

Exercise 1.10

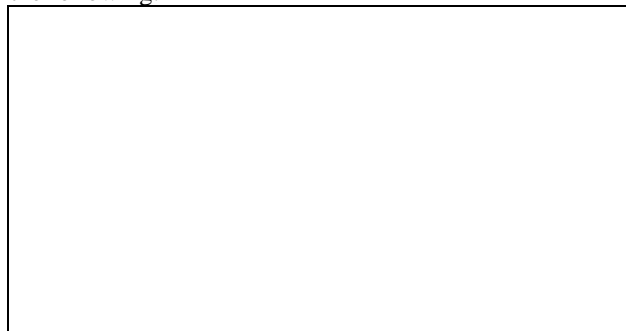
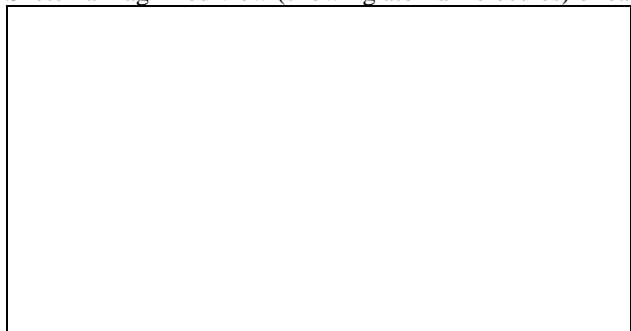
Classifying Matter

Name: _____

Date: _____ Per: _____

DIRECTIONS: Complete the following in the space provided:

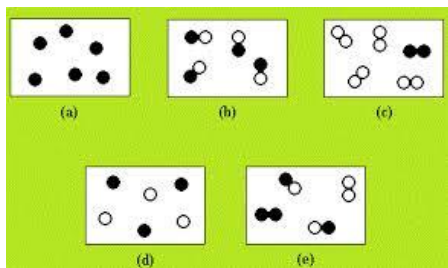
1. Sketch a magnified view (showing atoms/molecules) of each of the following:



a. A heterogeneous mixture of:
two different compounds.

b. A homogeneous mixture of:
an element and a compound.

2. Match each description below with the following microscopic pictures. More than one picture may fit each description. A picture may be used more than once or not at all.



a. A gaseous compound: _____

b. A mixture of two gaseous elements: _____

c. A gaseous element: _____

d. A mixture of a gaseous element and a gaseous compound: _____

3. Classify each of the following as a homogeneous or heterogeneous mixture:

a. a door: _____ d. salsa: _____

b. the water you drink: _____ e. a cup of black coffee: _____

c. the air you breathe: _____ f. your lab partner: _____

4. Classify each of the following as a mixture or pure substance (first blank). If it is a pure substance further classify it as an element or a compound (second blank). If it is a mixture classify it as heterogeneous or homogeneous (second blank).

a. tap water: _____ e. brass: _____

b. iron: _____ f. wine: _____

c. blue cheese: _____ g. concrete: _____

d. uranium: _____ h. table salt: _____

5. Suppose a teaspoon of magnesium filings and a teaspoon of powdered sulfur are placed together in a metal beaker. Would this constitute a mixture or a pure substance?

a. Suppose the magnesium filings and sulfur are heated so that they react with each other, forming magnesium sulfide. Would this still be a "mixture"? Why or why not?

6. If a piece of hard, white blackboard chalk is heated strongly in a flame, the mass of the piece of chalk will decrease, and eventually the chalk will crumble into a fine white dust. Does this change suggest that the chalk is composed of an element or compound?

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7. Classify the following as a physical or chemical change:
- Mothballs gradually vaporize in a closet: _____
 - Hydrofluoric acid attacks glass and is used to etch calibration marks on glass laboratory utensils: _____
 - A chef making a sauce with brandy boils off the alcohol from the brandy leaving just the brandy: _____
 - Chemistry majors sometimes get holes in cotton jeans they wear to lab because of acid spills: _____
8. The properties of a mixture are typically averages of the properties of its composition. The properties of a compound may differ dramatically from the properties of elements that combine to produce the compound. For each process below, state whether the material being discussed is most likely a mixture or a compound (first blank), and state whether the process is a chemical change or a physical change (second blank).
- An orange liquid is distilled, resulting in the collection of a yellow liquid and a red solid.
 - A colorless, crystalline solid is decomposed, yielding a pale yellow-green gas and a soft, shiny metal.
 - A cup of tea becomes sweeter as sugar is added to it.
9. Which of the following are physical changes? Which are chemical changes?
- the cutting of food: _____
 - interaction of food with saliva and digestive enzymes: _____
 - proteins being broken down into amino acids: _____
 - complex sugars being broken down into simple sugars: _____
 - making maple syrup by heating maple sap to remove water through evaporation: _____
 - DNA unwinding: _____
10. Make molecular-level (particulate) drawings for each of the following:
- Show the differences between a gaseous mixture that is a homogeneous mixture of two different compounds and gaseous mixture that is a homogeneous mixture of a compound and an element.

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- Show the differences among a gaseous element, a liquid element, and a solid element.

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