

ELEMENTS, COMPOUNDS AND MIXTURES

Chapter 4

Draw an example of an

Element

compound

mixture

Section 1: Elements (pg 82)

Word:	Match the definition to the correct word
Element	A. elements that are dull (not shiny) and that are poor conductors of thermal and electrical energy
Pure substance	B. elements that have properties of both metals and nonmetals; sometimes referred to as semiconductors
Metals	C. a pure substance that cannot be separated or broken down into simpler substances by physical or chemical means
Nonmetals	D. a substance in which there is only one type of particle; includes elements and compounds
Metalloids	E. elements that are shiny and are good conductors of thermal and electrical energy; most metals are malleable and ductile

Section 1: Elements (pages 80 -85)

1. Read the story on page 80. What is one theory that explains how ice could have destroyed a thick steel plate?

2. **True or False (circle one):** A pure substance is a substance in which there is only one type of particle.
3. **True or False (circle one):** Most elements are not combined in nature.
4. **Copy figure 5 found on pg84 below:**

Name: _____ Pd. ____
Parent Signature: _____

Look at page 85. Use the chart to complete this:
 List some properties List some examples

Metals	
Nonmetals	
Metalloids	

Section 2: Compounds (pages 86–89)

1. What is a compound? _____

2. **True or False:** Most substances you encounter everyday are compounds.

3. **True or False:** The ratio of the mass of hydrogen to the mass of oxygen in water is always the same – 1g of hydrogen to 8g of oxygen, therefore, we write this ratio as 1:8 or 1/8.

4. Copy figure 7 found on page 87 below. Summarize the descriptions

5. List 4 kinds of compounds are found in nature? _____

6. List 4 kinds of compounds are found in industry? _____

Section 3: Mixtures (p 90-97)

1 Why is pizza a perfect example of a mixture? _____

2. According to the caption for figure 11, you can identify each component in a mixture because _____

3. Look at the pictures on page 91. There are many different ways to separate mixtures. What are some examples? _____

4. Mixtures:

Components are elements, compounds, or both.	Components _____ their original properties	Separated by _____ means	Formed using _____ ratio of components.
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Compounds:

Components are _____	Components _____ their original properties	Separated by _____ means	Formed using _____ ratio of components.
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5. Decide whether each definition is a **solution**, a **solute**, or a **solvent**. Write the answer on the line

_____ : the substance that is dissolved

_____ : the substance in which the solute is dissolved

_____ : a mixture that appears to be a single substance, but is composed of particles of two or more substances that are evenly distributed

6. Look at the picture on page 94. What's the difference between the two beakers?

7. **True or False (circle one):** Solubility of a solute is the amount of solute needed to make a saturated solution using a given amount of solvent at a certain temperature.

8. Define: Concentration: _____

9. Define: Solubility: _____

10. Look at figure 15. What are 3 ways to make something dissolve faster?

1. _____
2. _____
3. _____

11. Fill in the chart below. Use pages 96-97

	Definition	Describe the size of the particles	Examples
Suspension	_____ _____ _____ _____ _____ _____ _____		
Colloid	_____ _____ _____ _____ _____ _____ _____		

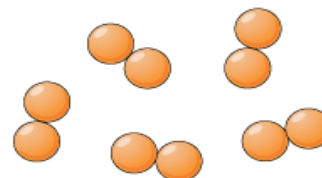
Compounds & Mixtures: Bite size (click on link off the web page)

http://www.bbc.co.uk/bitesize/ks3/science/chemical_material_behaviour/compounds_mixtures/activity/

1. How many different atoms are there in a compound?

- a. one b. always two c. two or more

2. Does this show an element, a mixture or a compound?



- a. compound
b. mixture
c. element

3. Which statement about atoms and molecules is correct?

- a. elements always exist as separate atoms.
b. elements always exist as pairs of atoms called molecules.
c. elements and compounds can exist as molecules.

