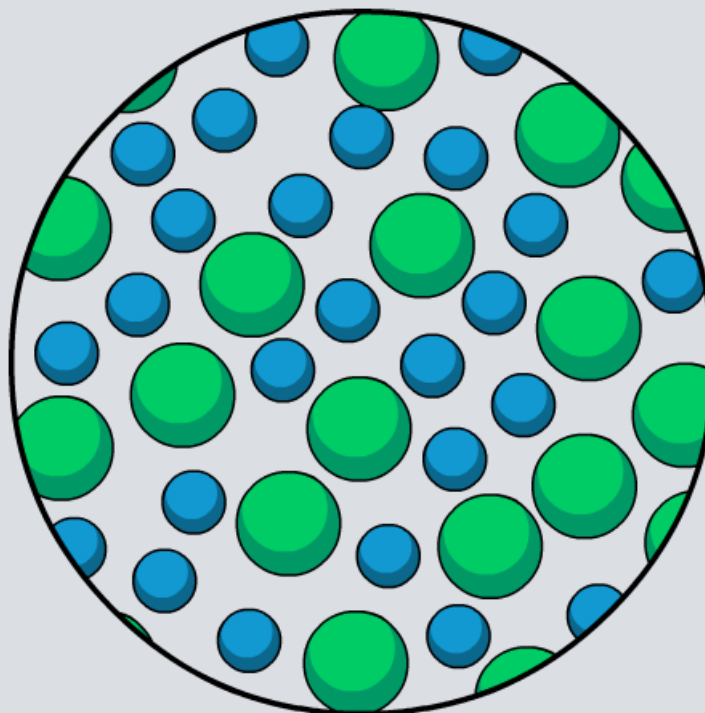


## Solutions



A **mixture** is two or more substances that are mixed together but not chemically joined.

A **solution** is a special type of mixture that is made when a solid dissolves and mixes with a liquid.

For example, a cup of instant coffee is a solution.

The solid that dissolves (e.g. coffee granules) is called the **solute**.

The liquid that does the dissolving (e.g. hot water) is called the **solvent**.



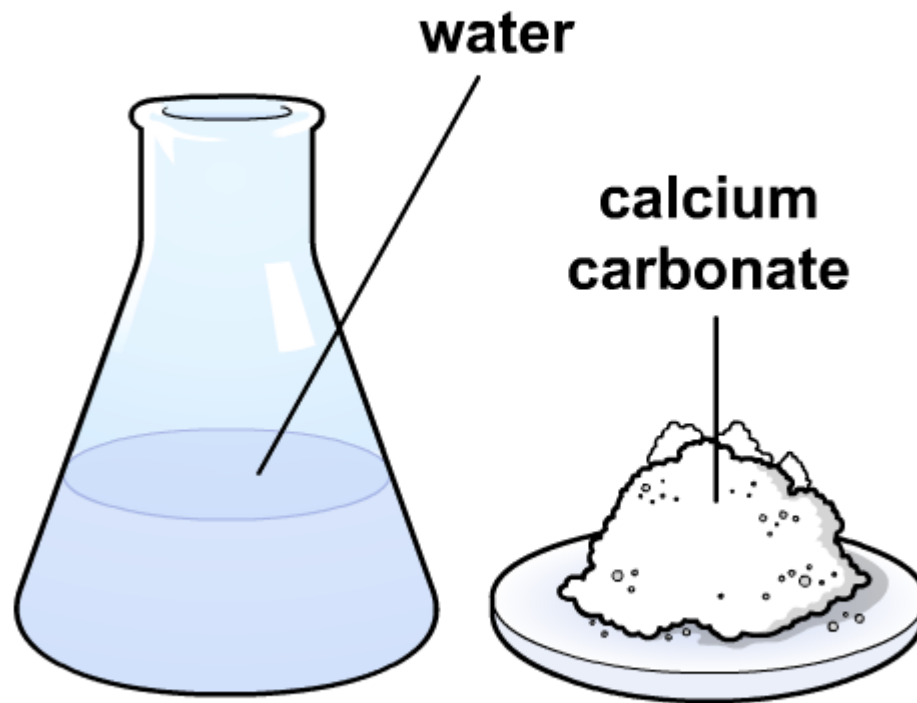
How many other examples of solutions can you think of?



