

# Unit 2: Chemistry

## REVIEW







### *“Practice Test”*

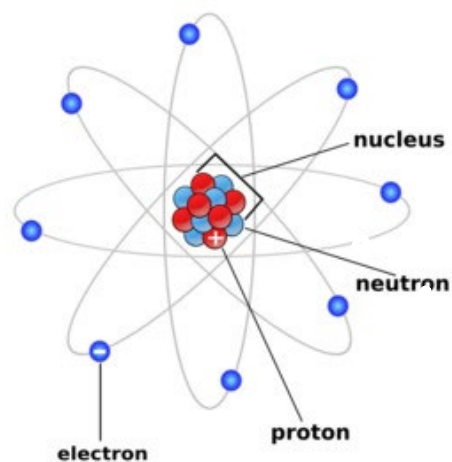
## Science 9

SOLID

Liquid

GAS

19 POTASSIUM K 39 	8 OXYGEN O 16 	18 ARGON Ar 40 	7 NITROGEN N 14 
6 CARBON C 12 	1 HYDROGEN H 1 	13 ALUMINIUM Al 27 	12 MAGNESIUM Mg 24 
20 CALCIUM Ca 40 	2 HELIUM He 4 		



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

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

**PART 1: INVESTIGATING MATTER**

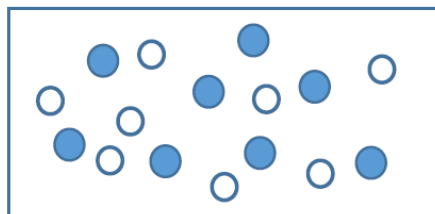
1. **Fill in the Blanks:** Matter is anything that has both \_\_\_\_\_ and \_\_\_\_\_ . Matter can be classified as \_\_\_\_\_ or mixtures. Matter that is not a mixture is classified as either elements or \_\_\_\_\_. Mixtures in which you can see “particles” are said to be \_\_\_\_\_ mixtures.

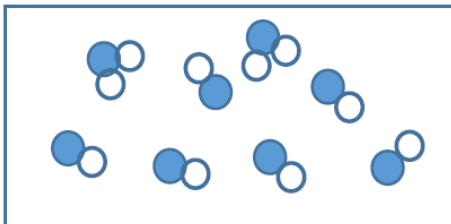
2. **Complete the chart by writing yes or no in each of the boxes:**

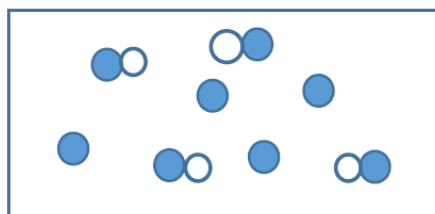
<b>matter</b>	<b>pure substance</b>	<b>element</b>	<b>compound</b>	<b>mixture</b>	<b>homogeneous mixture</b>	<b>heterogeneous mixture</b>
oxygen						
ice						
milk						
chocolate chip cookies						

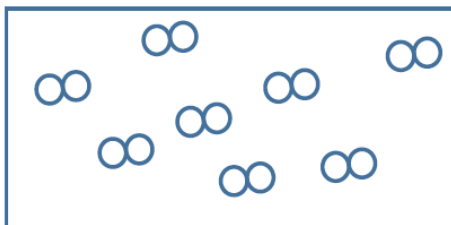
3. **Classify the following by using the following key:**

- |   |
|---|
| <p>A. Element<br/>         B. Compound<br/>         C. Mixture of Elements<br/>         D. Mixture of Compounds<br/>         E. Mixture of Elements &amp; Compounds</p> |
|---|