4. Is water an element, compound or mixture? a. element b. compound c. mixture

5. Which is the best way to get salt from salty water?

- a. evaporation b. filtration c. distillation

6. Pure water can be separated from inky water by simple distillation, because:

- a. water and ink have different boiling points.
b. water evaporates leaving the ink particles behind.
c. ink evaporates leaving the water behind.

7. What is the correct order for obtaining salt from a mixture of sand and salt?

- a. dissolving in water - filtration - evaporation
b. evaporation - filtration - dissolving in water
c. filtration - dissolving in water - evaporation

8. Which method is usually used to separate colored substances from each other?

- a. simple distillation b. evaporation c. chromatography

9. Which of these three metals is the most reactive: potassium, iron or gold?

- a. potassium b. iron c. gold

10. Which of these three metals is the least reactive: iron, copper or platinum?

- a. iron b. copper c. platinum

11. Copper and oxygen react to form which compound?

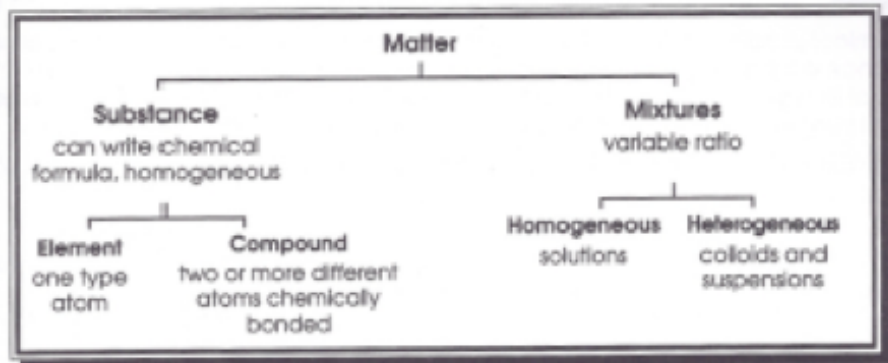
- a. copper oxygen b. copper oxide c. carbon dioxide

Identify these as: Colloid, Solutions or Suspensions??

1. grape jelly : _____	Choose from: a. Colloid b. solutions c. suspensions
2. instant coffee : _____	
3. muddy water : _____	
4. whipped cream: _____	
Match the properties listed to the right to one of these	1. : _____ components keep their original properties
a. mixtures b. compounds	2. : _____ components lose their original properties
	3. : _____ separated by physical means
	4. : _____ separated by chemical means
	5. : _____ tossed salad
	6. : _____ sugar water
	7. : _____ pizza

Matter: Substances vs Mixtures

All matter can be classified as either a substance (element or compound) or a mixture (homogeneous or heterogeneous)



Your job is to classify each of the following as to whether it is a **Substance** or a **Mixture**.
 If it is a Substance, write **Element** or **Compound** in the **Substance** column.
 If it's a Mixture, write **Homogeneous** or **Heterogeneous** in the **Mixture** column.

Type of Matter	Substance	Mixture
1. chlorine		
2. water		
3. soil		
4. sugar water		
5. oxygen		
6. carbon dioxide		
7. rocky road ice cream		
8. alcohol		
9. pure air		
10. iron		

Teach a parent #1: Today's concept is: Explain what an Element IS AND the 3 different types of Elements

Parent Response

- _____ I'm not sure my child really understands. Please work with him/her and let's try again.
- _____ The concept was explained thoroughly with examples he/she created.
 "By golly, I think they've got it!"
- _____ WOW! My child did an exceptional job! It was logically explained,
 Mom or Dad Comments: Please explain how your student taught you this concept and what you learned in 1-2 sentences!

Parent Signature: _____ Date: _____

Teach a parent #2: Today's concept is: Explain what a compound is AND how they can be broken down

Parent Response

- _____ I'm not sure my child really understands. Please work with him/her and let's try again.
- _____ The concept was explained thoroughly with examples he/she created.
 "By golly, I think they've got it!"
- _____ WOW! My child did an exceptional job! It was logically explained,
 Mom or Dad Comments: Please explain how your student taught you this concept and what you learned in 1-2 sentences!

Parent Signature: _____ Date: _____

Space for additional notes if wanted ☺
