONS

A. What happened to the balloon in the refrigerator?

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_____

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_____

_____

Name _____

Date _____

SOLIDS, LIQUIDS & GASES

REVIEW OF MOLECULAR ACTION

Desc[illegible]how molecules move during each process.

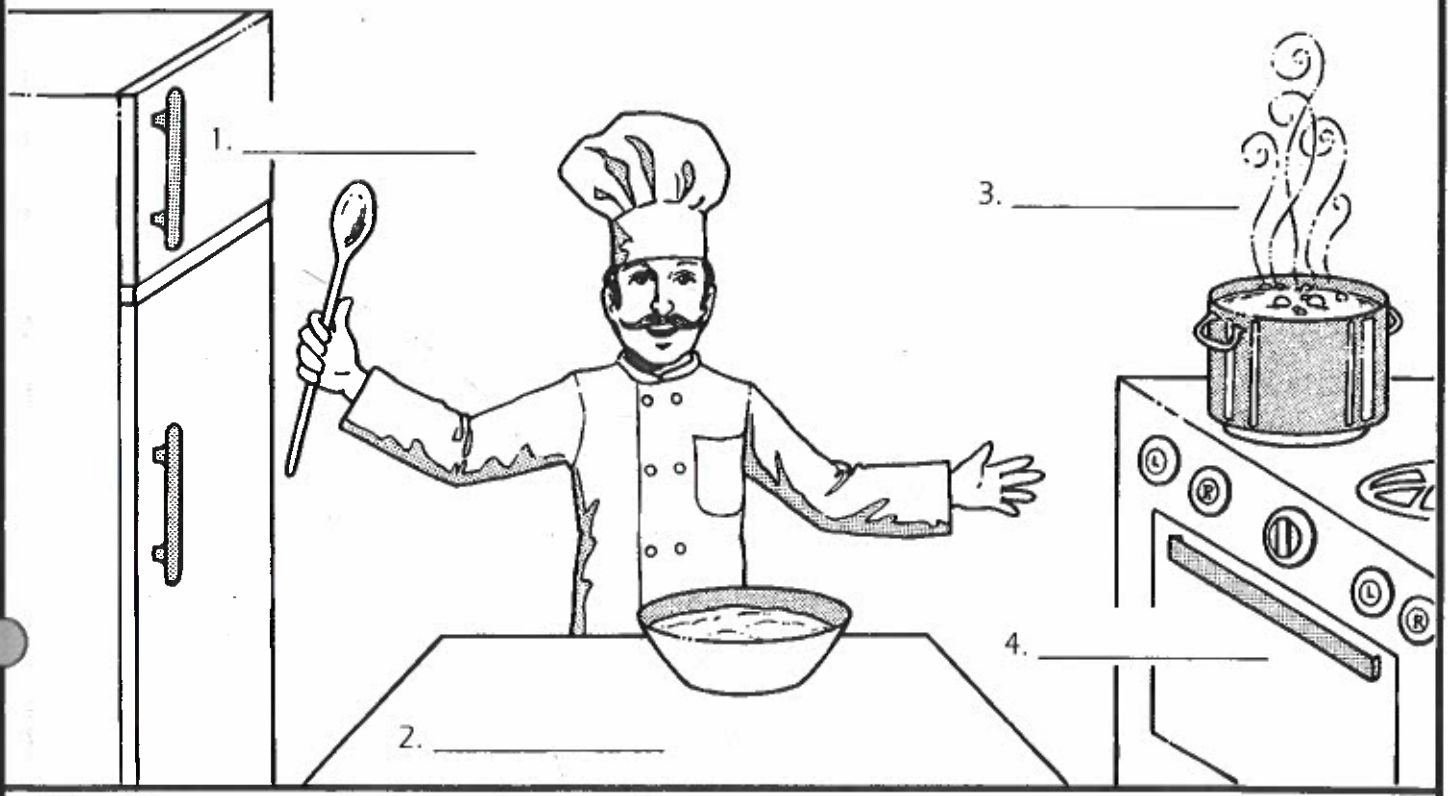
Name of Process	Molecules
1. Evaporation	
2. Condensation	
3. Melting	
4. Freezing	

