Topic 1 Exploring Matter

Identify or Illustrate the following W.H.M.I.S. symbols

		
	Toxic	
		
Compressed Gas		**Reactive**

Identify the Lab Safety equipment by telling what it is, or drawing what it looks like.

			
Fume Hood		**Fire Extinguisher**	

Illustrate and explain the following techniques or procedures to be followed in the Science lab.

Wafting an unknown substance	**Heating Chemicals in a Test Tube**

Classifying Matter

Identify the 5 main points in the Particle Model of Matter.

_____

_____

_____

_____

_____

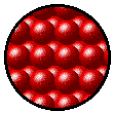
What do the first two points help us to understand?

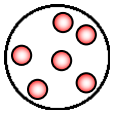
_____

What do the remaining points help to explain?

_____

Identify each state of matter and describe the action of the particles in that state.





_____ _____ _____

_____ _____ _____

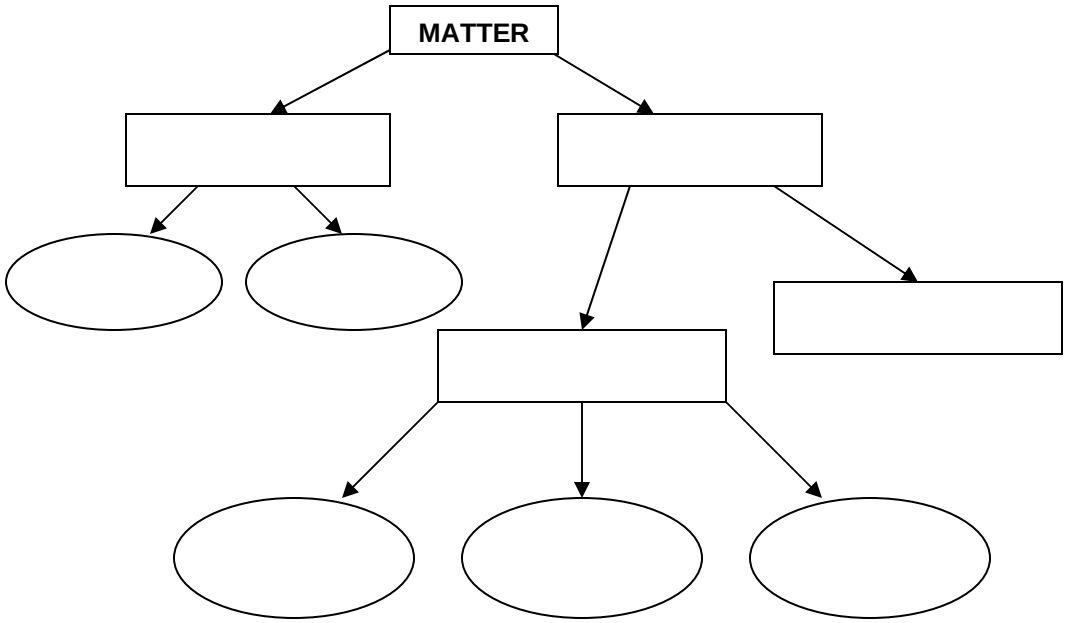
_____ _____ _____

_____ _____ _____

_____ _____ _____

Mixtures of Matter

How is matter Classified?



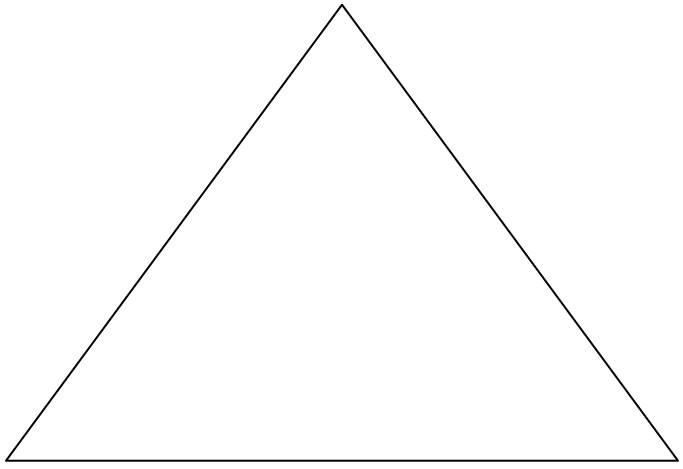
Explain the difference between a colloid and an emulsion.

_____

_____

Topic 2 - Changes In Matter

Illustrate what happens when matter changes state and identify in your illustration whether energy is needed or given off.



What happens during a physical change?

_____

_____

What happens during a chemical change?

_____

_____

What are the clues that describe a change as being chemical?

_____

_____

_____

_____

_____

Complete the table by giving a physical property and a chemical property for each example of matter.

Matter	Physical Property	Chemical Property
gold		
copper		
iron		
sulfur		
water		
helium		
hydrogen		

Topic 3 What Are Elements?

What were the 4 original elements?

_____ _____ _____ _____

What did Alchemists do?

_____

_____

_____

_____

Explain what the Law of Conservation of Mass describes.

_____

_____

_____

_____

Explain what the Law of Definite Composition describes.

