5 5.2 Separating Mixtures

Activate for AQA

Lesson	Know	Apply	Extend
5.2.1 Pure substances and mixtures	I can state what a mixture is and give examples of mixtures. ☐	I can use the particle model to explain what a mixture is. ☐	I can use particle models to compare mixtures and pure substances. ☐
	I can state that a mixture can be separated due to the different melting points of its components. ☐	I can explain how to use melting temperatures to distinguish mixtures from pure substances. ☐	I can comment on the purity of a substance by interpreting temperature change data. ☐
	With help, I can choose a simple technique to separate the substances in a mixture. ☐	I can come up with suitable techniques to separate mixtures, based on their properties. ☐	I can justify the suitability of separation techniques in terms of the properties of constituent substances. ☐
5.2.2 Solutions	I can describe solutions when provided with the key words. ☐	I can explain how substances dissolve using the particle model. ☐	I can explain the relationship between solutes, solvents, and solutions. ☐
	I can describe observations when a substance dissolves. ☐	I can draw annotated before and after particle diagrams to represent dissolving. ☐	I can justify whether a given particle diagram represents a solution or a pure substance. ☐
	I can use observations or data to draw a conclusion about whether something is a solution or a pure liquid. ☐	I can use data to draw a conclusion about the mass of solute dissolved in solution. ☐	I can explain the applications of solution chemistry to different contexts. ☐
5.2.3 Solubility	I can use key words to describe dissolving. ☐	I can explain observations about dissolving. ☐	I can suggest a reason for the effect of temperature on solubility for a given solute. ☐
	I can interpret a bar chart of solubility data. ☐	I can use the solubility curve of a solute to describe and explain simply observations about solutions. ☐	I can analyse and interpret solubility curves. ☐

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	I can write a fair test enquiry question on solubility, and plan the method and how to control the variables. ☐	I can explain why it is important to control variables in order to provide evidence for a conclusion in a solubility investigation. ☐	I can justify the procedure and evaluate the results of a solubility investigation. ☐
5.2.4 Filtration	I can state that mixtures can be separated due to differences in their physical properties. ☐	I can identify a physical property that must be diferent in order for a given separation technique to work. ☐	I can explain why a stated physical property must be different in order for a given separation technique to work. ☐
	I can state that the method chosen to separate a mixture depends on which physical properties of the individual substances are different. ☐	I can choose the most suitable techniques to separate a mixture of substances. ☐	I can justify a chosen technique for separating a mixture of substances. ☐
	I can describe how to filter a mixture, with support. ☐	I can use annotated before and after particle diagrams, and words, to explain how filtration works. ☐	I can design a model to explain filtration, and identify advantages and disadvantages of the model. ☐
5.2.5 Evaporation and distillation	I can state that mixtures can be separated due to differences in their physical properties. ☐	I can identify a physical property that must be diferent in order to separate a mixture by evaporation or distillation. ☐	I can compare evaporation and distillation. ☐
	I can state that the method chosen to separate a mixture depends on which physical properties of the individual substances are different. ☐	I can use annotated before and after particle diagrams, and words, to explain how evaporation and distillation work. ☐	I can justify whether evaporation or distillation would be suitable for obtaining given substances from solution. ☐

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	I can label distillation apparatus and describe what happens in distillation. ☐	I can use the particle model to explain observations made during the distillation of inky water. ☐	I can consider the physical property utlised when interpreting observations from distillation. ☐
5.2.6 Chromatography	I can describe what happens to a mixture when it undergoes chromatography. ☐	I can explain how chromatography separates mixtures. ☐	I can justify the use of chromatography in different scenarios. ☐
	I can describe what a chromatogram looks like. ☐	I can identify one physical property that must be different and one physical property that must be the same in order to separate a mixture by chromatography. ☐	I can consider how chromatography can be used to monitor the progress of reactions. ☐
	I can use evidence from chromatography to identify unknown substances in mixtures, and to identify the pen or plant a sample is from. ☐	I can use evidence from chromatography to explain how to identify unknown substances in mixtures, and to identify the pen or plant a sample is from. ☐	I can suggest some possible issues to consider when using chromatography to identify unknown substances. ☐