

## Matter Lesson 3



**Learning Goal 4:** I can classify examples and particles illustrations of matter as a pure substance (element), pure substance (compound), mixture (homogeneous), or mixture (heterogeneous).

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👋 *Ask your teacher for the three handouts and three card sets that accompany this lesson.*

### Vocabulary!

Matter is composed of small particles.  
Particles are composed of one or more atoms.

👁️ *Look at the handout titled "Elements and Compounds".*

This handout illustrates two types of particles called elements and compounds.

★ The atoms in the particles are represented by different shapes.

👁️ Compare the atoms in the element particles to the atoms in the compound particles.

? What do you think is the main difference between the atoms in the element particles and the atoms in the compound particles?

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👋 *Open the envelope labeled "Elements and Compounds Card Set".*

This card set contains twelve cards which illustrate element and compound particles.

★ The atoms in the particles are represented by different shapes.

✎ Sort the cards into two groups based on whether the particles on each card are element particles or compound particles.

When you have finished, ask your teacher to check your card sort.

? Sketch the results of your card sort in the boxes below:

### Elements

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### Compounds

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*Vocabulary!*

Element particles are composed of individual or identical atoms.

Compound particles are composed of two or more different atoms.



✎ *Return again to the handout titled “Elements and Compounds” and look at the compound particles on the bottom half of the card.*

👁 Notice that compound particles are composed of two or more different element particle atoms.

For example, Substance G is a compound composed of two different element particle atoms symbolized by a circle and a square.

Element Particles



Compound Particle



? *Using square, circle, and triangle shapes to represent element particle atoms, construct the indicated compound particles in the boxes below. The first one has been done for you.*

Element Atoms



Make a compound with: 2 of one element and 1 of another element



Make a compound with: 2 of one element and 3 of another element

Make a compound with: 2 of one element and 2 of another element

Make a compound with: 3 different elements



👉 Look at the handout titled "Pure Substances and Mixtures".

This handout illustrates two types of substances called pure substances and mixtures.

☆ The atoms in the particles are represented by different shapes.



## Mixtures

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*Vocabulary!*

***Pure Substances*** are composed of particles that are all identical.

**This includes substances that are:**

- composed of all identical element particles.
- composed of all identical compound particles.

*Vocabulary!*

***Mixtures*** are composed of particles that are NOT all identical.

**This includes substances that are:**

- composed of two or more different element particles.
- composed of two or more different compound particles.
- composed of both element and compound particles.

↔  
👉 *Open the envelope labeled "Mixtures Card Set".*

This card set contains twelve cards which illustrate mixtures of different types of particles.

★ **The atoms in the particles are represented by different shapes.**

👉 Sort the cards into three groups based on whether the mixtures

are composed of two or more different elements, two or more different compounds, or both elements and compounds.

When you have finished, ask your teacher to check your card sort.

? Sketch the results of your card sort in the boxes below.

**Mixtures of Different Elements**

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**Mixtures of Different Compounds**

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**Mixtures of Both Elements and Compounds**

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? *Using the element and compound particles shown below, construct the indicated pure substances and mixtures in the following boxes. The first one has been done for you.*

Elements

Compounds



Mixture of 3 different elements	Mixture of 2 different compounds	Pure substance made of compounds	Mixture of 1 compound, 1 element
Pure substance made of elements	Mixture of 2 different compounds,	Mixture of 2 different elements, 1 compound	Mixture of 3 different compounds



👉 Look at the handout titled “Homogeneous and Heterogeneous Mixtures”.

This handout illustrates two types of mixtures called homogeneous and heterogeneous mixtures.

★ The atoms in the particles are represented by different shapes.

🔍 Compare the arrangement of particles in homogeneous mixtures to the arrangement of particles in heterogeneous mixtures.

? What do you think is the main difference between the arrangement of particles in homogeneous mixtures and the arrangement of particles in heterogeneous mixtures?

👉 *Return to the card set titled “Mixtures Card Set”.*

👉 Re-sort this card set into two groups based on whether the cards illustrate homogeneous mixtures or heterogeneous mixtures.

When you have finished, ask your teacher to check your card sort.

? Sketch the results of your card sort in the boxes below:

**Homogeneous Mixtures**

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**Heterogeneous Mixtures**

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*Vocabulary!*

***Homogeneous Mixture:*** The particles are evenly distributed throughout the mixture.

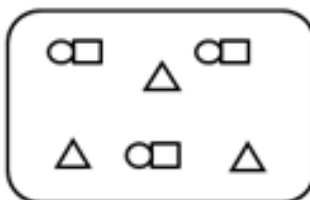
***Heterogeneous Mixture:*** The particles are NOT evenly distributed throughout the mixture.





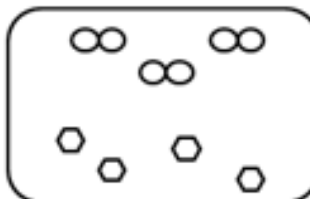
? Classify each substance below as a particular type of matter by coloring or circling the appropriate boxes. The first one has been done for you.