_____

_____

_____

_____

How can you identify an unknown substance?

_____

_____

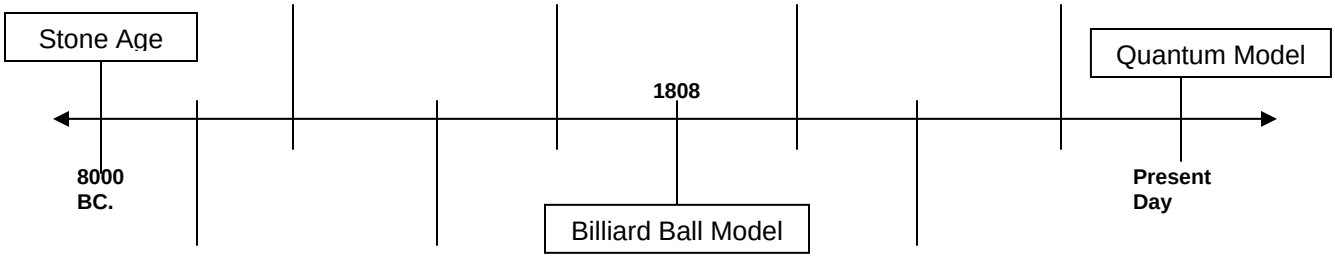
_____

Explain, with an illustration, the process of Hydrolysis.

Explain John Dalton's Atomic Theory as it applies to matter.

Explain the difference between a LAW, a THEORY and a MODEL.

Complete the Timeline



Atomic Model

Raisin Bun Model

Iron Age

Chemical names

Bronze Age

Planetary Model

Topic 4 Classifying Elements

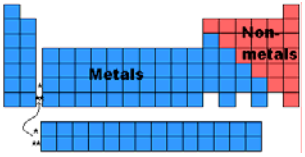
Early chemists used symbols of the sun and the planets to identify the elements known to them. Illustrate the symbols they used.

Metal	gold	silver	iron	mercury	tin	copper	lead
Symbol							
Celestial Body	Sun	Moon	Mars	Mercury	Jupiter	Venus	Saturn

Illustrate the symbols John Dalton later used for the different substances listed.

Substance	Hydrogen	Nitrogen	Water	Pot Ash	Sulfuric Acid	Phosphorous
Symbol						

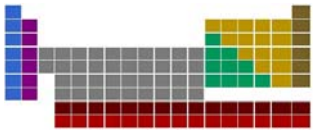
What does this illustration tell you about the History of the Periodic Table



_____

_____

Describe how it has changed to what is illustrated here.



_____

_____

Describe each Chemical Family and explain how it is represented in the Periodic Table.

Chemical Family	Description	Table Representation
Transition Metals		
Other Metals		
Metalloids		
Non-Metals		
Rare Earth Elements		
Alkali Metals		
Alkaline Earth Metals		
Noble Gases	Outer shell is full of electrons, making these gases stable	Group 18 – Dark Green 1st column on the right side
Halogens		

Topic 5 The Periodic Table

What system did Dmitiri Mendeleev (1834-1907) use to organize the elements?

_____

_____

Why did Dmitiri Mendeleev use '?' in his original representation of the elements?

_____

_____

Explain what each of the following tell us about an element …

Atomic Number _____

_____

Mass Number _____

_____

Atomic Symbol _____

_____

Atomic Mass _____

_____

How many elements are known? _____

What are the Horizontal rows called? _____

How are they numbered? _____

_____

Topic 6 - Chemical Compounds

Explain the difference between organic and inorganic compounds.

_____

_____

How is a chemical formula determined?

_____

_____

Write the **chemical formula** as determined by the **name** of the compound**.**

Aluminum oxide

Calcium nitrite

Sodium Chloride

Write the **name** of the compound as determined by the **chemical formula.**

NO_3

$C_6H_{12}O_6$

$C_{12}H_{22}O_{11(s)}$

Compare the properties of Molecular and Ionic Compounds

Properties of **molecular compounds**	Properties of **ionic compounds**
• _____	• _____
• _____	• _____
• _____	• _____
• _____	• _____
• _____	• _____

What are the rules for naming Molecular Compounds?

How are ions formed?

What are polyatomic atoms?

What are the rules for naming Ionic Compounds?

How can you use ion charges and chemical names to write a formula for an ionic compound?

What distinct property do all ionic compounds have?

Topic 7 Chemical Reactions

What are the four main types of chemical reactions?

What are the clues to identify a change as being chemical?

Write a word equation and a chemical equation for the corrosion of iron.

How can you identify an unknown gas?

Explain the difference between an Endothermic and Exothermic reaction – give an example of each.

Topic 8 Reaction Rate

What are the 4 main factors that change the speed of a chemical reaction?

Explain how a catalyst works.

Explain how an inhibitor works.

What is a corrosion effect that can be seen on parliament buildings?

Explain the process of galvanization.

Explain electroplating.

What three things are needed for combustion reactions?

_____

List some harmful by-product of combustion.

_____

_____

Illustrate 2 molecular models and 2 ionic models
