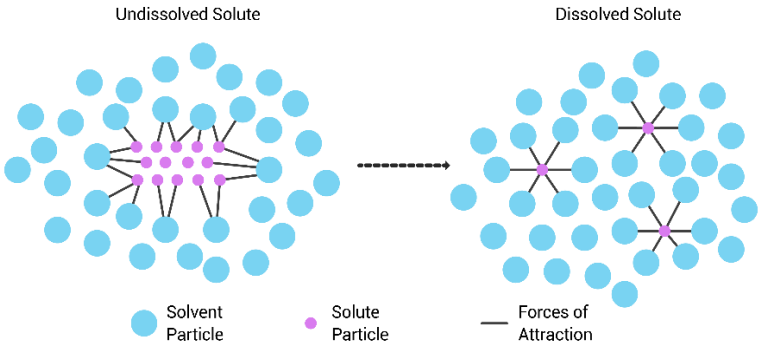
Name: _____ Period: _____ Date: _____

Solubility Guided Notes – Student Edition

Dissolving

When sugar is stirred into a glass of water, it seems to _____ in the water. This process is called _____. The solid particles are in a _____ arrangement with the liquid particles moving _____ around them. The attractive _____ between the outer-most solid particles and the liquid particles cause these solid particles to be released into the _____. Over time, all the particles in the solid will be dispersed through the liquid particles, forming a _____.

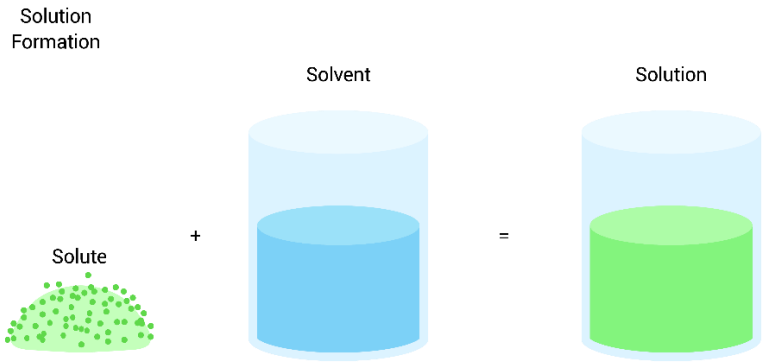


Dissolving is different from melting because there are _____ substances involved, which are mixed. In melting, there is only _____ substance involved which is changing _____.

Solutions

Solutions are a special type of mixture which looks and behaves like a _____substance. A solution is made up of two parts:

1. The solute – the substance that _____. E.g. sugar
2. The solvent – the substance that does the _____. E.g. water



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Not all _____ can dissolve in every solvent. For example, salt (solute) is soluble in water (solvent) but is insoluble in alcohol. Water is often referred to as the universal solvent as it can dissolve _____ solutes. The table below shows some examples of solutes and their solvents.

Solute (dissolves in the solvent)	Solvent (dissolves the solute)
Nail polish	Nail polish remover (acetone)
Oil-based paint	Turpentine
Tar	Kerosene
Ink	Methylated spirits

Soluble and Insoluble

A substance that dissolves is termed _____, whereas substances which do not dissolve are called _____. Substances which partly dissolve are termed 'partially soluble'. Insoluble substances behave differently when placed in a solvent.

For example:

When ink is added to water, it will sit in the water and eventually settle out.

Oil will float to the top because it is _____ dense than water.

Fruit juice separates and the pulp sinks to the bottom of the container because it is more _____ than water.

Some insoluble substances, such as chalk look as though they dissolve because they make the water cloudy, but after a while, these too will settle out and separate if left to stand. These mixtures are called suspensions rather than solutions.

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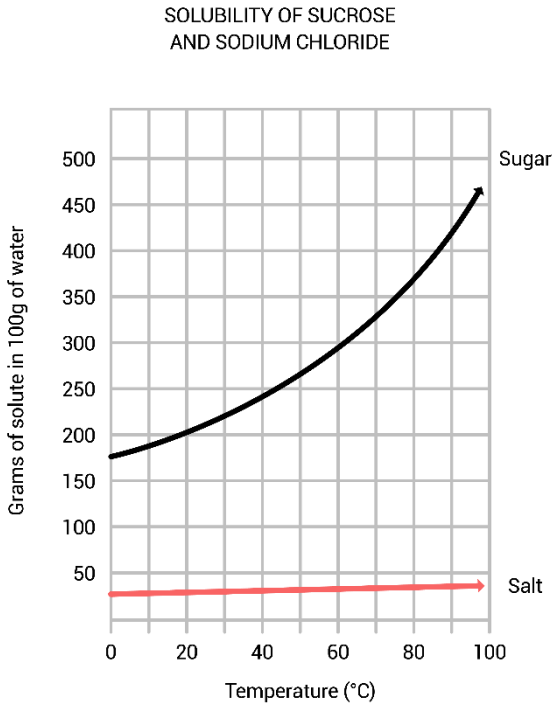
Two liquids can also form a solution. For example, the fuel which powers outboard motors and lawnmowers is a solution of _____and oil.

Solubility

Some substances readily dissolve in a _____, while other take much longer. How well a substance (_____) dissolves is called its solubility. Solubility is measured by the amount (in _____) of the solute which will dissolve in 100 grams of liquid/solvent. Solubility depends on the _____of both the solute and the solvent as well as the _____ of the solvent. As temperature increases, more solid will dissolve.

Solubility Curves

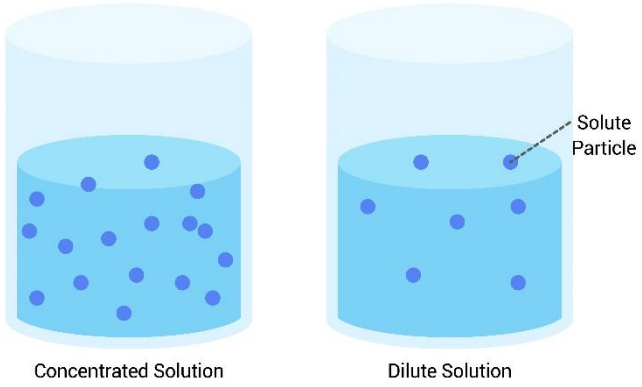
The solubility of a substance at different temperatures can be plotted on a solubility curve. This graph shows the number of grams of _____ (e.g. sugar or salt) that will dissolve in 100 grams of solvent e.g. _____, against the _____ of the solvent. The graph to the right shows the solubility curve for sugar and salt.



For sugar (sucrose), as the temperature increases, the amount of sugar which can be dissolved into the water also _____. Salt, by contrast remains _____ regardless of how much the water is heated.

Dilute vs Concentrated

Solutions which have a small amount of solute dissolved in them per volume are called dilute solutions. These solutions are said to have a _____ concentration of solute, or _____ particles per volume. Solutions which have a high amount of solute dissolved into them are called concentrated solutions and are described as having a _____ concentration or many solute particles per volume. When no more solute will be dissolved the solution is said to be '_____'.



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