Elements of the body

Elements on the Periodic Table

a) Atomic Number
   a. Made up of

b) Atomic Mass
   a. Made up of

c) Atomic Symbol

Mass is made up of ________________________, which cannot be broken down into smaller substances. Lowest level of physical and chemical properties.

The parts of an atom

Define and label the parts of the atom

a) Protons
b) Neutrons
c) Electrons
Combining Matter

a. molecule
   a. 2 or more of the ________________ atoms or molecules.

b. Compound
   a. 2 or more ________________ atoms or molecules.

Mixtures

- A mixture:
  - 3 types of mixtures
    - Solution
    - Colloids/Emulsion
    - Suspension

- Solution
  - A ________________ mixtures, particles are evenly distributed. True solutions are usually transparent.
    - Solvent:
    - Solute:

- Colloids
  - Also known as emulsions, are ________________ mixtures. Particles are unevenly distributed throughout the mixture.
    - ________________
    - ________________

- Suspension
  - A ________________ mixture
    - These mixtures ________________
    - Biological example of a suspension, ________________
Chemical Bonds

- Chemical bonds are “____________________________” between ______________.

- Electrons: involved in all chemical reactions, determine if a chemical reaction will take place. All about the amount of electrons and the want to get its “perfect” octet!
  - Where are they located?
  - Shell 1?
  - Shell 2?
  - Outermost cell called?
    - This shell has the most ___________________ energy because they’re farthest from the nucleus and are pulled the least toward it.

- Octet Rule:
  - How many electrons would satisfy the outer valence? ________________
  - Exceptions?
  - Will Nobel gases react? Why or Why not?

- Types of Chemical Bonds
  - ________________
  - ________________
    - Polar
    - Non Polar
  - ________________

- Covalent Bonds
  - Formed by ___________________ of electrons.
  - What kind of electrons are shared? ________________
  - Sharing of 2 electrons →
  - Sharing of 4 electrons →
- Sharing of 6 electrons \( \rightarrow \)
- Is water Polar or non-polar? Why?

- **Polar Covalent**
  - Why are the bonds polar?
  - Electronegative & electropositive

- **Non-Polar Covalent**
  - Equal Sharing of electrons, \______________ pull
  - No separation of charges

- **Ionic Bonds**
  - Gain or loss of \______________, aka the transfer of \______________.
  - Gaining of electrons (- charge) \______________
  - Loss of electrons (+ charge) \______________
  - Attraction of opposite charges results in an \______________

- **Hydrogen Bonds**
  - True bond OR weak magnetic attraction ??
  - Intramolecular bonds
  - What makes water liquid
  - H- O, N, F
• Chemical Reactions

\[
6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2
\]

• Types of Chemical Reactions
  o ______________________
  o Decomposition
  o ______________________

• Synthesis Reaction
  o Combination reaction
  o Used in anabolic or catabolic reactions?

• Decomposition
  o Breakdown of molecule into smaller molecules/atoms.
  o Reverse of synthesis reactions
  o Used in anabolic or catabolic reactions?

• Exchange
  o Also called a ______________________ reaction.
  o Involves _______________ synthesis and decomposition

• Label each reaction

a. \[4 \text{Fe (s)} + 3 \text{O}_2 (g) \rightarrow 2 \text{Fe}_2\text{O}_3 (s)\]

b. \[\text{NaCl(aq)} + \text{AgNO}_3(aq) \rightarrow \text{NaNO}_3(aq) + \text{AgCl(s)}\]

c. \[\text{H}_2\text{CO}_3 \rightarrow \text{H}_2\text{O} + \text{CO}_2\]