 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**Devise ways to separate mixtures, based on their properties.**



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| --- | --- | --- | --- | --- |
| Know | |  | Apply  2  1 | |
| Ideas | |  |  |  |
| K1 | A pure substance consists of only one type of element or compound, and has a fixed melting and boiling point. Mixtures may be separated due to differences in their physical properties. |  | A1 | Explain how substances dissolve using the particle model. |
| A2 | Use the solubility curve of a solute to explain observations about solutions. |
| K2 | The method chosen to separate a mixture depends on which physical properties of the individual substances are different. |  | A3 | Use evidence from chromatography to identify unknown substances in mixtures. |
| A4 | Choose the most suitable technique to separate out a mixture of substances. |
|  | |  | A5 | Explain how substances dissolve using the particle model. |
| Skill | |
| K3 | Use techniques to separate mixtures. |  | A6 | Use the solubility curve of a solute to explain observations about solutions. |
|  | |  | A7 | Use evidence from chromatography to identify unknown substances in mixtures. |
| Facts | |
| K4 | Air, fruit juice, sea water and milk are mixtures. |  | A8 | Choose the most suitable technique to separate out a mixture of substances. |
| K5 | Liquids have different boiling points. |  |  |  |
|  | |  | A9 |  |
| Key words | |
| K6 | **Solvent:** A substance, normally a liquid, that dissolves another substance. |  |  |  |
| K7 | **Solute:** A substance that can dissolve in a liquid. |  |  |  |
| K8 | **Dissolve:** When a solute mixes completely with a solvent. |  |  |  |
| K9 | **Solution:** Mixture formed when a solvent dissolves a solute. |  |  |  |
| K10 | **Soluble:** (insoluble) Property of a substance that will (will not) dissolve in a liquid. |  |  |  |
| K11 | **Solubility:** Maximum mass of solute that dissolves in a certain volume of solvent. |  |  |  |
| K12 | **Pure** **substance:** Single type of material with nothing mixed in. |  |  |  |
| K13 | **Mixture:** Two or more pure substances mixed together, whose properties are different to the individual substances. |  |  |  |
| K14 | **Filtration:** Separating substances using a filter to produce a filtrate (solution) and residue. |  |  |  |
| K15 | **Distillation:** Separating substances by boiling and condensing liquids. |  |  |  |
| K16 | **Evaporation:** A way to separate a solid dissolved in a liquid by the liquid turning into a gas. |  |  |  |
| K17 | **Chromatography:** Used to separate different coloured substances. |  |  |  |
| 3 | Extend |  |  |  |
| E1 | Analyse and interpret solubility curves. |  |  |  |
| E2 | Suggest a combination of methods to separate a complex mixture and justify the choices. |  |  |  |
| E3 | Evaluate the evidence for identifying an unknown substance using separating techniques. |  |  |  |
| E4 |  |  |  |  |
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|  |  |  |  |  |
| E5 |  |  |  |  |
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