move quickly move slowly move closer together move farther apart

Name _____ Date _____

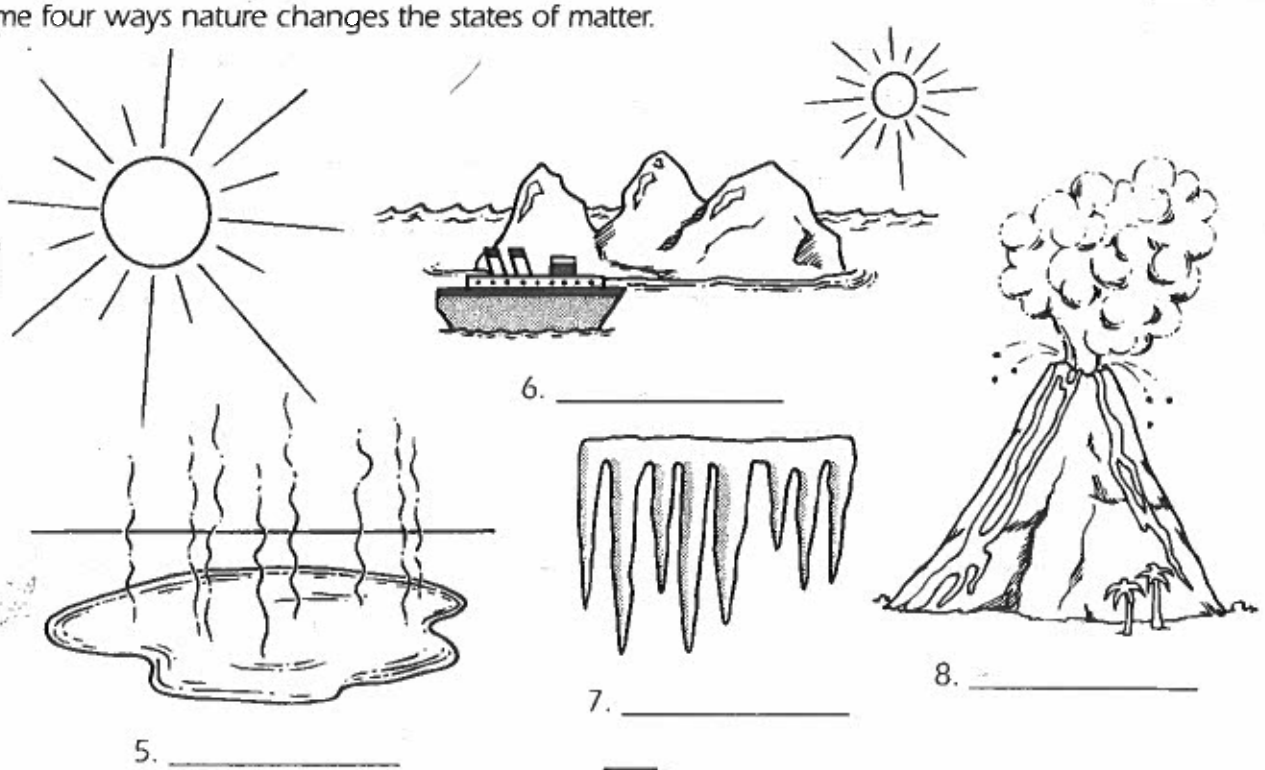
PEOPLE AND NATURE CHANGE THE STATES OF MATTER

Name four ways people can change the states of matter.



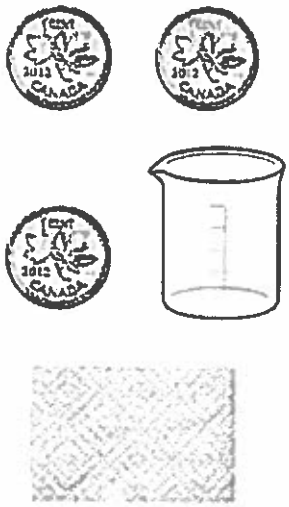
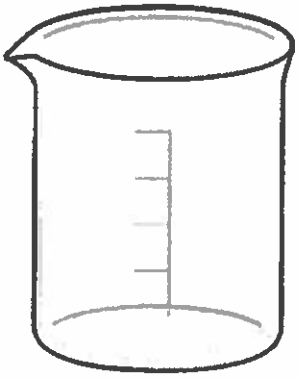
1. _____
2. _____
3. _____
4. _____

Name four ways nature changes the states of matter.



