



Science Virtual Learning

**6th Grade Science:**

**Pure Substances and Mixtures**

May 13, 2020



## 6th Grade Science

### Lesson: May 13, 2020

### **Objectives/Learning Targets:**

Students will identify pure substances and mixtures and explain the difference between them.

## Warm Up

1. Watch this [video](#) to explore what is in a mixture.



2. On your piece of paper, list stuff that you use daily that is made up of more than one substance.

Examples: kool-aid, cereal, salad, soup, laundry. Can you think of any more?

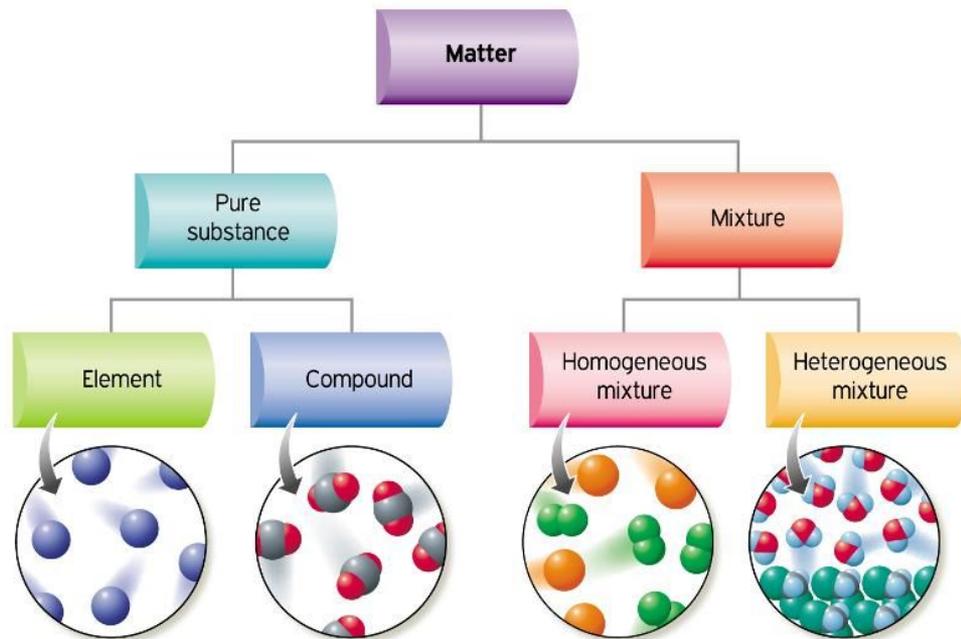
## Background Information

**Pure substance:** Composed of one type of element or compound, cannot be separated physically

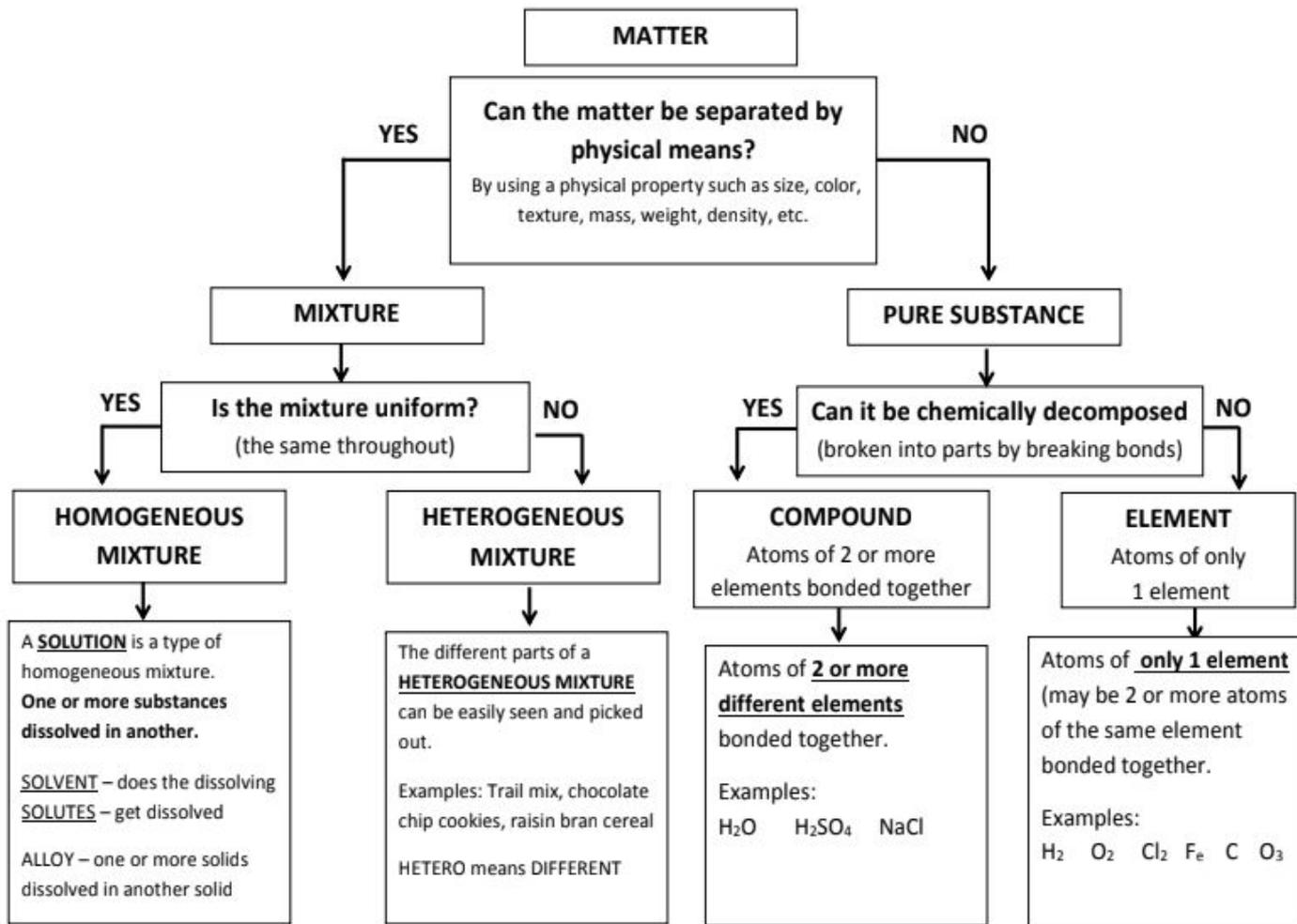
- **Element:** Composed of 1 type of atom
- **Compound:** Composed of 2 or more elements