## Are calcium carbonate and copper sulfate soluble in water?

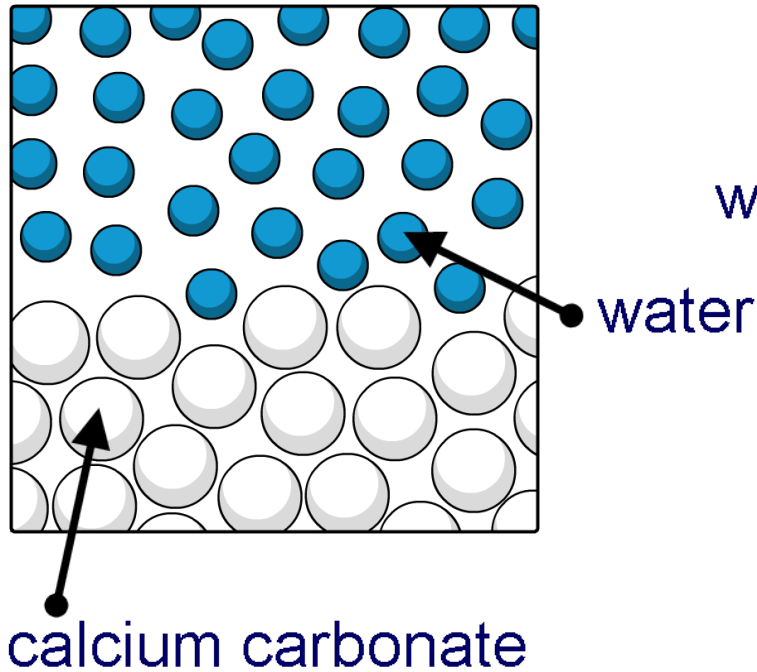
What happens when calcium carbonate and copper sulfate are mixed with water?

Click "**play**" to find out.

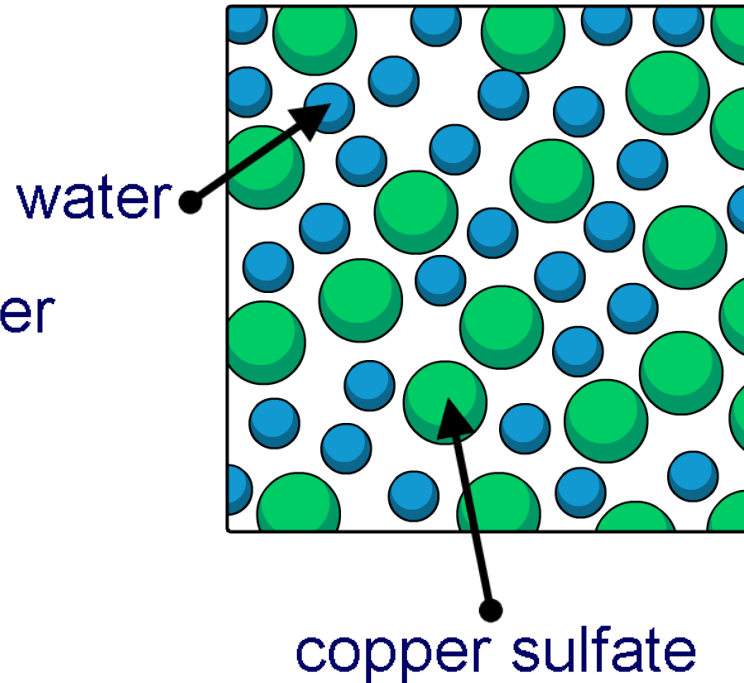


# What is solubility?

Calcium carbonate is not soluble in water because the calcium carbonate and water particles are not able to mix.



