Directions: Complete the concept map using the terms in the list below.

- heterogeneous compound
- elements
- substances
- homogeneous mixtures

1. Matter is composed of various
2. Which, when made up of like atoms, are
3. Of which two or more may form a
4. Of which two or more may combine in an easily separated manner to form
5. Which, if blended evenly throughout, are
6. Which, if the different materials are easily distinguished, are

Directions: Circle the term in parentheses that makes each statement correct.

7. A beam of light is (visible, invisible) as it passes through a solution, but (can, cannot) be seen as it passes through a colloid.
8. Appearance and behavior are (chemical, physical) properties.
9. The change of one substance to another is a (chemical, physical) change.
10. When substances go through a chemical change, mass is always (gained, lost, conserved).
**Section 1: Composition of Matter**

**Directions:** Choose the correct category from the list for each item. Each category will be used more than once.

1. chalk
2. copper
3. granite
4. vinegar
5. pond water
6. water
7. salt
8. permanent press fabric
9. soft drink
10. paint
11. gold
12. a river delta
13. fog
14. gelatin
15. lead

**Directions:** Complete the sentences by writing the letters of the correct terms on the lines provided.

16. All substances are built from _____.
   a. elements
   b. atom
   c. metal
   d. salt

17. A beam of light can be seen as it passes through a(n) _____.
   a. colloid
   b. solution
   c. element
   d. compound

18. A ____ is a homogenous mixture of particles so small they cannot be seen and will not settle to the bottom of their container.
   a. colloid
   b. solution
   c. element
   d. compound
Composition of Matter

Directions: Match the terms in Column II with the definitions in Column I. Write the letter of the correct term in the blank at the left.

Column I

1. heterogeneous mixture containing a liquid in which visible particles settle
2. contains two or more gaseous, liquid, or solid substances blended evenly throughout the mixture.
3. substance in which all atoms are alike
4. any material made of two or more substances that can be physically separated
5. the scattering of light by colloidal particles
6. heterogeneous mixture with larger particles that never settle
7. a mixture in which different materials can be easily distinguished
8. homogeneous mixture of particles so small they cannot be seen and will never settle to the bottom of their container
9. substance in which two or more elements are combined in a fixed proportion

Column II

a. Tyndall effect
b. colloid
c. heterogeneous mixture
d. mixture
e. element
f. suspension
g. solution
h. homogeneous mixture
i. compound

Directions: Fill in the table below with the element below that matches its description.

<table>
<thead>
<tr>
<th></th>
<th>silicon</th>
<th>lead</th>
<th>titanium</th>
</tr>
</thead>
<tbody>
<tr>
<td>ameridium</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>aluminum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>magnesium</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. radioactive metal
11. bendable and resists corrosion
12. found in windowglass and computer chips
13. found in chlorophyll
14. used in body implants
15. has a high density
Directions: Unscramble the terms in each of the following statements. Write the term in the blanks at the left of the statements and then circle the term in the word search puzzle.

1. A(n) ethgnesoeroe mixture has different materials that can be easily distinguished.

2. A homogeneous mixture with particles so small they cannot be seen without a microscope is a(n) tuolsion.

3. A(n) ssinnopseu is a liquid heterogeneous mixture in which visible particles settle.

4. A(n) ooudnmpc is a material made from atoms of two or more combined elements.

5. If all the atoms in a sample of matter are alike, that kind of matter is a(n) neemetl.

6. A(n) oogosuenehn mixture has two or more substances blended evenly throughout.

7. The scattering of light by colloids and suspensions is called the lyTdnal effect.

8. Size, shape, and melting point are hsypialc properties.

9. A burnt object has undergone a aheicmcl change.

10. The law of ionrtceason of mass states that mass is not gained or lost during chemical changes.

Word Search Puzzle:

B H H A T E R O G E N E O U S N
T E O P P R O L O N Z H C O I O
N P M I H M Q L L N C Y H I C I
R O O C O M P O U N D D E O P S
O C G O P E T I M C E R M G H N
C S E S A T R D E L M P I M Y E
C O N S E R V A T I O N C S S S P
E R E L E M E N T U L E A C I S
G T O I S T Y N D A L L I C U
I C U M C A T D M C R Y M S A S
E E S O L U T I O N L I B Y L I
Mixtures and Compounds

1. A physical combination of two or more kinds of matter is called a ________________.

2. A _______ mixture is one in which the components are uniformly mixed together.
   a. heterogeneous
   b. homogeneous

3. Elements and compounds are called ____________ substances because they cannot be separated by physical changes.

4. According to the concept map on page 393, both mixtures and pure substances can be ________.
   a. homogeneous
   b. heterogeneous
   c. compounds

5. A mixture of elements can be separated physically. List the letters of the ways a mixture of elements could be separated.
   a. passing electricity through the mixture
   b. using paper chromatography
   c. filtering
   d. cooling the mixture

6. Electric decomposition of ________ breaks it down into hydrogen and oxygen.
   a. any element
   b. any compound
   c. water

7. You can tell from the formula $\text{H}_2\text{O}$ that water has a ratio of two parts hydrogen to ________ oxygen.
   a. one part
   b. two parts
   c. three parts
Chemical Relations

Use the diagram to help you classify some common items as heterogeneous mixtures, homogeneous mixtures, elements, or compounds.

1. wet sand
2. water
3. aluminum
4. sugar
5. soda pop
6. air
7. hydrogen peroxide
8. newspaper
9. diamond
10. baking soda

11. The diagram indicates that the parts of a mixture can be separated by physical changes. Give two examples of ways to separate the parts of a mixture.

12. The elements that are combined in a compound cannot be separated except by chemical means. Give an example of a way to separate the elements in a compound.