

Read Ch. 3.3-3.4, pp. 66-74 in your text then answer the following questions.

- How are elements and compounds similar? How are they different?
Compounds and elements are both pure materials. Compounds are composed of elements and can be broken down by chemical means. Elements cannot be broken down by chemical means.
- What does it mean for a material to be pure?
It is composed of only one kind of atom or molecule and cannot be broken down physically.
- What is the smallest representative particle of an element? Of a compound?
An atom is the smallest particle of an element; a molecule is the smallest particle of a compound.
- How do mixtures and pure substances differ?
Mixtures are impure because they consist of physical combinations of two or more pure substances.

- Heterogeneous mixtures are (chemical, physical) combinations composed of (one uniform-looking phase, two or more distinct phases) that is/are (easy, difficult) to separate.
- Homogeneous mixtures are (chemical, physical) combinations composed of (one uniform-looking phase, two or more distinct phases) that is/are (easy, difficult) to separate.
- Classify each of the following substances as; an element (E), a compound (C), a homogeneous mixture (hom), or a heterogeneous mixture (het).

a. Air	Hom	b. Carbon Dioxide	C	c. Potassium	E
d. Caesar Salad	Het	e. Oxygen	E	f. Vegetable Soup	Het
g. Kool Aid	Hom	h. Hydrogen Peroxide	C	i. Steel (an alloy)	Hom
j. Carbon	E	k. Salt	C	l. Copper	E
m. Pure Water	C	n. Calcium Nitrate	C	o. Salt Water	Hom
p. Tylenol (acetaminophen)	C	q. Apple Pie	Het	r. Neon	E
s. Sugar water	Hom	t. Selenium	E	u. Coffee	Hom
v. Lead	E	w. Raisin Bran	Het	x. Apple Juice	Hom

- Mixtures can be separated by differences in (chemical, physical) properties.
- What properties could be used to separate the following mixtures?
 - Iron grains & sand grains magnetism
 - Ethanol & Methanol (two liquids) boiling point
 - CuCl_2 dissolved in water boiling point/volatility (ability to evaporate)
 - Pasta in water size (holes in strainer)