Written Section:

* Experiments/ scientific inquiry
* Atom: structure, PEN; ions
* Physical change chart; know examples for each
* Bohr and Lewis Dot diagrams; know elements name and symbols
* Periodic table: find characteristics- know elements and their uses
* Solubility curve graph

The Biggest Loser

1. State the Problem: Can exercise help you lose weight?

Control group: Bill A, person who did not exercise

Experiment group: Bill B, person who does exercise

Independent variable: exercise

Dependent variable: weight loss

Constant: type of exercise, how Bill exercises, the type of food that Bill eats

1. IV- manipulated variable
2. DV- responding variable

Control group- “norm”

1. A hypothesis must be tested and disproven.
2. SI system= metric system

US= customary system

Distance- meters

Volume- liters

Mass- grams/kilograms

1. Thermometer, pH scale, spring scale, hot plate….
2. Relate steps to an experiment

7.1 7.2 8.1

1-2. solid, liquid, gas, plasma (stars, Sun, lightning, fluorescent lights)

3. You ionize a gas to create plasma

4. Gas has indefinite volume. It will fill the entire container.

5. Amorphous- charcoal, rubber, plastic Crystalline- diamond, snowflakes

6. Substance is chemically bonded. Mixture is physically blended.

7. Substance- elements and compounds Mixtures- heterogenous: sand, cereal, chocolate chip ice cream

homogeneous: paint, chocolate milk, apple juice

1. Size-independent: property that does not depend on the size, size-dependent: property that does depend on the size
2. Oil and water-density (size-ID) dirt and gemstones-volume (size-D)
3. Homogeneous= solution…. Two parts are solute and solvent
4. A bubble forms due to surface tension.
5. Milk, shampoo, glue
6. B)

7.3 8.2 8.3 7.4

1. size, shape, form , state of matter

2. PE- distance between the particles KE- energy due to motion TE- sum of KE&PE Temp- average KE of the particles

TE added: melting, vaporization, sublimation TE removed: deposition, condensation , freezing

Dew- condensation; making ice cubes- freezing

At a phase change, KE stays the same while PE is increasing

Mass and energy are conserved during a phase change.

3) Jewelry tarnishing- chemical change; the bike has the ability to rust- chemical property;

the boiling point- physical property; a scarf folded-physical change

4) bubbles, energy, color, odor

Facts about chemical change: cannot be undone, can have more than one sign, makes new identity

5) When you use a straw to drink your iced coffee, you pass the coffee behind your teeth. Therefore, you are decreasing chemical reaction. If you were to not use a straw you are increasing the chemical reaction because it is hitting your teeth- creating more surface area.

6) There are more bubbles in warm soda than in cold soda. A higher Temperature increases this chemical reaction.

7) Charles’ and Boyles’ law: WORKSHEET!!!!!!!

8) P= Force over area. Up a mountain: pressure decreases (column gets smaller). Down a mountain: pressure increases (column gets bigger)

9) Vapor is the gas state of a substance that is a solid or liquid at room temperature.

10) FOR a neutral atom:

P= atomic number

E= atomic number

N= MN (round the decimal # that is on the periodic table(which is really the AM)) minus AN

ICE CREAM LAB

Thermal energy was transferred from the milk to the ice. Milk froze into ice cream from the removal of TE; ice melting from the addition of TE.

Freezing point depression: lowering the melting/freezing point to help de-ice roads or to freeze something at a lower temperature by adding salt

Chapter 13.1

Solubility curve graph!!!!

Saturated: max amount of solute dissolved

Chapter 9

1. parts of an atom: proton, electron, neutron, nucleus, electron cloud
2. isotope: same element but different number of neutrons ion: same element but different number of electrons

CATION: positive ion

ANION: negative ion

3. When you calculate ion, you do the same as if it was a neutral atom. HOWEVER, for an ion, you have to change the number of electrons depending on the atom charge. For example F2+ P-9 E-7 N-10 The 2+ says that there are 2 more protons than electrons

For example F2- P-9 E-11 N-10 The 2- says that there are 2 more electrons than protons.

4. MN: number of P & N AN: number of P

5. AAM: isotopes that are the most abundant…. Mg-24 because the AM is closest to 24 than 25 or 26

6. SCIENTISTS QUIZ!

7. know how to draw the diagrams

8. period # indicates how many energy levels you draw

9. group # indicates how many valence electrons you draw (LOOK AT THE ONES DIGIT)

10. group has similar chemical properties period has different physical properties but usually there are patterns across a period

11. Alpha: 2p2n AN decreases by2 MN decreases by 4 burn/paper/skin

Beta: a high energy electron AN increases by 1 MN stays the same Cannot go through glass/aluminum

Gamma: ENERGY!! AN & MN stays the same x-ray/ cannot go through lead, concrete, steel

12. \*\*\*\*\* Correction to the sheet\*\*\*\*\* Gamma is the only one seen on the electromagnetic spectrum because it contains only ENERGY while alpha and beta are both PARTICLES.

Chapter 10

1. Mendeleev discovered the periodic table. It first was organized by atomic mass. Moseley altered the periodic table based on atomic number.
2. Colored periodic table: you can look at the one I posted in Chapter 10
3. Metallic properties increase as you move to the left on the periodic table as well as down on the periodic table. Therefore, Aluminum is a very poor metal because it is on the right side and it is very close to metalloids and nonmetals.
4. Synthetic means man-made or not made naturally on Earth. Free elements mean that they can exist as pure on its own in nature. (not in a compound)
5. An alloy is two metals mixed together.
6. Hydrogen is classified as a nonmetal because it is a gas at room temperature.
7. Metals: luster, conductivity, malleability, ductility Nonmetals: gas, insulator, brittle (nonmetal)
8. Uses of elements!

Chapter 11

1. Covalent: sharing valence electrons Ionic: gaining or losing valence electrons Metallic: pooling valence electrons
2. Covalent bonds are between nonmetals and nonmetals
3. Ionic bonds are between metals and nonmetals. Nonmetals tend to gain. Metals tend to lose
4. Metallic bonds are between metals and metals.
5. Covalent bonds: Single- 2 valence electrons Double- 4 valence electrons Triple- 6 valence electrons
6. Number of unpaired electrons equals the number of BONDS
7. Water is polar molecule because oxygen in stronger than hydrogen pulling the valence electron closer to Oxygen. Therefore, oxygen is partial negative while hydrogen is partial positive.

Oxygen goes through a double covalent bond. THIS SHOULD BE IN YOUR NOTES! KNOW HOW TO DRAW IT!

***YOU MUST ALSO KNOW ELEMENTS NAMES AND SYMBOLS OF THE 30 ELEMENTS WE WENT OVER IN CLASS!***