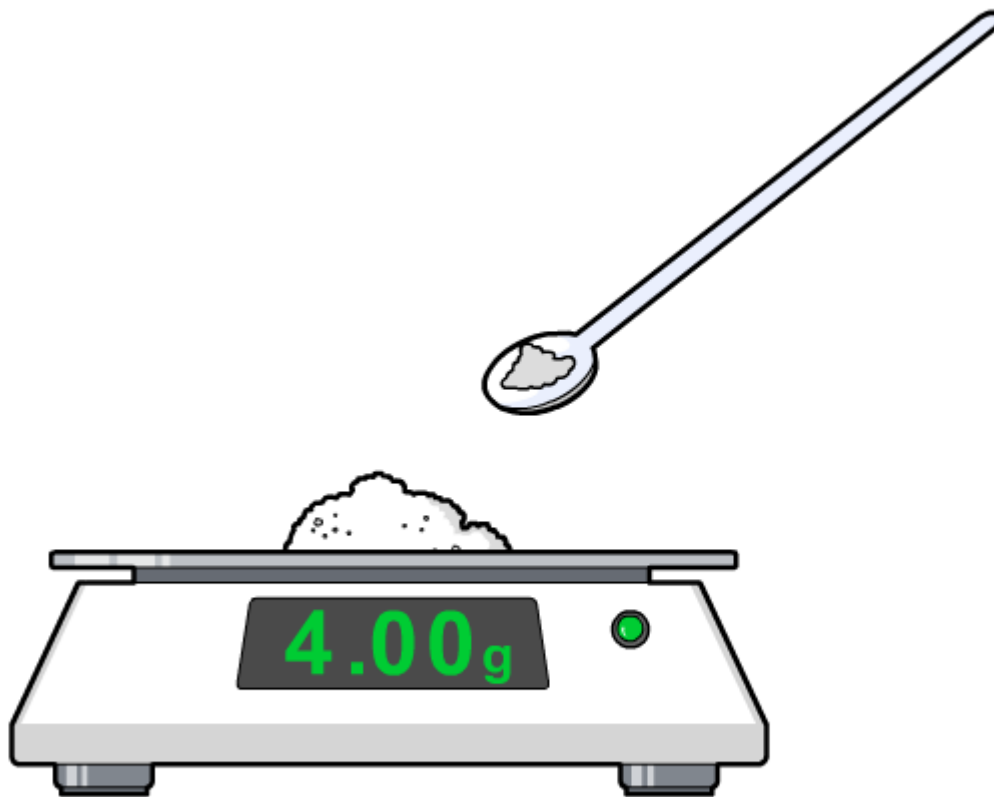
Copper sulfate is soluble in water because the copper sulfate and water particles are able to mix.



## What is conservation of mass?

Can all of a solid be recovered once it has been dissolved in a solution?

Click "**start**" to find out.

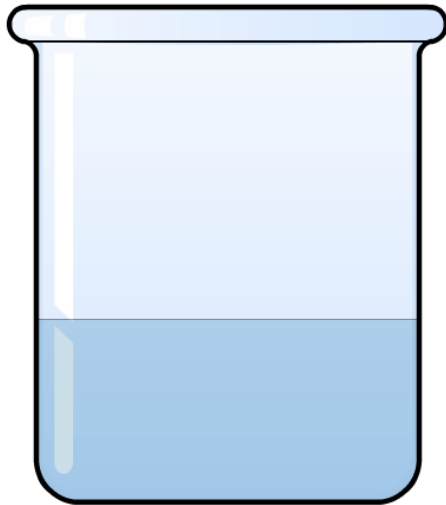


start



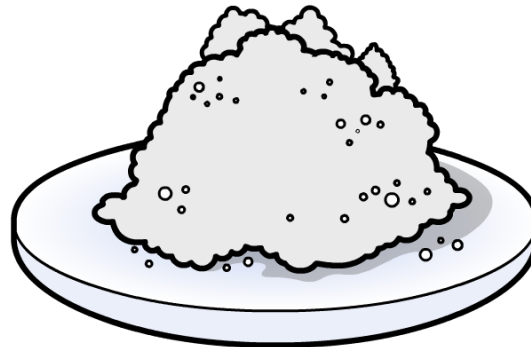
# Conservation of mass

If 10g of salt is added to 50g of water, what is the mass of the solution?

