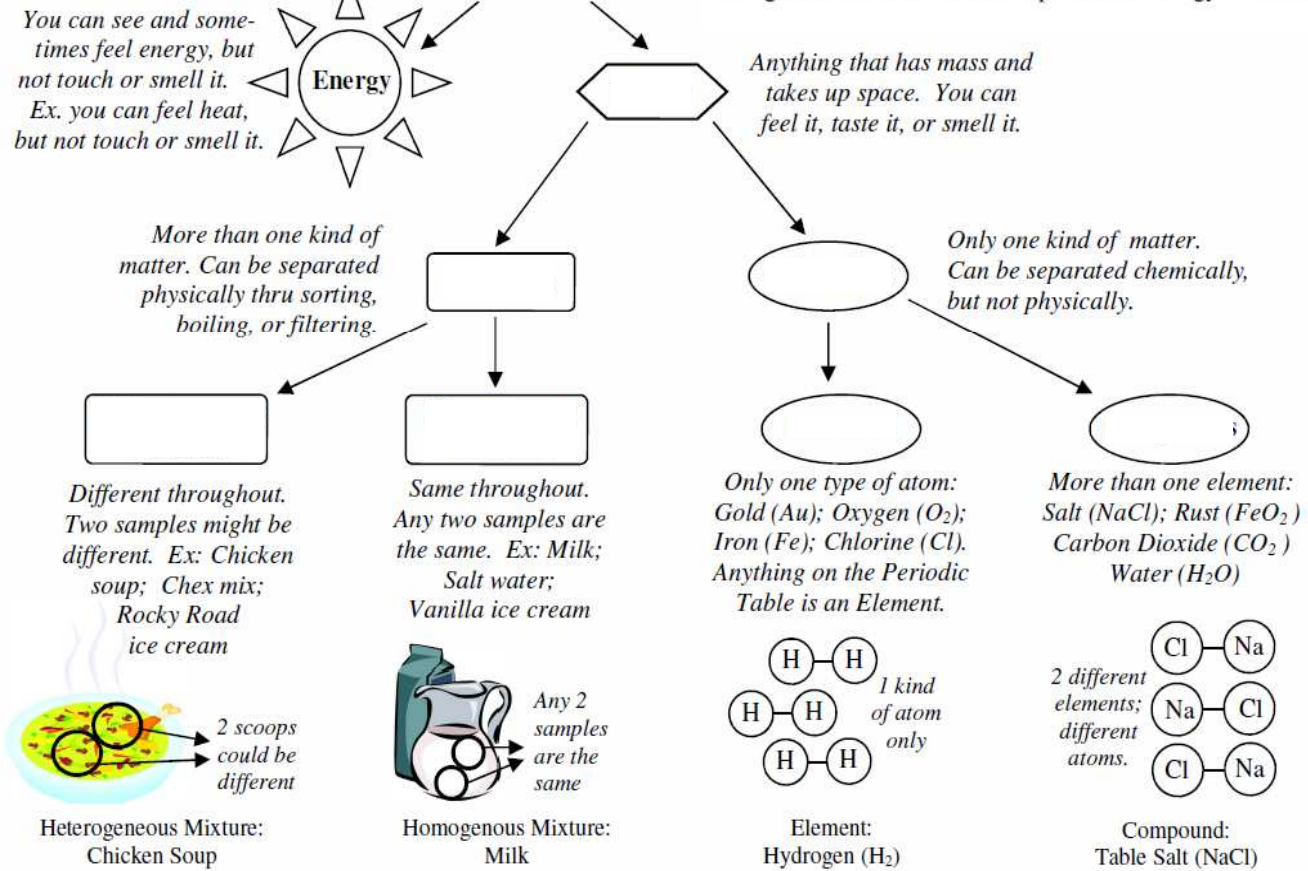


Classification of Matter

Textbook pages
277-279

Much of science involves describing the universe. To do this we must be able to *classify* the things we encounter. Everything in the universe is made up of either energy or matter.



Textbook pages
284-286

States of Matter

When a substance changes temperature it doesn't change substances, but it can change its state. The three most common states of matter are solid, liquid, and gas.

| Basic Properties of the Three Most Common States of Matter | | | | |
|--|------------------|------------------|-------|--------|
| State | Amount of Energy | Molecular Motion | Shape | Volume |
| Gas | | | | |
| Liquid | | | | |
| Solid | | | | |

Sublimation:

States of Matter in Water

Boiling (Evaporation) Point:

Melting Point:



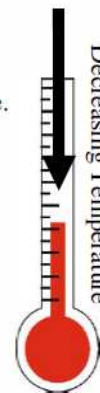
Water—water in liquid state. Retains its volume, but not shape. Medium energy and temperature.



Steam—water in gaseous state. Doesn't keep its shape and volume. High energy and temperature.



Ice—water in solid state. Retains its shape and volume. Low energy and temperature.

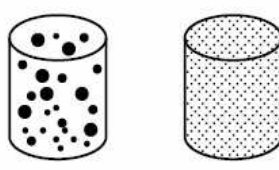
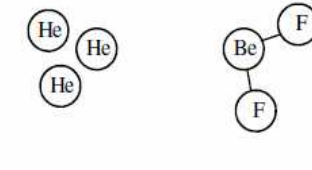


Condensation Point:

Freezing Point:

All sections below are considered essential concepts and must be completed to receive full credit on WS.

| | | | |
|--------------------------|--|-----------------------|---|
| 1. Substance | A. Made up of two types of matter that can be physically separated. | 1. Condensation Point | A. Temperature when liquids turn to gas. 100°C for water. |
| 2. Mixture | B. Two samples might not be the same. | 2. Boiling Point | B. Can change shape, but not volume. |
| 3. Heterogeneous Mixture | C. Two samples will have the same makeup. | 3. Liquid | C. Temperature when solid turns to liquid. |
| 4. Matter | D. Has no matter; can be felt and seen. | 4. Solid | D. Can't change shape. Low energy |
| 5. Element | E. Has only one kind of atom. | 5. Sublimation | E. Temperature when gas turns to liquid. 100°C for water. |
| 6. Homogeneous Mixture | F. Contains two kinds of atoms that <i>cannot</i> be physically separated. | 6. Freezing Point | F. Temperature when a liquid turns to solid. 0°C for water. |
| 7. Compound | G. Cannot be separated by physical means. | 7. Gas | G. High energy; can change volume and shape. |
| 8. Energy | H. A classification of anything that has mass and takes up space. | 8. Melting Point | H. When a solid turns straight to gas. |

| | | |
|---|---|--|
| Element (E), Compound (C), Heterogeneous Mixture (He), or Homogeneous Mixture (Ho)? | Heterogeneous (He) or Homogeneous Mixture (Ho)? | Element (E) or Compound (C)? |
| ___ Water (H ₂ O) ___ Table Salt (NaCl) ___ Lithium (Li) ___ Chocolate Milk ___ Trail Mix ___ Mixed Nuts ___ Sugar Water ___ Aluminum Foil ___ Silver (Ag) ___ Vinegar ___ Tomato soup ___ Chocolate Chip Cookies |  _____ |  _____ |

The following chart shows the physical states of water. Fill it in to help you better understand states of matter vocabulary.

