Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Homeroom: \_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_ **2.5**

**Compounds vs. Mixtures (SPI.9.4)**

|  |  |
| --- | --- |
| ***Key Point*** | ***Notes*** |
| **Compounds** | * Two or more \_\_\_\_\_\_\_\_\_\_\_\_\_ **elements** are *\_\_\_\_\_\_\_\_\_\_\_\_ joined*
* When they are chemically combined, new chemical \_\_\_\_\_\_ form between them
* The characteristics (properties) of a compound are \_\_\_\_\_\_\_\_\_\_\_\_ than the characteristics (properties) of their component parts (of the elements that make them up).
* A compound is a completely \_\_\_\_\_ substance or product
* Compounds have a definite \_\_\_\_\_\_\_. If I change the ratio, I completely change the properties of a compound.
* Examples of compounds:
 |
| **Mixtures** | * Two or more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are physically combined
* The substances in a mixture \_\_\_\_\_\_\_\_\_\_ (keep) the properties that they originally had
* Physical properties can change, but there is \_\_\_\_\_ new substance that is formed
* No new chemical bonds are formed
* Can be \_\_\_\_\_\_\_\_\_\_ separated into distinct parts
* Examples of mixtures:
 |
| **Heterogeneous Mixtures** | * Heterogeneous Mixture
	+ A mixture that DOES NOT appear the same throughout
	+ Hetero=\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ Examples:
		1. Granite, chex mix, oil and water
 |
| **Homogeneous Mixtures** | * Homogenous Mixture:
* A mixture that appears the same (\_\_\_\_\_\_\_\_\_\_\_) throughout
* Homo=same
* Examples:
	+ 1. Salt water
		2. Stainless steel
* Three types of homogeneous mixtures:
* A **solution** is a mixture that appears to be a \_\_\_\_\_\_\_\_ substance.
* In a solution, the **solute** is the substance that is \_\_\_\_\_\_\_\_\_\_\_\_\_. The **\_\_\_\_\_\_\_\_\_\_** is the substance in which the solute is dissolved.
* Examples of solutions:
* Liquid solutions: soft drinks, gasoline, and tap water.
* Gas solution: air.
* Solid solution: steel.
* **Alloys** are \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of metals or nonmetals dissolved in metals.
* A **suspension** is a mixture in which particles of a material are dispersed throughout a liquid or a gas but are large enough that they \_\_\_\_\_\_\_ out.
* A **colloid** is a mixture in which the particles are \_\_\_\_\_\_\_\_\_\_\_\_\_ throughout but are not heavy enough to settle out.
 |
| **So What?!** | *Use your critical thinking skills to relate what we have learned today to the real world around us. Why is learning about mixtures and compounds important to our everyday life?:* |

 **“I Own This” (Independent Practice):**

*Use the picture of cooking oil and water below to answer questions 1-5.*

1. Is a combination of oil and water a mixture or compound?
2. Is the oil and water physically or chemically combining?
3. What evidence do you have to justify your answer.
4. Are chemical bonds formed when these substances are combined?
5. Is oil and water a heterogeneous or homogeneous mixture? Why?

*Use the diagram of glucose to the right to answer questions 6-8.*

6. Was glucose physically or chemically combined?

7. What elements combined to form glucose?

8. If you changed the ratio of atoms to 6C: 4H: 1O, would the properties of glucose change?

1. *Fill in the following table to correctly distinguish between compounds and mixtures:*

|  |  |  |
| --- | --- | --- |
|  | **Compound** | **Mixture** |
| How are they combined? | Chemically |  |
| Are *chemical bonds* formed between atoms when they are created? |  | No! |
| Is a new substance formed? | Yes! |  |
| Do the characteristics (properties) of the substances that make them up change when they are formed? |  |  |
| Do ratios matter? |  |  |
| Examples: |  |  |

10. What is the difference between a homogeneous and a heterogeneous mixture?