5. _____
6. _____
7. _____
8. _____

Chemical Changes

Illustrate the properties of the pennies and vinegar before experiment 	Illustrate what the pennies look like when vinegar is added to the beaker: 	Illustrate the properties of the pennies after soaking for two days: 
Describe in words the properties of : pennies: paper towel" beaker of Vinegar:	Describe in words the properties of: pennies: paper towel: beaker of vinegar:	Describe in words the properties of: pennies: paper towel: beaker of vinegar:
Predict if there will be a change and why.	Predict what the pennies and paper towel may look like after soaking in vinegar for 2 days.	Explain what happened and caused the change.

Work On It

Group

You will investigate four different examples of change. Visit the stations in any order, but be sure to visit all four. Predict whether each change will be reversible or non-reversible. Give a reason for your prediction.

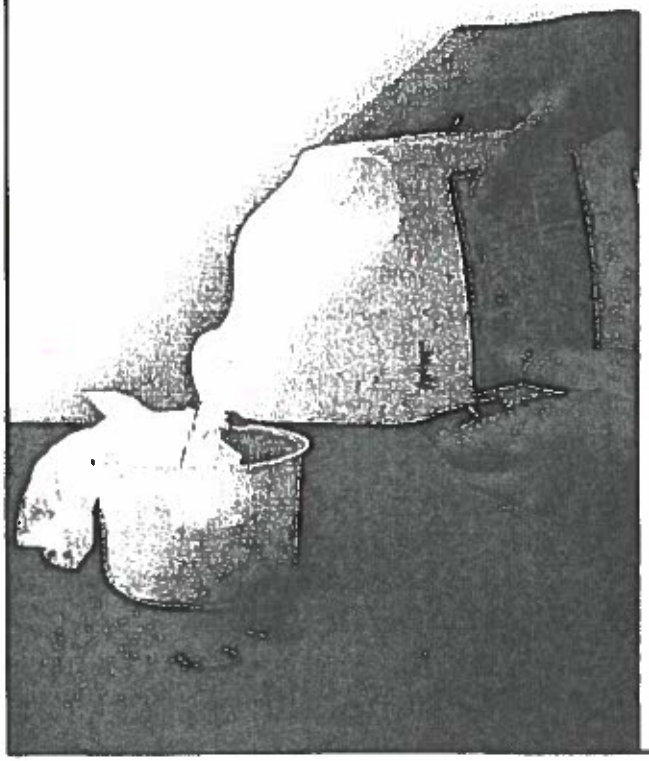
Station 1: Copper Changes

Materials for each group

- 3 pennies
- paper towel
- beaker
- vinegar

Procedure

1. Wrap the pennies in the paper towel. Put the paper towel with the pennies in the bottom of the beaker.



2. Pour some vinegar onto the paper towel. The paper towel should be very wet and there should be a small pool of vinegar in the bottom of the beaker under the paper towel.
3. Put the beaker in a safe place.
4. What do you think will happen? Explain your reasoning.
5. Record your prediction.
6. Examine the pennies the next day. Describe the change you observed in your notebook. Note whether the change occurred quickly or slowly.

Station 2: Ice Water

Materials for each group

- 2 or 3 ice cubes

Procedure

1. Predict what will happen to ice when you hold it in your hand.
2. Hold an ice cube in your hand for several minutes. What happens?
3. Describe the change you observed in your notebook. Note whether the change occurred quickly or slowly.
4. How could you reverse the change that happened to the ice? Design a procedure to reverse the change. Have your teacher approve your procedure, and then carry it out.

