C2.1.4 Filtration and crystallisation

Lesson Objectives

- Recall what the key terms soluble, solute, solvent, solution and saturated mean
- Describe the process of crystallisation and filtration
- Explain how crystallisation and filtration are used to obtain pure chemicals

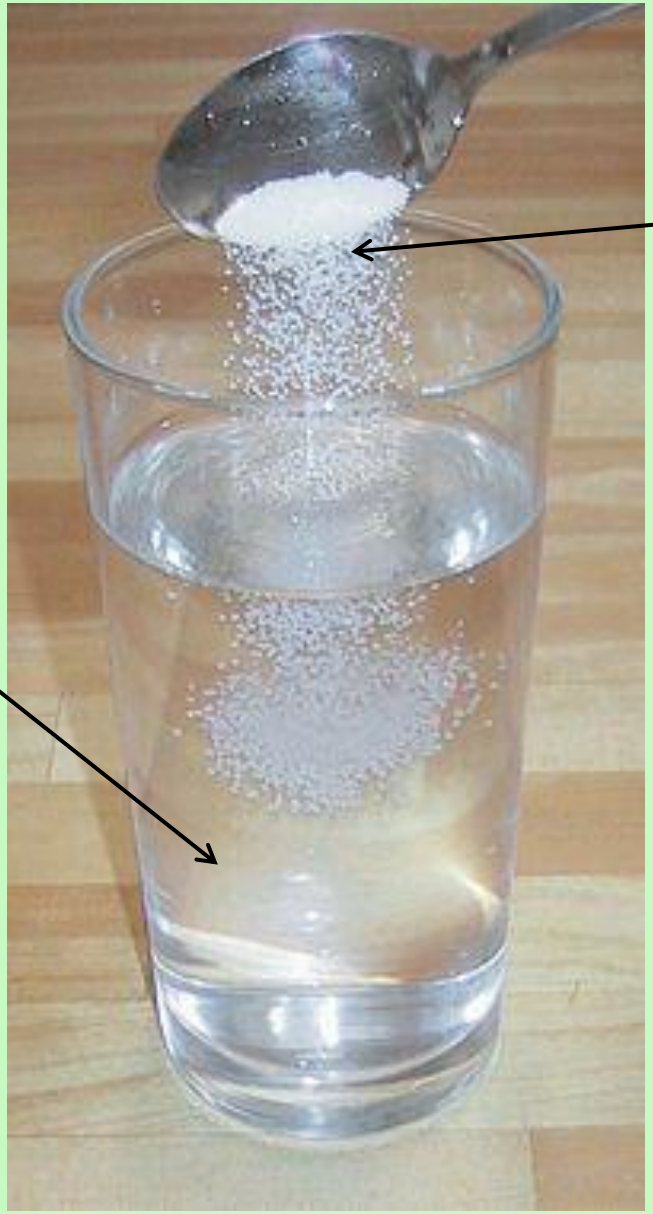
Soluble: Describes a substance that will dissolve in a given solvent.

Solute: A substance that dissolves in a solvent to form a solution.

Solution: A mixture formed when one substance dissolves in another.

Saturated: A saturated solution contains the maximum mass of solute at a given temperature

Solvent: A substance that can dissolve a solute to form a solution.



