

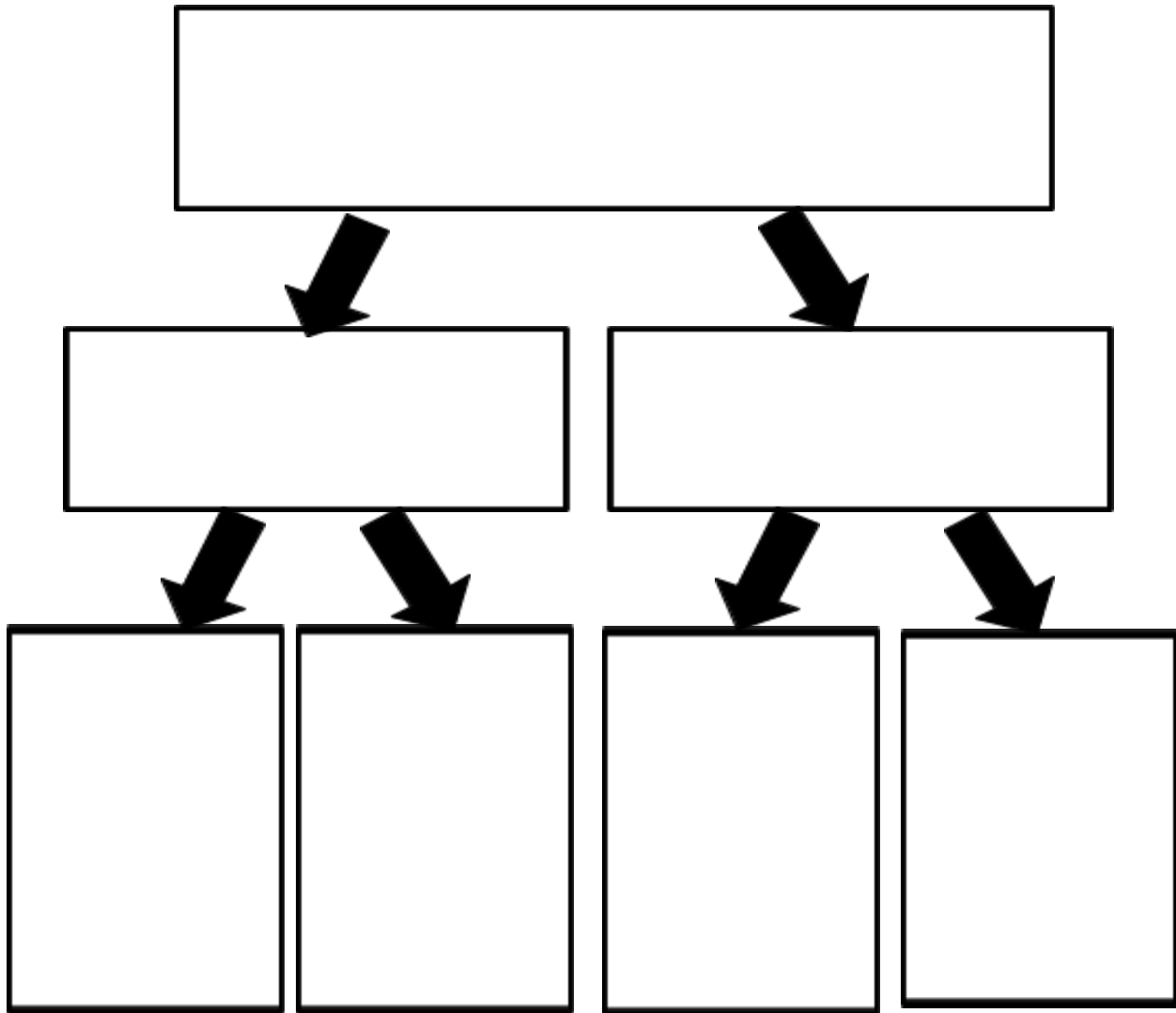
**Elements, Compounds, & Mixtures Reference Sheet**

1. **Pure Substance** – a sample of matter that has definite chemical & physical properties.
2. **Element** – pure substance that cannot be separated into simpler substance by physical or chemical means.
3. **Atoms** - The smallest unit of an element that maintains the properties of that element.
4. **Molecules** – composed of two or more elements that are joined by chemical bonds
  - a. Elements can be the same: Ex:  $H_2$ ,  $O_2$ ,  $N_2$
  - b. Elements can be different: Ex:  $C_6H_{12}O_6$ ,  $H_2O$
5. **Compounds** – pure substance composed of two or more different elements joined by chemical bonds.
  - a. Made of elements in a specific ratio that is always the same
    - i. Water is  $H_2O$  – It will always will have 2 hydrogen atoms and 1 oxygen atom joined together
  - b. Can only be separated by chemical means, not physically
  - c. Have their own physical and chemical properties
  - d. Chemical and physical properties are different than the elements they are made from
    - i. Example  $H_2O$  Hydrogen is a gas Oxygen is a gas Water is a liquid at room temperature
6. **Mixtures** – a combination of two or more pure substances that are not chemically combined. Substances held together by physical forces, not chemical
  - a. No chemical change takes place
  - b. Each item retains its properties in the mixture
  - c. They can be separated physically
7. **Types of Mixtures** – There are two main categories
  - a. **Homogeneous** – molecules are mixed up in an even distribution
    - i. **Solutions** – a mixture that appears to be a single substance
    - ii. **Solute** – the substance being dissolved
    - iii. **Solvent** – the substance in which the solute is being dissolved Water is considered a universal solvent
    - iv. Do not settle out over time
  - b. **Heterogeneous** - molecules are not mixed up in an even distribution
    - i. **Suspensions** – a mixture in which particles will eventually settle out

Write the answers to the activity in the spaces below:

Elements	Compounds	Mixtures

**Elements, Compounds, & Mixtures Reference Sheet**



<u>Word Bank - Place the following words into the flowchart above</u>				
Element	Homogeneous	Mixture	Matter	Compound
Pure Substance	Heterogeneous	H <sub>2</sub> O	O <sub>2</sub>	Lemonade
Snow Globe	Gelatin	CO <sub>2</sub>	Kool-Aid	H <sub>2</sub>