Pure Substance	
Element (E)	Compound (C)



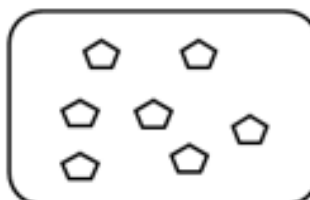
Mixture					
Heterogeneous			Homogeneous		
E	C	E&C	E	C	E&C

Pure Substance	
Element (E)	Compound (C)



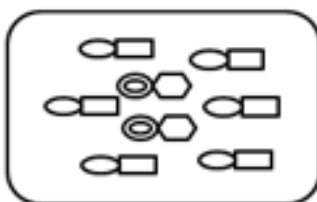
Mixture					
Heterogeneous			Homogeneous		
E	C	E&C	E	C	E&C

Pure Substance	
Element (E)	Compound (C)



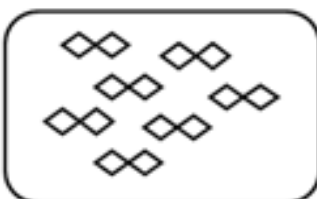
Mixture					
Heterogeneous			Homogeneous		
E	C	E&C	E	C	E&C

Pure Substance	
Element (E)	Compound (C)



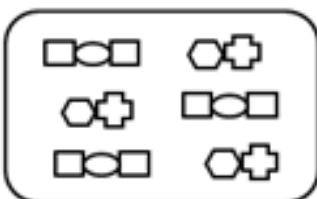
Mixture					
Heterogeneous			Homogeneous		
E	C	E&C	E	C	E&C

Pure Substance	
Element (E)	Compound (C)



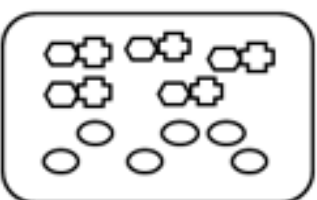
Mixture					
Heterogeneous			Homogeneous		
E	C	E&C	E	C	E&C

Pure Substance	
Element (E)	Compound (C)



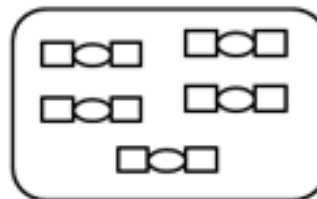
Mixture					
Heterogeneous			Homogeneous		
E	C	E&C	E	C	E&C

Pure Substance	
Element (E)	Compound (C)



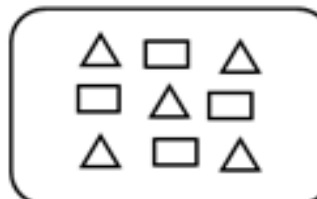
Mixture					
Heterogeneous			Homogeneous		
E	C	E&C	E	C	E&C

Pure Substance	
Element (E)	Compound (C)



Mixture					
Heterogeneous			Homogeneous		
E	C	E&C	E	C	E&C

Pure Substance	
Element (E)	Compound (C)



Mixture					
Heterogeneous			Homogeneous		
E	C	E&C	E	C	E&C

👉 *Ask your teacher for the set of task cards titled “Matter - Set 3”. You will also need a copy of the “Matter - Set 3 Task Card Answer Sheet”.*

? Record your answers on the Task Card Answer Sheet. Be sure that you indicate the color of your task cards.

## *Classification of Matter*

### *Study Sheet - Page 1*

### *Vocabulary*

***Matter:*** anything with mass and volume; matter is composed of small particles

***Particle:*** very small pieces of matter; particles are composed of atoms

***Atom:*** tiny pieces of matter that compose particles

***Element:*** a particle composed of a single atom or more than one identical atoms

***Compound:*** a particle composed of two or more different atoms

***Pure Substance:*** a substance composed of identical particles; pure substances contain identical element particles or identical compound particles

***Mixture:*** a substance composed of two or more different particles; mixtures may contain different element particles, different compound particles, or both element and compound particles

*Homogeneous Mixture:* a mixture whose particles are evenly distributed throughout the mixture

*Heterogeneous Mixture:* a mixture whose particles are unevenly distributed throughout the mixture

*Classification of Matter*  
*Study Sheet - Page 2*

**Matter**  
Composed of particles

**Pure Substances**  
Particles are identical

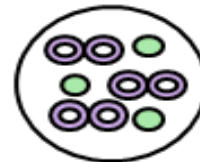
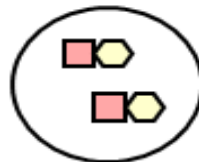
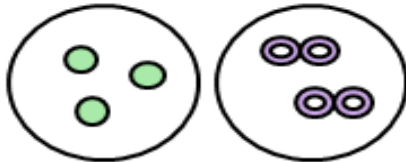
**Mixtures**  
Particles are NOT identical

**Elements**  
Particles are composed of identical atoms

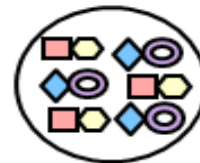
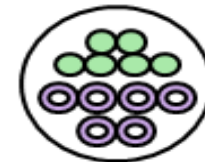
**Compounds**  
Particles are composed of different atoms

**Homogeneous**  
Particles are evenly distributed

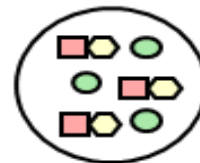
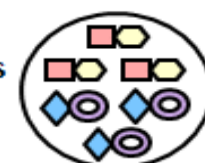
**Heterogeneous**  
Particles are NOT evenly distributed



Elements



Compounds



Elements  
&  
Compounds