Solute

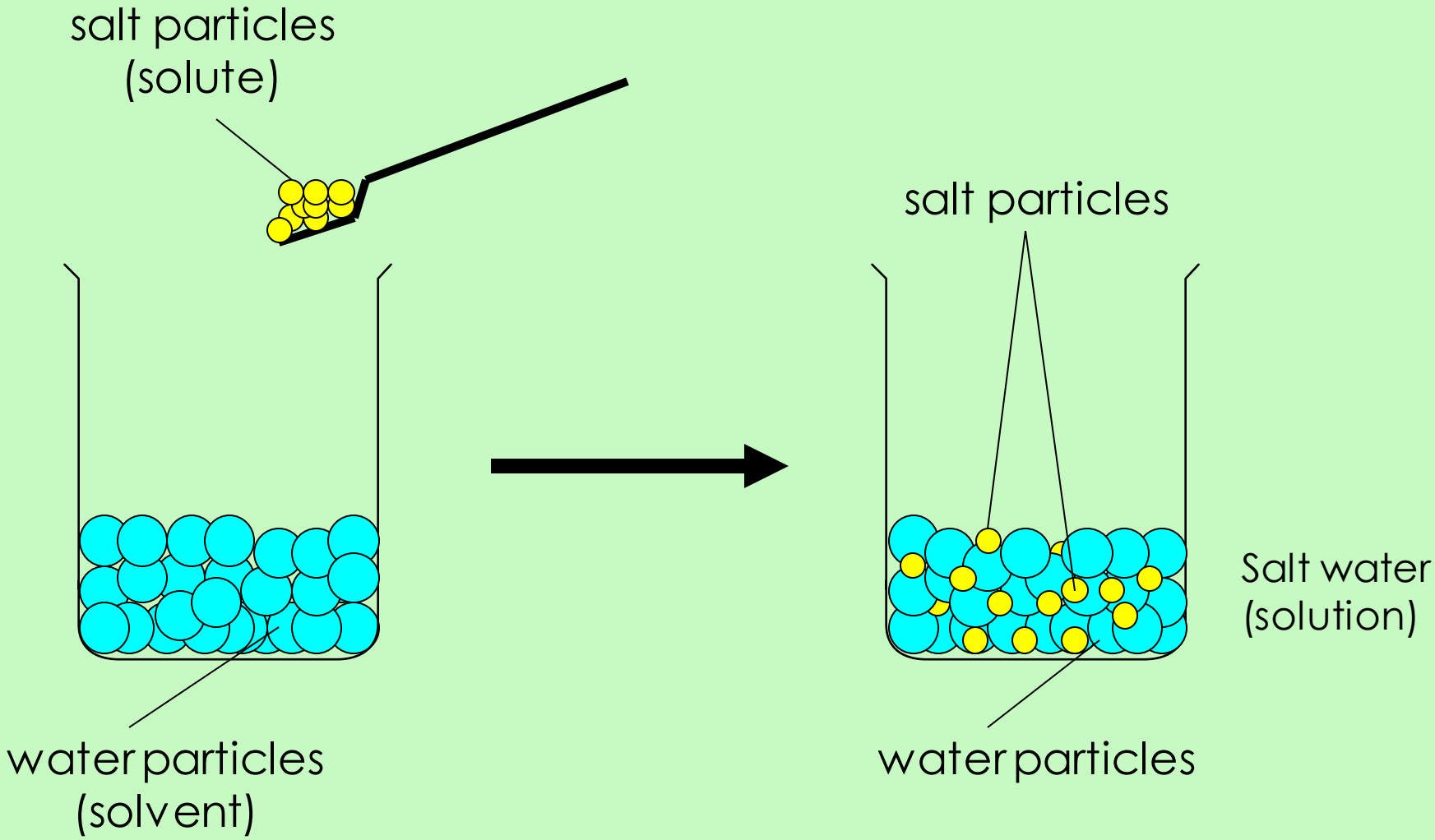
Solvent

Solution
(A mixture)