continued →

Name _____ Date _____

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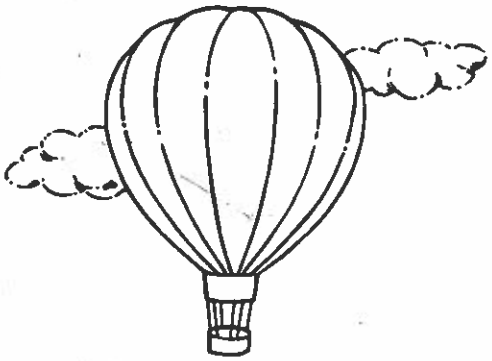

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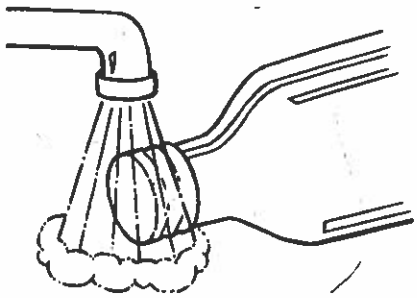

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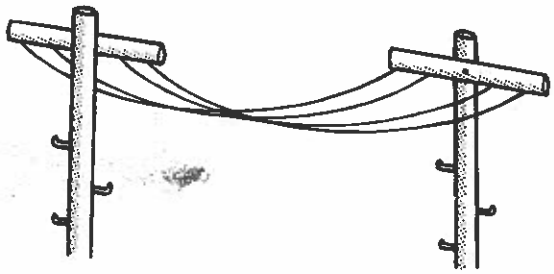

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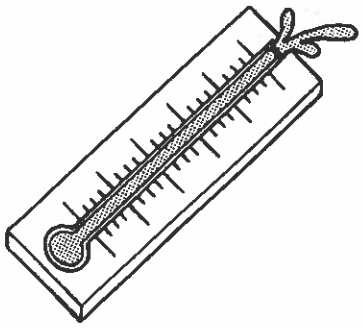

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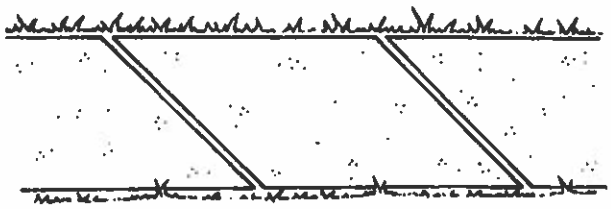

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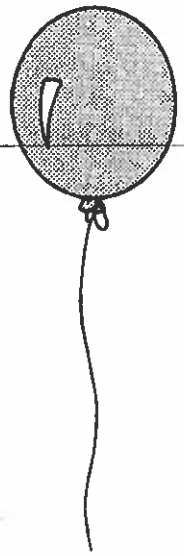

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_____

Name _____

Date _____

SOLIDS, LIQUIDS & GASES

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Describe how molecules move during each process.

