# How to Separate a Mixture of Two Solids

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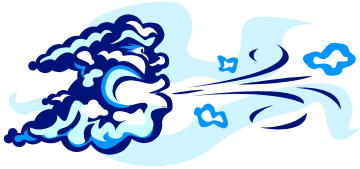
| **Sieves** |  | Various gauges of sieves can be used to separate different sizes of solid particles. |
| **Magnets** |  | Magnetic substances can be separated from non-magnetic substances. |
| **Wind** |  | Lighter substances that can be moved by a light breeze can be separated from heavier substances that fall straight down in the breeze. |
| **Water** |  | Floating materials can be separated from materials that sink in water. |

# How to Separate a Mixture of a Solid and a Liquid

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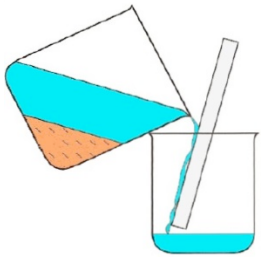
| **Evaporating** |  | Soluble or insoluble solids can be recovered by evaporating the water. The water is lost into the air as it evaporates whole the solid, whether dissolved or not, remains behind forming a residue. |
| **Decanting** |  | Insoluble solids that settle out in water can be recovered by pouring off the water and letting the wet residue dry out. |
| **Filtering** |  | Insoluble solids can be stirred up to form a suspension which can then be poured into a filtering system. The water will pass through the filter but the insoluble substance will collect on the filter. |

# How to Separate a Mixture of Two Liquids

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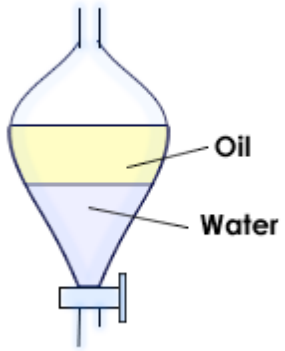
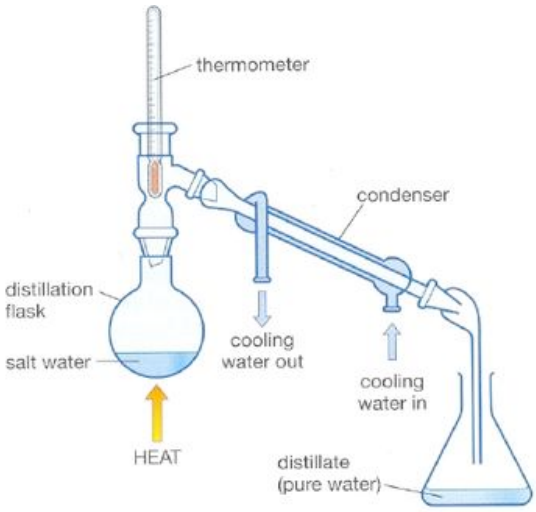
| **Decanting** |  | Where two liquids do not mix, the top liquid is poured off or removed with an eyedropper. |
| **Distilling** |  | Heat the mixture of liquids in a distilling apparatus. The temperature will rise to, and remain at the boiling temperature of one liquid until it all boils off.<br>The vapors of the substance are then collected in a tube which passes through a cooling system condensing the vapors back to a liquid in a container. |

# How to Separate a Mixture of a Liquid and a Gas

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| **Heating** |  | Cold liquids including water will dissolve more gas than warm liquids. Heating the liquid drives the gas out of the solution. |

## How to Separate a Mixture of Two Gasses

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| **Liquefying** |  | Cool the mixtures of gases down until one becomes a liquid. This requires cooling to extremely low temperatures. |