

"Water is the Universal Solvent"

What does this statement mean?

Universal applicable everywhere, in all (most) cases, general

Solvent a material into which a solute dissolves

Therefore a universal solvent is something that dissolves a solute in most cases.

Water is a very common solvent. It is the solvent in our blood, it is the solvent with which we use to clean (both ourselves, and our belongings). Water is very important.

Some water facts:

- Over 70% of the earth's surface is covered in water.
- Only 3% of the water on earth is fresh water, the rest is salt water.
- Two thirds of the earth's fresh water is trapped in ice, meaning only 1% of all the water on earth is available for plants and animals to drink.

Floating

Why do you float in the ocean, but not in a pool?

The salt content in ocean water makes it denser than fresh water. This allows a person to float on the heavier water.

Not all salt water is the same:

The oceans have about 3.5% salt content.

The Dead Sea is approximately 27% salt!



Salt Water

So, is there anything we can do about all this salt water?

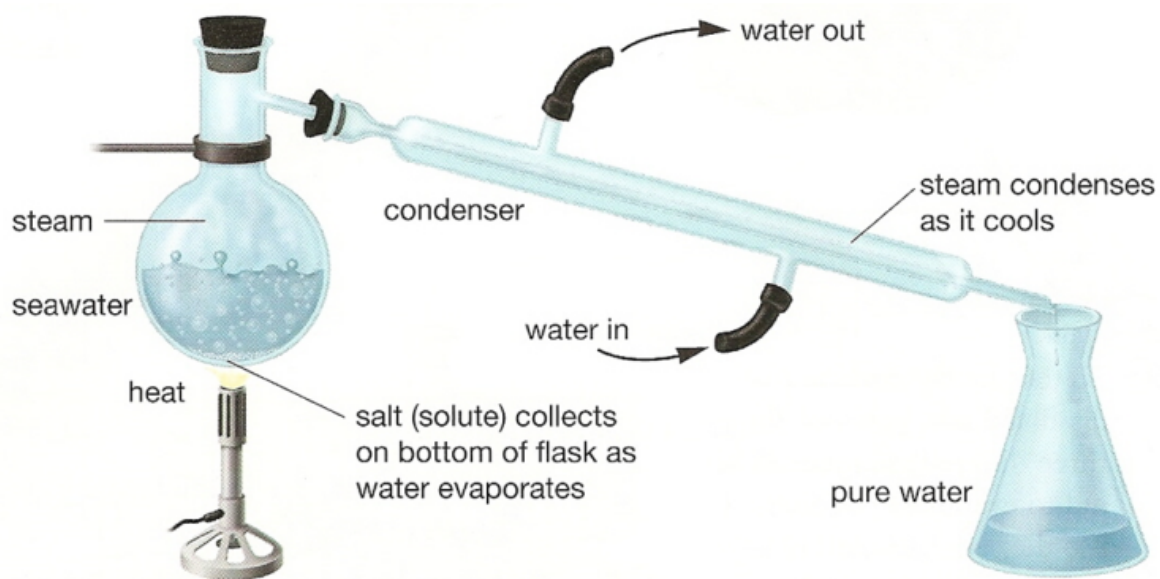
There are many processes used to separate mixtures, today we will look specifically at two that may be used to separate salt water.

Distillation

Desalination
(saline = salt water)

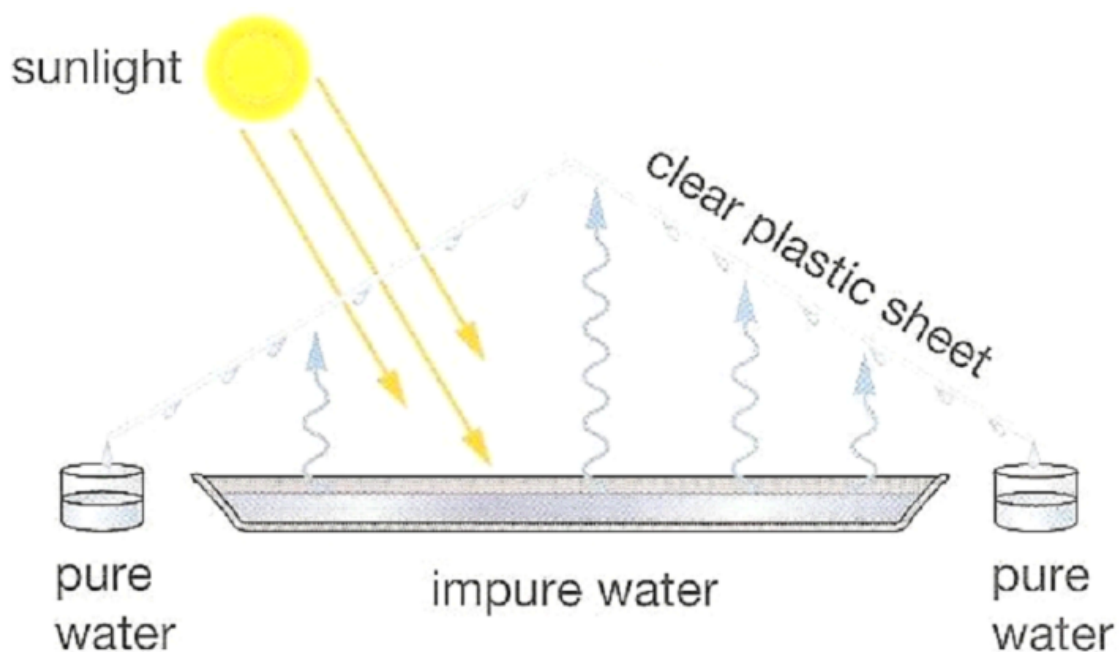


Distillation



Can you use the particle theory to explain what is happening?

Desalination



What's in water?

Salt is not the only thing that is found in water.

Undissolved solids (e.g., bits of dirt) can be removed by settling, or by filtration.

There are also gases that are dissolved in water. For example, fish need the dissolved oxygen in the water in order to live. They use their gills to separate the oxygen from the water, allowing them to breath.

We too can separate gases from water. When we heat water it releases the gases.

[Grade 2 Pollution Webpage](#)

