Marshmallow

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Physical and Chemical Properties of Matter

The physical properties of matter

* We have already learned some physical properties of matter
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Physical properties of matter**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can be observed or measured \_\_\_\_\_\_\_\_\_\_\_\_ changing the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of matter
* Properties you notice when using your five senses:
  + Touch/feel- \_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_
  + Sight- \_\_\_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_
  + \_\_\_\_\_\_\_\_\_\_\_
* Physical properties
  + **Color**
  + **Odor**
  + **\_\_\_\_\_\_\_\_\_\_\_\_\_\_**- How shiny a substance is
  + **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**- the ability of a substance to beaten into thin sheets
  + **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**- The ability of a substance to be drawn into thin wires
  + **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**- the ability of a substance to allow the flow of electricity
  + **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**- how easily a substance can scratched
  + **Melting/freezing point-** the temperature at which the solid and liquid phases of a substance change
  + **Boiling point-** the temperature at which the vapor pressure of the liquid is equal to the pressure of the liquid
  + **Solubility**- if an object is soluble or insoluble

Properties of matter

* Remember all objects take up space and has mass
* You use your sense of taste and smell to tell the difference between spinach and an orange
* Properties of matter
  + A property describes how an object looks, feels or acts.
  + The objects shown has different kinds of properties

Physical vs. Chemical

* **Physical properties**: observe \_\_\_\_\_\_\_\_\_\_\_\_\_ changing the identity of the substance
* **Chemical properties**: observe only when the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* How do you know if it’s a chemical or physical change?
  + If it CHanges, it’s CHemical

Chemical properties

* common chemical property are:
  + **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**-the tendency of a substance to undergo chemical reaction.
    - Reactive to oxygen
    - Reactive to air
    - Reactive to water
  + **\_\_\_\_\_\_\_**- Measures how acidic (high concentrated) or how basic (low concentration )a solution is
  + **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**- the interaction between oxygen molecules and other substances (rust)

***NOTICE: that a chemical properties aren’t EASY to observe, unlike physical properties***

Properties are constantly changing

* Matter is constantly changing
  + Ice in your soda melts
  + Glass breaks
  + Paper is ripped

Where does the ice go? What does it become

Physical Changes

* Changes in matter that do not alter the identity of matter itself
* Changes that do NOT change the identity of the substance
* You may or may not be able to undo a physical change
* Examples:
  + Size
  + Shape
  + State of matter: solid, liquid and gas
  + Dilutions- the water doesn’t turn into soil or macaroni. It remains water
  + If water did change into macaroni, you would have an example of a chemical change

Chemical Changes

* Chemical changes DO alter the identity of a substance.
* A substance changes into an entirely different substance
* For example:
  + Iron rusting
  + Wood burning
  + Copper turning into brass
  + Baking a cake
  + Spoiled milk

Chemical properties

* These are properties that can only be observed by changing the identity of the substances
* A piece of paper burns and turns to a black substance
* After the flame goes out you can no longer burn the new substance
* The chemical properties have been changed

Signs of a chemical change: Lets observe:

1. Production of odor

2. change in temperature

3. Change in color

4. formation of a gas (bubbles)

5. Precipitate- Formation of a solid