4. **Match the following:**

\_\_\_\_\_ Compound

\_\_\_\_\_ Deposition

\_\_\_\_\_ Ductile

\_\_\_\_\_ Element

\_\_\_\_\_ Evaporation

\_\_\_\_\_ Gas

\_\_\_\_\_ Mass

\_\_\_\_\_ Solid

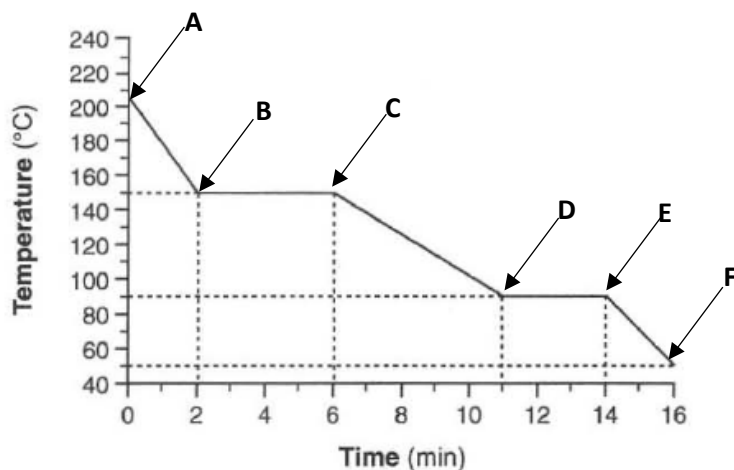
\_\_\_\_\_ Volume

1. Changing from gas to solid
2. The amount of matter
3. State with most particle movement
4. Made up of two or more different types of atoms chemically bonded together
5. State with least particle movement
6. Changing from liquid to gas
7. Composed of only one type of atom
8. Can be pulled into wires
9. Amount of space

5. **Fill in the blanks below.**

- a. The difference between a COLD SOLID and a HOT SOLID is that the particles in the HOT solid vibrate \_\_\_\_\_ (FASTER/SLOWER). This difference is due to the COLD solid's molecules having \_\_\_\_\_ (MORE/LESS) kinetic energy.
- b. The difference between a solid and a liquid at the same temperature is that the liquid has \_\_\_\_\_ (MORE/LESS) kinetic energy.
- c. The \_\_\_\_\_ molecular theory states that:
  1. All matter is made of particles too \_\_\_\_\_ to be seen
  2. These particles are in constant \_\_\_\_\_ (unless at absolute zero!).
  3. The more energy particles have the \_\_\_\_\_ (FASTER/SLOWER) they move.
  4. Particles in a \_\_\_\_\_ (SOLID, LIQUID, GAS) can only vibrate whereas particles in a \_\_\_\_\_ (SOLID, LIQUID, GAS) can slide past each other and particles in a \_\_\_\_\_ (SOLID, LIQUID, GAS) are very far apart.
  5. The more \_\_\_\_\_ (ENERGY/MASS/VOLUME) that particles have the faster they can move.

6. Consider the phase change diagram shown below for an unknown substance, and answer the questions that follow.



- What is this substance's condensation point? \_\_\_\_\_ °C
- What is its freezing point? \_\_\_\_\_ °C
- Where is the most liquid found?  
\_\_\_\_\_ (LETTER)
- What is happening between B TO C?  
\_\_\_\_\_
- What is happening between D TO E?  
\_\_\_\_\_
- At what time did rapid condensation start? \_\_\_\_\_ minutes
- The highest kinetic energy can be found at \_\_\_\_\_. (LETTER)
- The difference between particles **B and C** is that particles at **C** have \_\_\_\_\_ (MORE/LESS) kinetic energy.

