

# MIXTURES & SOLUTIONS

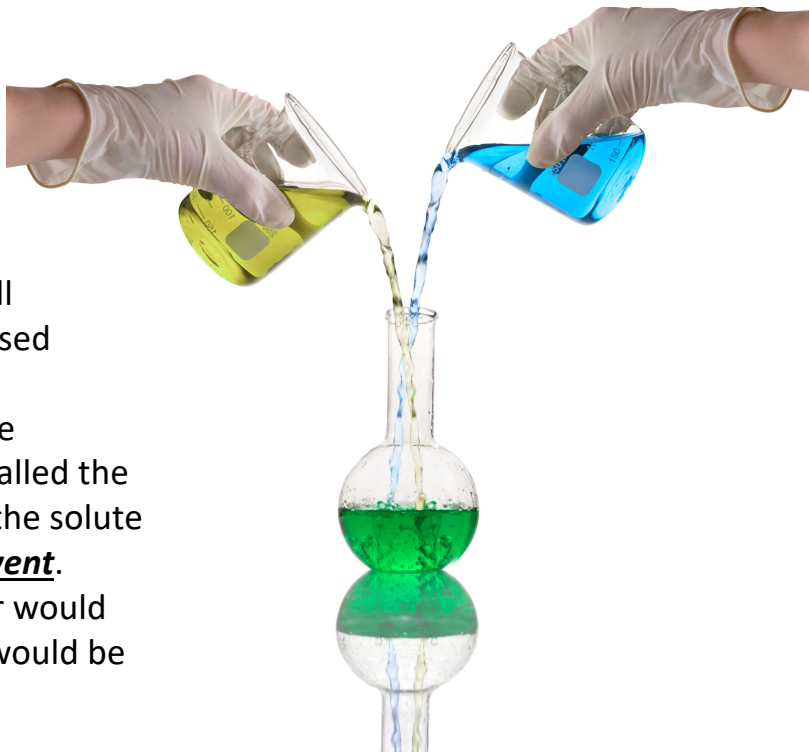
## (LET'S MIX THINGS UP)

When elements and compounds are mixed together but do not **bond** chemically, mixtures and solutions are formed. Although both mixtures and solutions are formed when elements and compounds are mixed, they are different in several ways.

- (5) A **mixture** is formed when different materials are mixed together, but they do not bond to form compounds. In most cases, the different materials in mixtures actually keep their own properties and can be easily separated. One good example of this would be a mixture of sand and metal shavings. Although they would be mixed together, a magnet could be used to separate the metal from the sand. Virtually all foods you eat are mixtures of different materials.

If you mix together a bottle of sand and water and let it sit, the sand will eventually settle to the bottom of the bottle. In contrast, if you mix some salt into a bottle of water, the salt will not settle to the bottom. Instead, the salt will slowly dissolve in the water

- (15) and spread out evenly throughout the bottle. Salt and water make a special type of mixture called a **solution**. A solution
- (20) is a type of mixture where all of the substances are dispersed evenly, or **homogeneously**, throughout the mixture. The substance that dissolves is called the
- (25) **solute**. The substance that the solute dissolves in is called the **solvent**. In the example above, water would be the solvent and the salt would be the solute.



**Blue and yellow liquid being mixed to form a green solution**

- (30) One property of matter is solubility. **Solubility** is how

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much of a given substance can be dissolved by a solvent at a set temperature. When the temperature of a solution is increased it is capable of dissolving more solute.

Scientists sometimes describe solutions as being either saturated, concentrated, or dilute. A ***saturated*** solution is one that contains the maximum amount of solute the solution is capable of holding without increasing the temperature. Similar to a saturated solution, a concentrated solution has a very high amount of solute but has not yet reached the full level of saturation. In contrast to a saturated or concentrated solution, a dilute solution is capable of holding much more solute before becoming saturated.

Most every type of matter we encounter from day to day is part of a mixture or solution. Mixtures and solutions are an integral part of our everyday lives. Some can even be delicious!



**A Mixture of different kinds of seeds.**