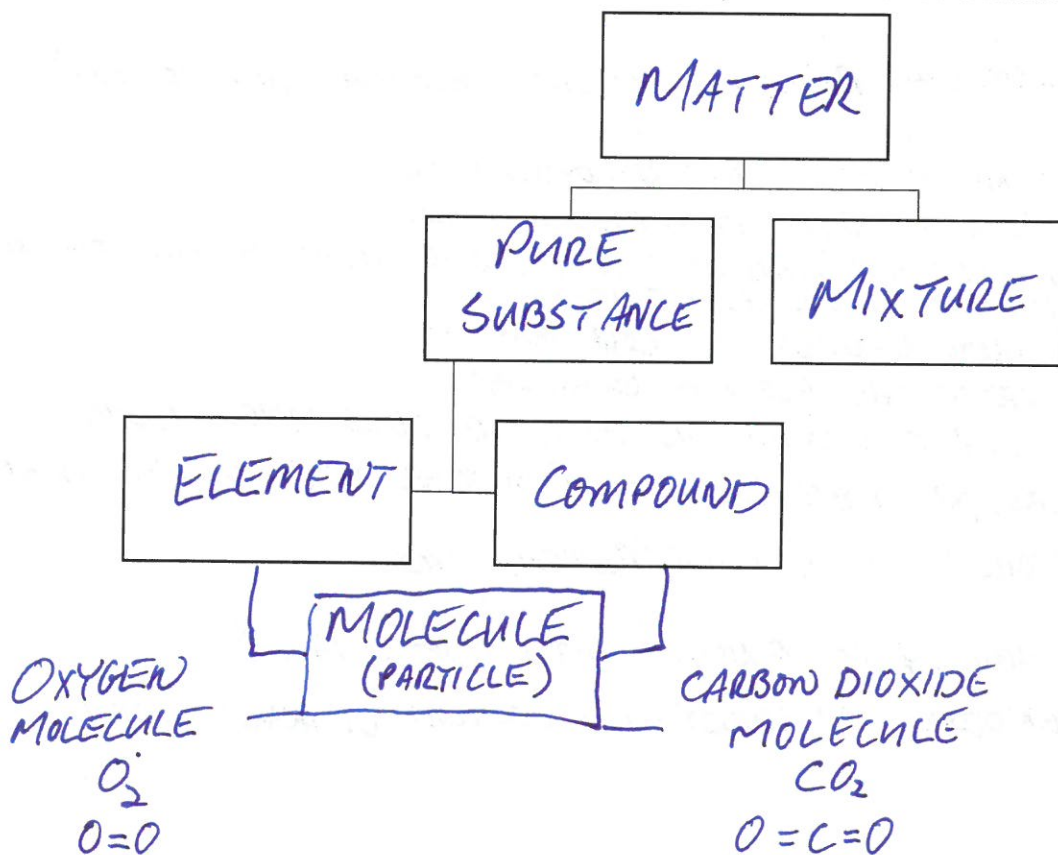


Classifying Matter Notes
Physical Science Honors

A. MATTER

1. What is "matter"? ANYTHING THAT HAS MASS AND TAKES UP SPACE
2. What is made of matter? EVERYTHING!
3. What determines the type/kind of matter? THE ARRANGEMENT OF ATOMS
4. What type of matter is made of specific types of atoms (specific # of protons)? ELEMENTS
 - Why is this type of matter often called the most "basic" form of matter?
ELEMENTS CANNOT BE BROKEN DOWN INTO ANY OTHER SUBSTANCE
5. What type of matter is made of two or more elements that have chemically combined? COMPOUND
 - What does it mean for these elements to have combined in a "specific ratio"?
A SPECIFIC NUMBER OF ATOMS OF EACH ELEMENT ARE PART OF EACH MOLECULE OF THE SUBSTANCE
6. What type of matter exists when multiple elements or compounds are together without being chemically combined? MIXTURE
 - Give a solid and a liquid example of this type of matter:
 - SOLID - SAND
 - LIQUID - SALT WATER
7. Complete the flowchart below to show the relationship between the kinds of matter:



B. STATES OF MATTER

8. What are particles doing constantly? *MOVING/VIBRATING RANDOMLY*
9. What determines the state of matter of a substance? *THE MOTION OF THE PARTICLES*

STATE/PHASE	SHAPE	VOLUME	PARTICLE MOTION
SOLID	DEFINITE	DEFINITE	- VIBRATE IN PLACE - PACKED TIGHTLY - OFTEN A FIXED PATTERN
LIQUID	INDEFINITE (CONTAINER)	DEFINITE	- MOVE FREELY - FAIRLY CLOSE TOGETHER - NOT A FIXED PATTERN
GAS	INDEFINITE FILL (CONTAINER)	INDEFINITE FILL (CONTAINER)	- MOVE EXCITEDLY (LOTS OF ENERGY) - VERY FAST + FAR APART
PLASMA	↓	↓	- EXTREMELY ENERGETIC - CHARGED (IONIZED)

10. What term do we use to describe the ability of a liquid to flow? *VISCOSITY*
- a. How would you refer to substances that flow slowly, like honey? *HIGH VISCOSITY*
- b. How would you refer to substances that flow easily, like water? *LOW VISCOSITY*

C. PROPERTIES OF MATTER

11. What are physical properties? *CHARACTERISTICS THAT CAN BE OBSERVED WITHOUT CHANGING THE CHEMICAL IDENTITY OF THE SUBSTANCE*
12. Generally speaking, how does the amount of the sample affect the physical properties of a substance? *MANY PHYSICAL PROPERTIES ARE INDEPENDENT OF THE SAMPLE SIZE*
13. What are chemical properties? *CHARACTERISTICS THAT DESCRIBE WAYS THAT A SUBSTANCE CAN REACT TO FORM A NEW SUBSTANCE*
14. What is the only way that a chemical property can be observed? *A CHEMICAL REACTION (CHANGE CHEMICAL COMPOSITION)*

EXAMPLES OF PHYSICAL PROPERTIES THAT CAN BE USED TO HELP IDENTIFY A SUBSTANCE

15. Melting Point *TEMP. AT WHICH SOLID BECOMES LIQUID*
16. Boiling Point *TEMP. AT WHICH LIQUID BECOMES SOLID*
17. Conductivity *A SUBSTANCE'S ABILITY TO ALLOW ENERGY TO FLOW THROUGH IT (THERMAL OR ELECTRICAL)*
- a. Conductors *ALLOW ENERGY TO FLOW EASILY*
- b. Insulators *RESIST THE FLOW OF ENERGY*
18. Solubility *ABILITY TO DISSOLVE IN ANOTHER SUBSTANCE (USUALLY WATER)*
19. Malleability *ABILITY TO BE ROLLED OR POUNDED INTO A NEW SHAPE*
20. Magnetism *ABILITY TO ATTRACT/REPEL IRON*

EXAMPLES OF CHEMICAL PROPERTIES THAT CAN BE USED TO HELP IDENTIFY A SUBSTANCE

21. Flammability *ABILITY TO BURN/IGNITE (CATCH FIRE)*
22. Reactivity *TENDENCY TO UNDERGO CHEMICAL CHANGES WITHIN A SYSTEM*