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Name _____ Date _____

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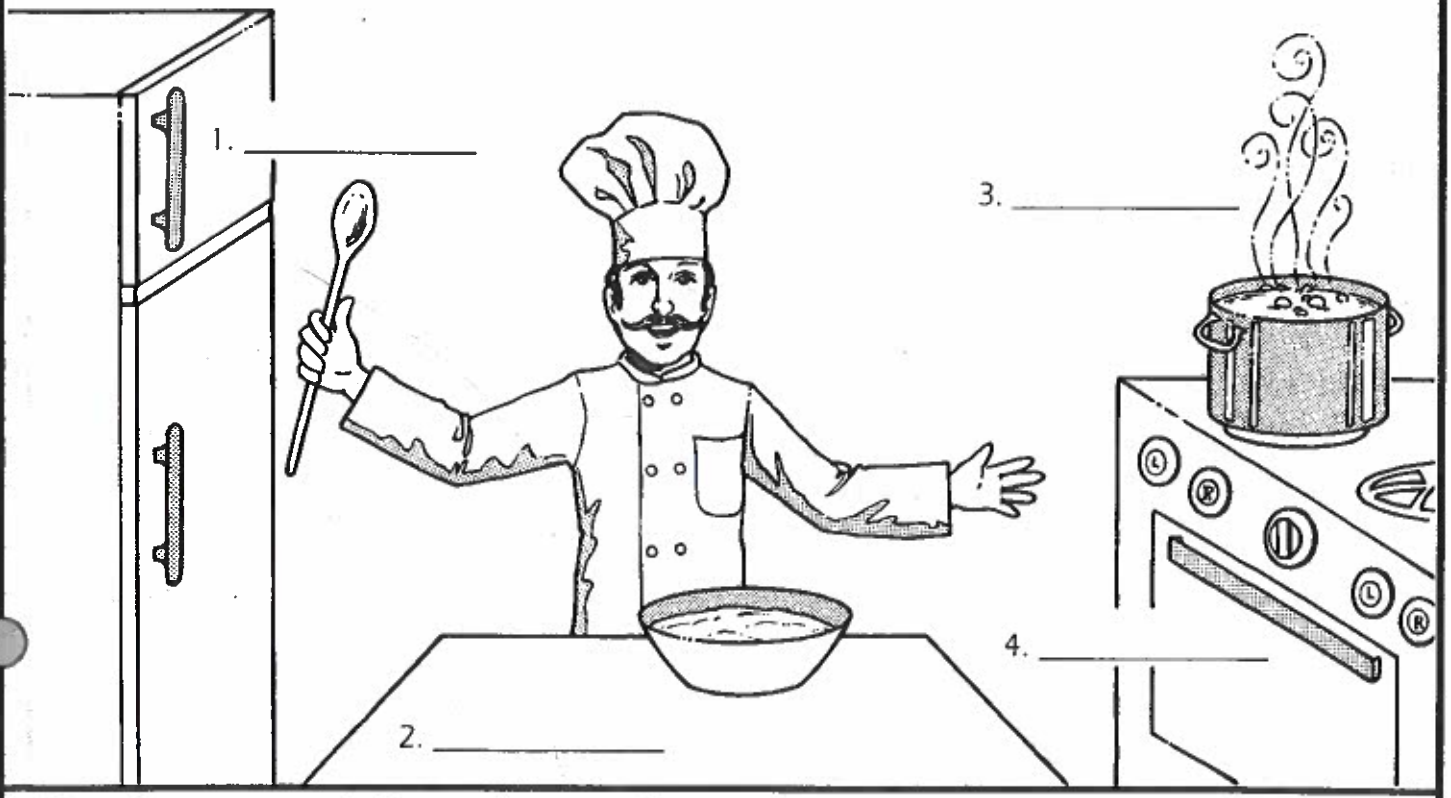

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2. _____
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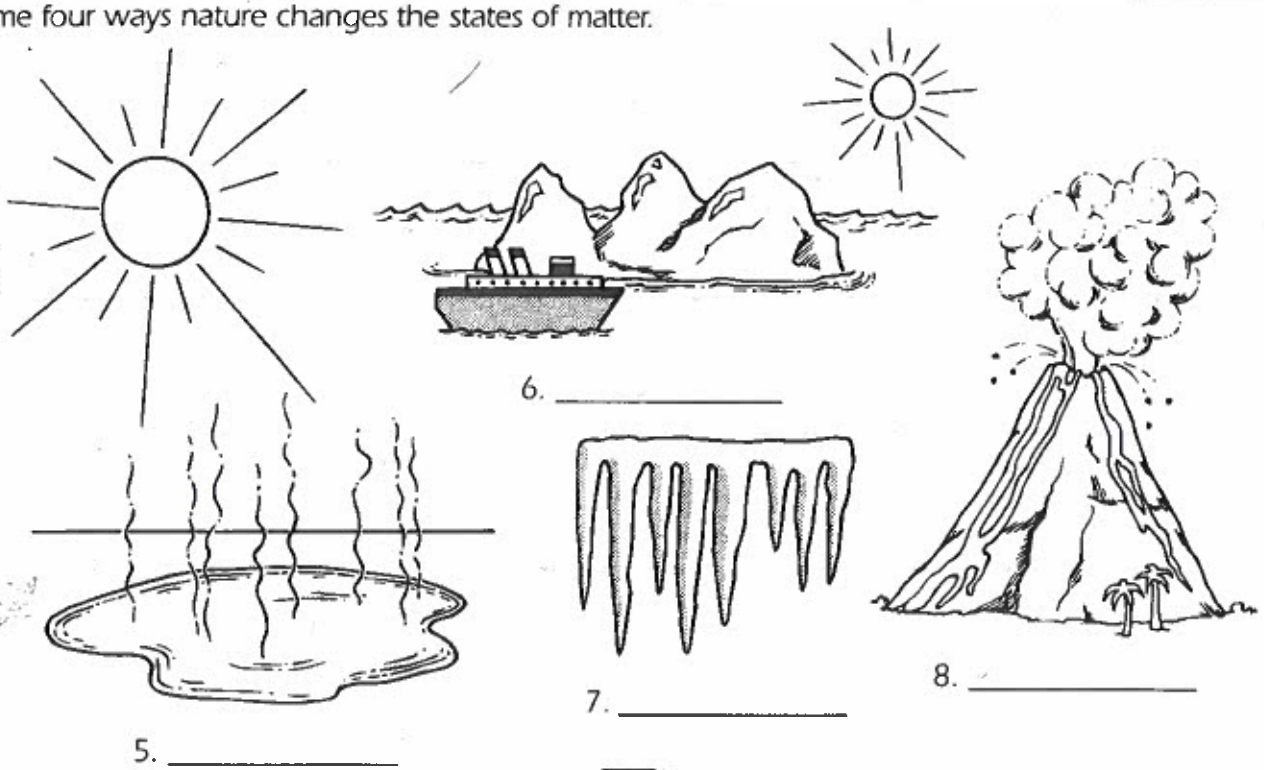


