1.3 NOTES MEASURING MATTER

\*What units are used to express mass & volume?

Matter can be measured using weight, volume, mass, and density.

Weight- measure of the force of gravity on you. On another planet, the force of gravity will be more if the planet is more massive than Earth and less if the planet is less massive than Earth.

*>>Gravity is the force of attraction between objects.*

*Q1: What happens to a ball thrown into the air? It falls to the ground.*

*Q2: Why? Gravity*

*Q3: What is the relationship between an object’s mass and its gravitational pull? The greater the mass of an object, the greater its gravitational pull.*

*Q4: If weight is determined by the pull of gravity, and gravitational force is dependent on mass, can weight change depending on location? Yes, weight can increase if one is on a more massive planet than Earth or decrease if on is on a less massive planet than Earth) <<*

Mass- the amount of matter in an object, which does NOT change with location even if the force of gravity changes.

To measure the properties of matter, scientists use a system call the International System of Units (SI)

\*The SI unit of mass is the KILOGRAM (kg)

Mass can also be measured in grams

*>>Q1: Why do scientists prefer to describe matter by its mass? Because it does not change with location.<<*

Volume- the amount of space that matter occupies

\*The SI unit of volume is the cubic meter (m^3)

Volume can also be measured in centimeters, millimeters, and liters/milliliters(liquids)

1 cubic centimeter = 1 milliliter

Volume= L x W x H (regular solids)

Irregular solids require a graduated cylinder-water displacement.

\*How is density determined?

Density- a measure of the mass of a material in a given volume

D= Mass/Volume (DMV)

Water has a density of 1 g/cm^3. Objects with a density greater than that of water will sink. Objects with a density less than water will float.

Gases have density too. A gas with a lower density will rise (float better) than a gas with a higher density.

*>>Q1: What gas do we know floats well? HELIUM*

*Q2: What type of property is density? Physical*

*Q3: What can knowing the density of a liquid tell you? It can tell if the liquid will float or sink in water, because density of the liquid can be compared to density of water. <<*

Complete pages 21-23 in book.