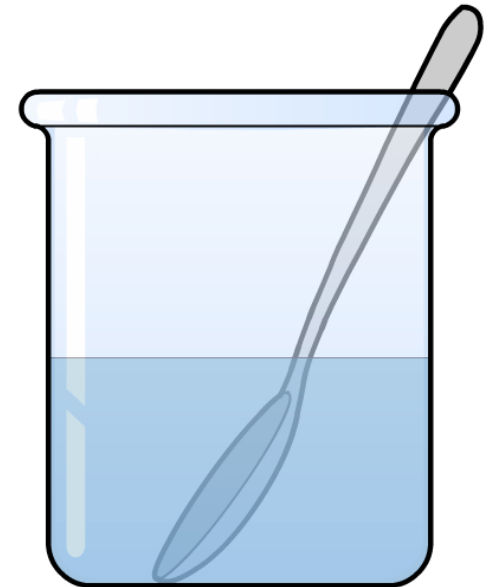


50 g

+



10 g



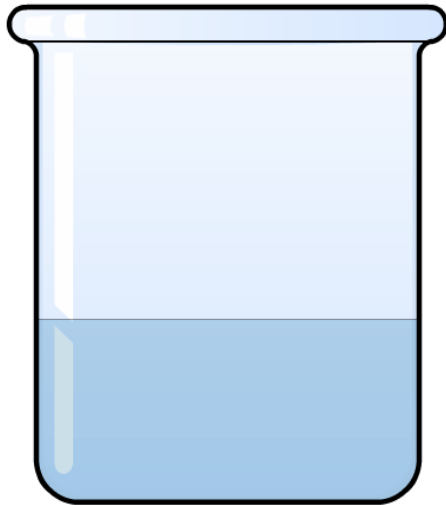
60 g

How much salt will be recovered if the mixture is separated by evaporation?



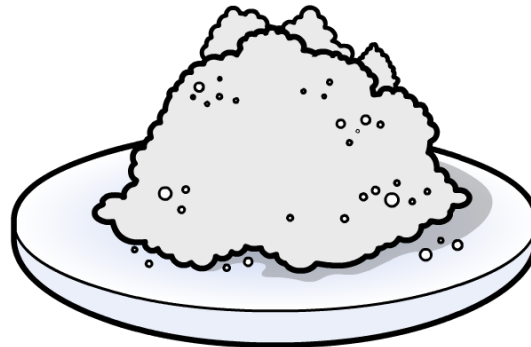
# Conservation of mass – extension

If 10g of salt is added to 50g of **sea water**, what is the mass of the solution?



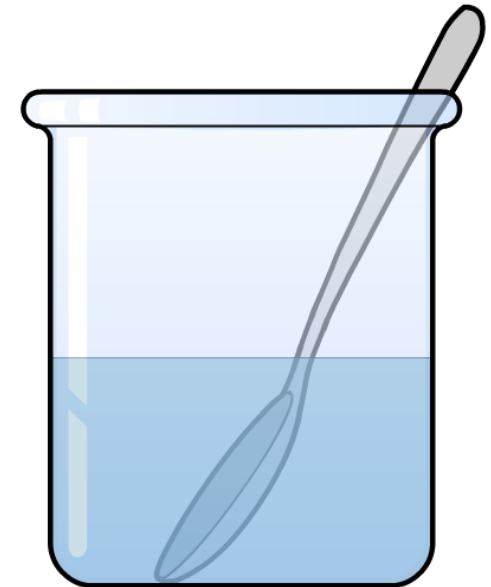
50 g

+



10 g

→



60 g

How much salt will be recovered if the mixture is separated by evaporation?



## Does a solid keep dissolving?

When a spoonful of sugar is added to hot tea it dissolves.

But what would happen if you tried to pour a whole bag of sugar into the tea?

Click "**play**" to find out.





# How does temperature affect solubility?

Does sugar dissolve in cold tea?

The sugar does dissolve, but not as much as in a cup of hot tea.

The sugar is more soluble at higher temperatures.

The amount of a solute that can dissolve at a given temperature is called its **solubility**.



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How does temperature affect the solubility of a substance?

**The solubility of a substance usually increases as the temperature increases.**