5. _____
6. _____
7. _____
8. _____

Name _____ Date _____

SOLIDS, LIQUIDS & GASES

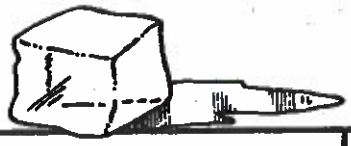
Review Changing States of Matter

Fill in the missing information on the chart.

State	by	to	Name of Process
Liquid	add heat	Gas	evaporation
Gas	remove heat (cooling)	Liquid	
Solid	add heat	Liquid	
Liquid	remove heat (cooling)	Solid	
Animal Fat		Grease	
Nitrogen Gas		Liquid Nitrogen	
Water	heat		
Block of Paraffin Wax	heat		

Name _____ Date _____

USING THE THREE STATES OF WATER



	Solid ice	Liquid water	Gas water vapor—steam
Sports			
Tools Or Machines			
Products			
Foods			
Health			

Lab # _____ Date: _____

Purpose: _____

Hypothesis: _____

Materials:

Procedures:

Observations: _____

Conclusion:

Name _____ Date _____

CHANGING STATES OF MATTER: FREEZING

Freezing turns a liquid into a solid when its temperature is lowered to a certain point. The temperature at which a substance freezes is called its **freezing point**. Each substance has its own freezing point. Alcohol freezes at about –202°F (–94°C). Alcohol mixed with water will not freeze in a car's radiator in freezing weather. You can buy an alcohol-water mixture called antifreeze. Water has a high freezing point of 32°F (0°C). Water expands when it freezes. A car radiator full of water will crack when the water freezes and the ice presses against the walls of the radiator.

Pressure lowers the freezing point of ice. The blade of an ice skate pressing down on the ice will melt some ice under the blade. The skater moves around on a layer of water from melted ice.

Most substances contract when they freeze. The molecules in a frozen substance move very little and stay close together. Water, however, expands when it freezes. Its molecules are arranged in a definite pattern with big spaces between them. These spaces make ice take up more space, or expand. Below-freezing temperatures can freeze water pipes in cold basements. The water expands as it freezes, cracking the pipes. When the temperature rises, the ice melts to water and the basement is flooded.

ACTIVITIES

1. Put a nickel on top of an ice cube. After two minutes pry it off. The pressure of the nickel caused the ice to _____.
2. Fill a plastic bag with one cup water. Fill another with one cup vinegar, and another with one cup water and three teaspoons salt. Place the bags in the freezer.
3. Check to see which liquid freezes first, second, and last.

   First _____

   Second _____

   Last _____
4. Why do salt trucks spread salt on icy streets in freezing weather?

   _____