7. Explain the difference between physical and chemical changes.

8. Classify each of the following as either a physical or a chemical change.

Chopping wood with an axe. \_\_\_\_\_

Burning wood in a campfire. \_\_\_\_\_

Baking bread in an oven. \_\_\_\_\_

Chocolate bar melting in the sun. \_\_\_\_\_

Exploding dynamite. \_\_\_\_\_

Apple rotting on the ground. \_\_\_\_\_

## **PART 2: THE PERIODIC TABLE**

**Vocabulary:** Referring to your notes, define each of the following vocabulary terms in a complete sentence.

1. **alkali metal**

2. **alkaline earth metal**

3. **family/group**

4. **halogen**

5. **metal**

6. **metalloid**

7. **noble gas**

8. **non-metal**

9. **period**


10. **Look up the names of the following elemental symbols.**

Ne \_\_\_\_\_ K \_\_\_\_\_

As \_\_\_\_\_ Hg \_\_\_\_\_

Ag \_\_\_\_\_ Dy \_\_\_\_\_

11. **Look up the symbols of the following elements.**

cesium \_\_\_\_\_

phosphorus \_\_\_\_\_

nickel \_\_\_\_\_

magnesium \_\_\_\_\_

rutherfordium \_\_\_\_\_

tin \_\_\_\_\_

### PART 3: ATOMIC THEORY

**Vocabulary:** Referring to your notes, define each of the following vocabulary terms in a complete sentence.

1. **atom**

2. **atomic number**

3. **Bohr model**

4. **electron**

5. **mass number**

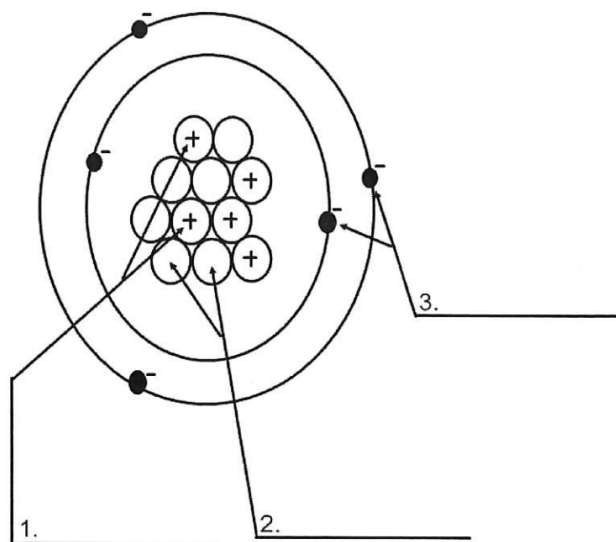
6. **neutron**

7. **proton**

8. **standard atomic notation**

9. **valence shell**


Label the parts of an atom on the diagram below.



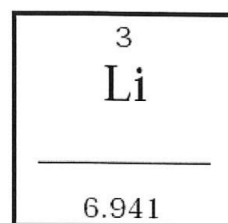
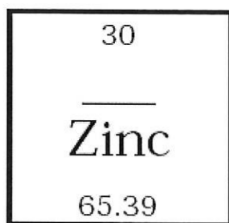
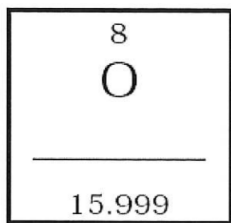
4. What type of charge does a proton have?

5. What type of charge does a neutron have?

6. What type of charge does an electron have?

7. Which two subatomic particles are located in the nucleus of an atom?

10. Answer the questions for the elements shown below. Complete the Periodic Table box by filling in the element name or symbol.



Atomic # = _____	Atomic # = _____	Atomic # = _____
Atomic Mass = _____	Atomic Mass = _____	Atomic Mass = _____
# of Protons = _____	# of Protons = _____	# of Protons = _____
# of Neutrons = _____	# of Neutrons = _____	# of Neutrons = _____
# of Electrons = _____	# of Electrons = _____	# of Electrons = _____

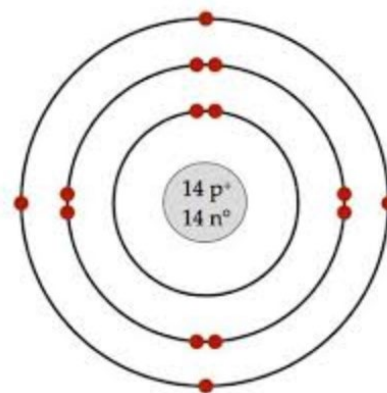
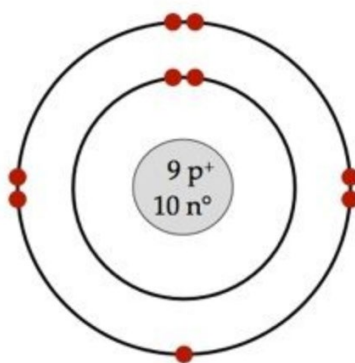
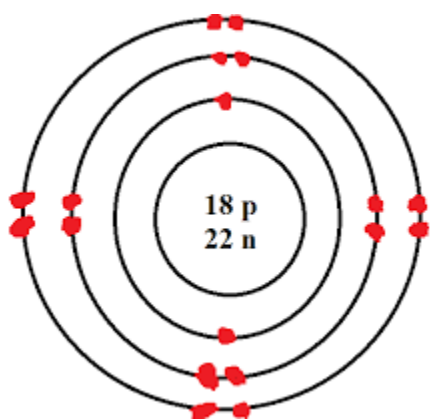
Complete the following table.

Element Name	Element Symbol	Number of Electrons	Atomic Number	Group #	Number of Protons	Average Atomic Mass	Period #
					15		
	Zn						
			56				
	Sr						
			17				
					22		

14. Write the Standard Atomic Notation & Draw a Bohr model diagram of a magnesium atom.

15. Write the Standard Atomic Notation & Draw a Bohr model diagram of a beryllium atom

16. Write the name of the Atom shown in each Bohr Diagram in the box below:



--	--	--



17. Identify the number of electrons in the valence shell of the following atoms.

potassium \_\_\_\_\_

aluminum \_\_\_\_\_

hydrogen \_\_\_\_\_

oxygen \_\_\_\_\_

argon \_\_\_\_\_

chlorine \_\_\_\_\_

boron \_\_\_\_\_

beryllium \_\_\_\_\_

18. Which family of elements has atoms with filled valence shells? What does this mean for their reactivity?