**Mixture:** Composed of various elements and/or compounds that can be physically separated

- **Homogeneous:** The same throughout
- **Heterogeneous:** Varied throughout



## CLASSIFICATION OF MATTER FLOW CHART – “WHAT’S THE MATTER”



### Examples

#### Pure Substances

- Element: Al, H<sub>2</sub>
- Compound: H<sub>2</sub>O

#### Mixtures

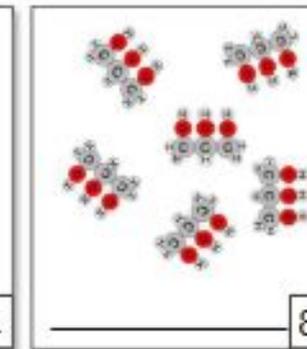
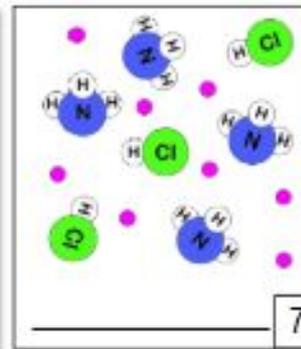
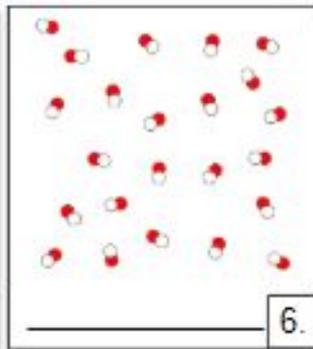
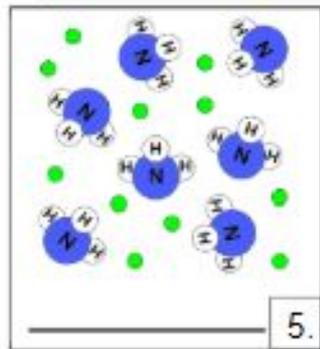
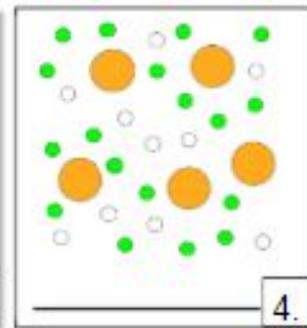
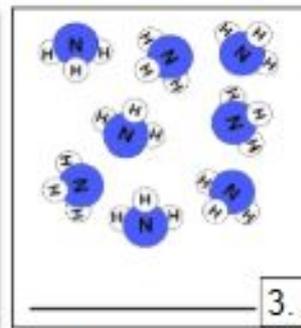
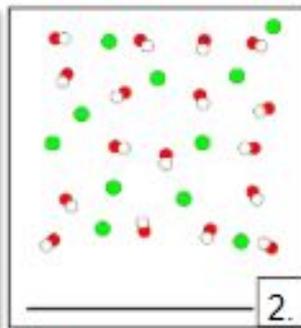
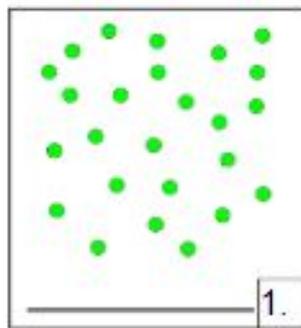
- Homogeneous: Lemonade, Salt water
- Heterogeneous: Pizza, Trail mix

## Practice

On a separate sheet of paper, identify if the image represents a pure substance or mixture.

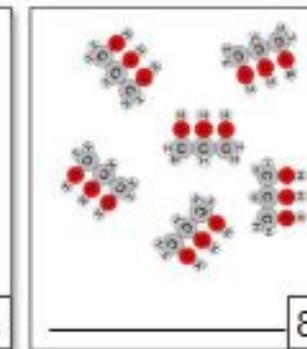
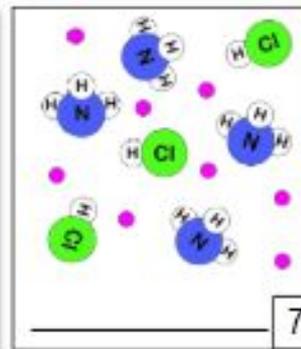
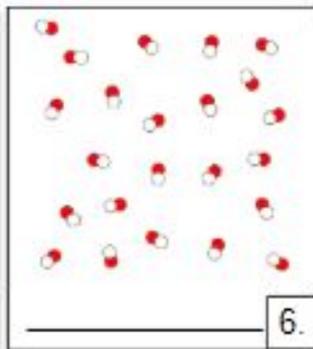
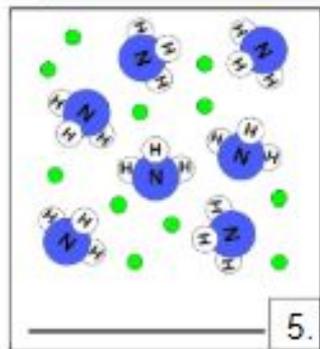
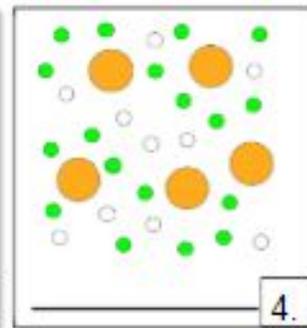
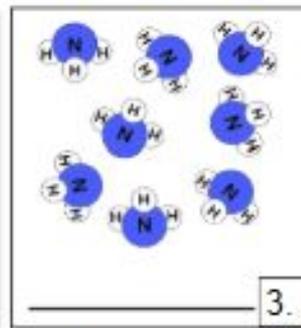
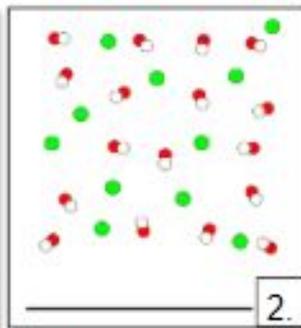
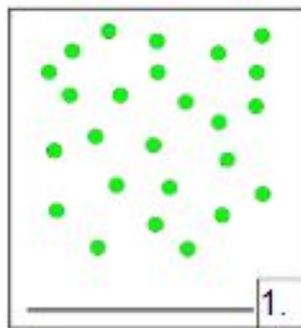
Take this further & identify which type of pure substance or mixture it is (*i.e. element, compound, homogeneous, heterogeneous*).