Insoluble

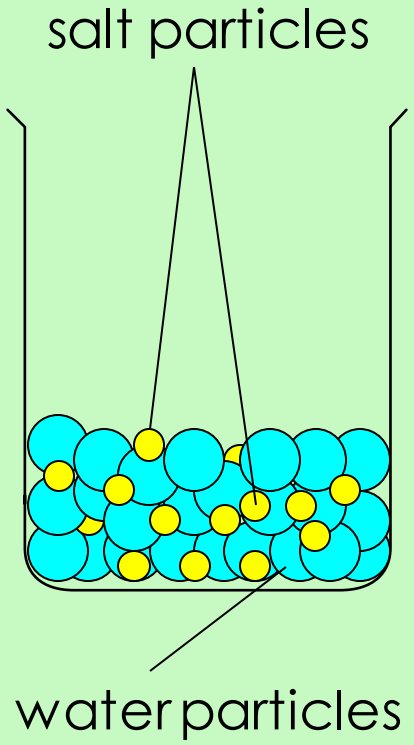
Does not dissolve

Mixture

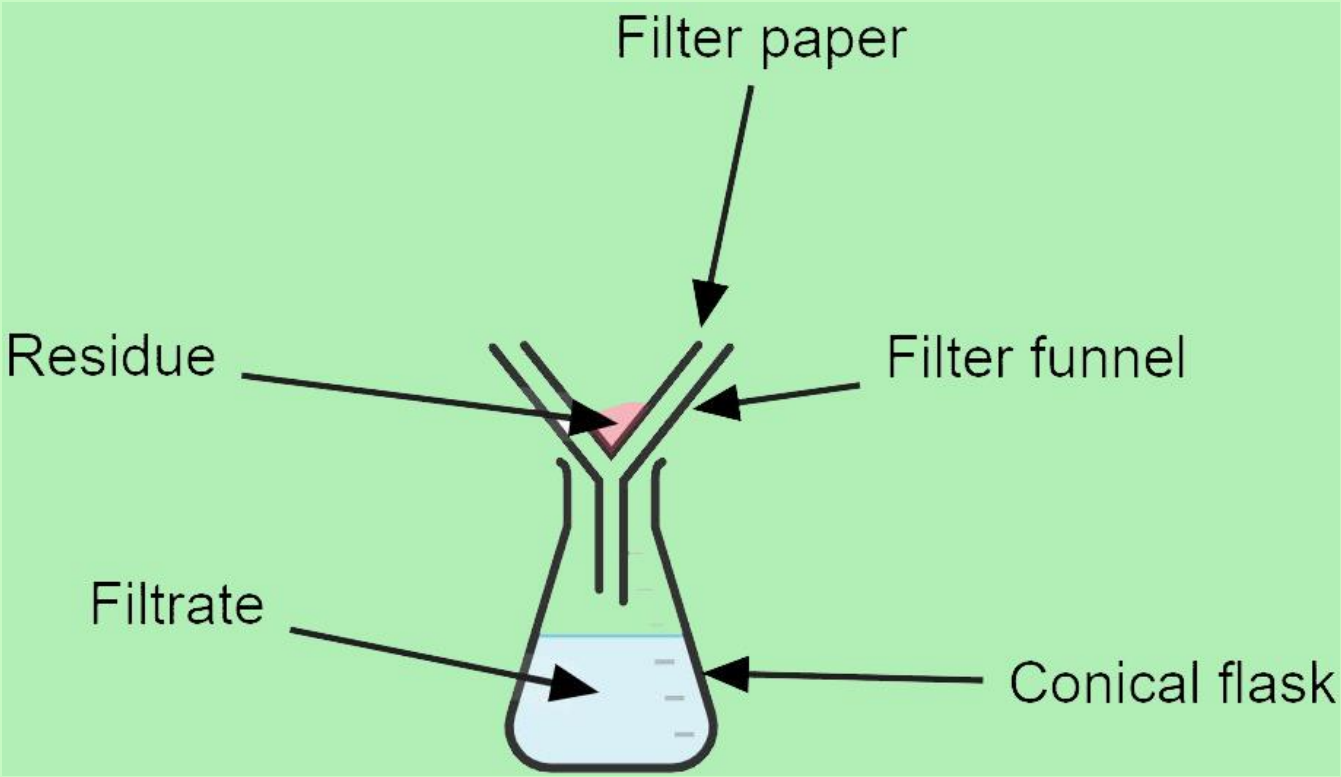


In a solution, the particles from the solute are no longer closely packed together. They are evenly spread out between the particles of the solvent.

Saturated: A saturated solution contains the maximum mass of solute at a given temperature



Filtration



- Separates an i**nsoluble** solid from a liquid or solution
- Works as the solvent particles and solute are small enough to go through the tiny holes in the filter paper
- Any insoluble solid has particles that are too big to go through the holes in the filter paper

Crystallisation

Separates a **soluble** solid from a solution

- Evaporate solvent to give a saturated solution
- Allow to cool
- Once crystals have formed use filtration
- Allow the solid to dry (warm oven or filter paper)