

Year 7 Chemistry Module 1–Separating Techniques You must be able to do /understand all the previous pathway information to reach your pathway	
7-9	<p>Explain the energy transfers involved in heating and cooling and link to the curves.</p> <p>Describe the impact of impurities on the melting point and boiling points of substances.</p> <p>Interpret heating and cooling curves to identify pure and/or impure substances.</p> <p>Evaluate Rf results and describe how Rf values of invisible compounds are worked out. Evaluate the connection between energy changes and particle theory and equipment set up to the distillation process.</p>
6-8	<p>Compare and contrast the properties of matter using particle model theory.</p> <p>Describe and fully label the shape of heating and cooling curves.</p> <p>State that pure substances have fixed melting points and boiling points.</p> <p>Compare appropriate separation techniques to separate a mixture.</p> <p>Explain how specific factors affect the solubility of a substance.</p> <p>Calculate Rf values.</p> <p>Explain why the distillation equipment is set up in the manner it is, and link the physical processes to particle theory.</p>
5-7	<p>Use particle model to explain the properties of solids, liquids and gases.</p> <p>Recall that energy is needed to change the solid to liquid to gas.</p> <p>Draw and label a heating or cooling curve with all key terms.</p> <p>Explain the appropriate separation techniques to separate a mixture.</p> <p>Describe how and when a saturated solution is formed.</p> <p>Describe some factors that affect how much of a substance dissolves.</p> <p>Plan a chromatography experiment and describe how it chromatography separates a mixture.</p> <p>Explain how distillation works using key words of evaporation and condensation.</p>
4-6	<p>Use particle model to describe the properties of solids, liquids and gases.</p> <p>State that pure substances have fixed melting points and boiling points.</p> <p>Describe the impact of impurities on the melting point and boiling points of substances.</p> <p>Draw a heating or cooling curve from experimental data.</p> <p>Identify appropriate separation techniques to separate a mixture.</p> <p>Explain what is happening when a solid dissolves.</p> <p>Describe how factors affect how much of a substance dissolves.</p> <p>Describe what happens when a solid dissolves.</p> <p>Interpret a chromatogram in terms of substances and types of substances present.</p> <p>Link the physical processes happening in distillation to the observations seen.</p>
3-5	<p>Recall the three states of matter and some of their properties & link to the diagrams.</p> <p>Define condensation, evaporating, melting and boiling.</p> <p>Define pure substance and impure substance and give examples.</p> <p>State the meaning of a mixture and give examples of mixtures.</p> <p>Describe how insoluble solids can be separated from a liquid.</p> <p>Recall the meaning of the terms solute, solvent, solution and saturated solution.</p> <p>Give examples of where chromatography is used and describe how chromatography is used to separate mixtures.</p> <p>Give examples of when distillation can be used in everyday life.</p>
2-4	<p>Draw diagrams to represent a solid, liquid and gas.</p> <p>Define melting point and boiling point.</p> <p>Detail when filtering and evaporation can be used to separate a mixture.</p> <p>Label distillation equipment and list any risks in using this equipment.</p> <p>Draw and label chromatography equipment.</p>
1-3	<p>Identify materials as solids, liquids and gases and know they are made of particles.</p> <p>Recall water happens when water changes from a solid to a liquid to a gas.</p> <p>Select diagrams of equipment which show filtering, evaporation and distillation.</p> <p>Recall the definitions of solute, solvent, solution.</p>

	Year 7 Chemistry Module 2—Elements & Compounds You must be able to do /understand all the previous pathway information to reach your pathway
7-9	Explain why mass changes can be observed without contravening the law of conservation of mass. Draw particle diagrams to describe how atoms are re-arranged in chemical reactions. Be able to write simple balanced equations.
6-8	Use word equations to describe some simple chemical reactions. Define conservation of mass. Use and identify symbols for some elements and compounds. Recall the formula of sulfates, nitrates and carbonates. Interpret formula to identify the types and ratio of atoms in a compound. Describe the structure of an element's atom using information from the periodic table.
5-7	Identify products and reactants involved in chemical reactions. Use evidence to classify unfamiliar materials as being metals or non-metals. Name some simple compounds. Interpret formula to identify the types of atoms in simple compounds. Use word equations to describe simple chemical reactions. Can draw particle diagrams to describe how atoms are re-arranged in chemical reactions. Use rules to name compounds.
4-6	Calculate the number of protons, neutrons and electrons in helium. Identify mixtures, elements and compounds using the particle model. Describe the structure of some elements' atoms using information from the periodic table Explain how physical and chemical reactions are different. Be able to explain the term malleable and ductile. Define the term reactants and products. Draw particle diagrams to describe how atoms are rearranged in chemical reactions. Be able to recognise the number of atoms in different compounds.
3-5	Recall some symbols for common elements. Identify chemical reactions by the changes observed. Describe the how the periodic table is arranged. (metals / non-metal elements / conductors and insulators. Know test for a metal is the conductivity test. Define the term compound and give some simple formulas.
2-4	Draw and label the model of an atom eg Helium Define the term element. Recall some physical properties eg state of matter, melting point, boiling point. Identify some metals and non-metals are on the periodic table.
1-3	Use the periodic table to look up symbols of elements. Relate the use of some elements to their properties. Know the periodic table is a list of all known elements. Recall examples of insulators and conductors. Identify changes that may indicate that a chemical reaction has occurred. Recall some examples of physical and chemical changes.