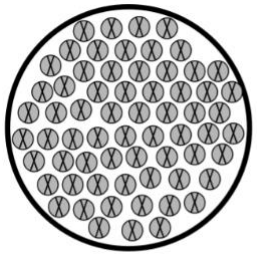
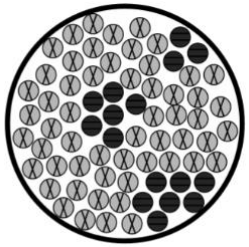
Learning About Pure Substances

Engage

Directions: Underline the phrases in the box that describe the particles in the circle.

 **A**	All particles are alike. All particles are NOT alike. All particles are the same throughout. All particles are NOT the same throughout. All particles are exactly the same. All particles are NOT exactly the same.
 **B**	All particles are alike. All particles are NOT alike. All particles are the same throughout. All particles are NOT the same throughout. All particles are exactly the same. All particles are NOT exactly the same.

Questions:

1. In which of the circles above are all the particles the same?

2. In a previous lesson you learned that substances can be combined and not change any physical properties. What are these called?

3. Which of the circles above show a mixture?

4. If you dissolve a substance in another substance what is it called?

Explore

Teacher Demo

Materials: baking soda, Damp Rid, 2 -250 mL beakers with 50 mL of water, plastic spoon

What To Do:

1. Observe the baking soda your teacher shows you. It is a compound with the chemical formula $NaHCO_3$. Are all the particles alike? _____
   Are all the particles the same throughout? _____
   Are all the particles exactly the same? _____

2. Observe the calcium chloride your teacher shows you. It is a compound with the chemical formula $CaCl_2$. Are all the particles alike? _____
   Are all the particles the same throughout? _____
   Are all the particles exactly the same? _____

3. Observe the beakers of water your teacher shows you. It is a compound with the chemical formula H_2O. Are all the particles alike? _____
   Are all the particles the same throughout? _____
   Are all the particles exactly the same? _____

4. Your teacher will now mix half a small spoon of baking soda in one of the beakers of water until it is clear. What is this type of combination called? _____

5. Your teacher will now mix half a small spoon of $CaCl_2$ (Damp Rid) in the other beaker of water. What is this type of combination called? _____

6. Your teacher will now pour the solution of baking soda into the solution of Damp Rid. Observe what happens.

7. Draw your observations on the next page.

Observations:

1. In the beakers below draw what happened in the demonstration.

Your teacher will keep it overnight and you will

Baking soda water	Calcium chloride and water	Calcium Carbonate, salt and water

observe it again tomorrow.

Questions:

1. Describe what you observe in the beaker after it sat for at least 24 hours.

_____

2. In the demonstration your teacher mixed two clear solutions together. Where do you think the solid in the bottom of the beaker came from?

_____

3. Which of the substances you saw during the demonstration were exactly the same throughout?

_____

Explain

CLASSIFICATION OF MATTER

MIXTURE

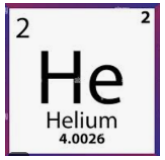
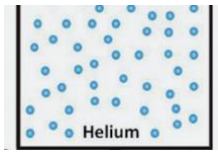
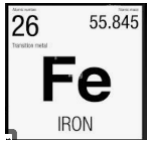
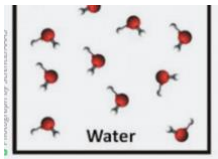
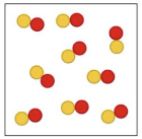
SOLUTION

PURE SUBSTANCE

Elaborate

In an earlier lesson you learned about the Periodic Table of Elements. Elements can be by themselves or combined into compounds. Elements can be combined together to form mixtures and dissolved in a liquid to become a solution.

Directions: Look at each of the substances below and determine if they are a pure substance or a mixture.

Symbol or Formula	Picture	Pure Substance or Mixture?
		
		
H_2O		
CO		

Finish the following statement:

Elements and compounds are all _____

Evaluate

Name _____ period _____

EXIT TICKET

Learning About Pure Substances

Directions: Use the words in the Word Bank to fill in the concept map below.

WORD BANK

Pure substance	Matter	Mixture	Compound
Element	Homogenous	Heterogenous