Refer to the background information for help!



## Practice - Answer Key

1. Pure substance - Element
2. Mixture (of elements & compounds) - homogeneous
3. Pure substance - Compound
4. Mixture (of elements) - homogeneous
5. Mixture (of elements & compounds) - homogeneous
6. Pure substance - Compound
7. Mixture (of elements & compounds) - homogeneous
8. Pure substance - compound



## Practice

- In the first column determine if the material is a pure substance or mixture.
- In the second column, if the material was a Pure Substance identify if it is an element or compound. If the material was a mixture, determine if it is homogeneous or heterogeneous.

<i>Material</i>	<i>Pure Substance or Mixture</i>	<i>Element, Compound, Homogeneous, Heterogeneous</i>
concrete		
sugar + pure water ( $C_{12}H_{22}O_{11} + H_2O$ )		
iron filings (Fe)		
limestone ( $CaCO_3$ )		
orange juice (w/pulp)		
Pacific Ocean		
air inside a balloon		
aluminum (Al)		
magnesium (Mg)		
acetylene ( $C_2H_2$ )		
tap water in a glass		
soil		

## Practice - Answer Key

- In the first column determine if the material is a pure substance or mixture.
- In the second column, if the material was a Pure Substance identify if it is an element or compound. If the material was a mixture, determine if it is homogeneous or heterogeneous.

<i>Material</i>	<i>Pure Substance or Mixture</i>	<i>Element, Compound, Homogeneous, Heterogeneous</i>
concrete	Mixture	Heterogenous
sugar + pure water ( $C_{12}H_{22}O_{11} + H_2O$ )	Mixture	Homogenous
iron filings (Fe)	Pure Substance	Element
limestone ( $CaCO_3$ )	Pure Substance	Compound
orange juice (w/pulp)	Mixture	Heterogenous
Pacific Ocean	Mixture	Homogenous
air inside a balloon	Mixture	Homogenous
aluminum (Al)	Pure Substance	Element
magnesium (Mg)	Pure Substance	Element
acetylene ( $C_2H_2$ )	Pure Substance	Compound
tap water in a glass	Mixture	Homogenous
soil	Mixture	Heterogenous



## Additional Practice

1. Complete the read and respond [worksheet](#), then check your [answers](#).
2. Watch this [video](#) for a detailed explanation of the types of matter. Try out the practice problems at the end.
3. Check out this [video](#) with a cool experiment at the end!