

Year 7 CHEMISTRY Curriculum Map

Term	Topic/Unit title	Essential knowledge and skills (what students should <i>know, understand and be able to do</i> by the end of the unit/topic)
Autumn 1	7.1 Chemical reactions	<ol style="list-style-type: none">1. Describe changes during a chemical reaction2. Explain the difference between a chemical and physical change3. Identify reactants and products4. Describe how to test for hydrogen gas5. Describe how to test for carbon dioxide gas6. Come up with a simple hypothesis you can test7. Identify variables in an investigation8. Be able to use the fire triangle9. Explain how different ways of extinguishing a fire work10. Explain the difference between complete and incomplete combustion11. Label a 'combustion apparatus'12. Describe how to test for oxygen gas <p>Disciplinary knowledge in science is interwoven throughout the topic with a particular focus on:</p> <p>-working scientifically: plan and conduct investigations objectively, then analyse, evaluate and conclude.</p>

		<p>-apparatus and technique: select the most appropriate pieces of equipment and use them in the correct way to ensure accurate results are obtained.</p> <p>-mathematical skills: particular focus on recording, processing, graphing and analysis.</p>
<p>Autumn 2</p>	<p>(Complete 7.1, followed by:)</p> <p>7.2 Acids and alkalis</p>	<ol style="list-style-type: none"> 1. Understand the common hazard symbols 2. Name some common acids 3. Describe how to use acids safely in the laboratory 4. Explain several ways of clearing up acid spills 5. Describe the taste of an acid 6. Give some everyday uses of acids 7. Give examples and uses of some common alkalis 8. Know what an indicator is and give examples 9. Interpret information on different indicators e.g. litmus, beetroot, cabbage 10. Describe the colours and numbers of universal indicator on a pH scale 11. Place common substances onto a pH scale 12. Understand the terms neutral and neutralisation, giving examples <p>Disciplinary knowledge in science is interwoven throughout the topic with a particular focus on:</p> <p>-working scientifically: plan and conduct investigations objectively, then analyse, evaluate and conclude.</p>

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<p>Spring 1</p>	<p>(Complete 7.2, followed by:)</p> <p>7.3 States of matter</p>	<ol style="list-style-type: none"> 1. Describe the properties of solids, liquids and gases 2. Draw particle diagrams for solids, liquids and gases 3. Name the processes involved when a substance changes state 4. Describe the arrangement of particles in solids, liquids and gases 5. Describe the motion of particles in solids, liquids and gases 6. Use ideas about particles to explain changes of state 7. Draw a line graph 8. Interpret a heating or cooling graph 9. Explain why salt is used on roads in winter 10. Explain diffusion in terms of concentration and movement of particles 11. Explain why air and other gases exert a pressure 12. Explain why some substances are hard to classify <p>Disciplinary knowledge in science is interwoven throughout the topic with a particular focus on:</p> <p>-working scientifically: plan and conduct investigations objectively, then analyse, evaluate and conclude.</p>

		<p>-apparatus and technique: select the most appropriate pieces of equipment and use them in the correct way to ensure accurate results are obtained.</p> <p>-mathematical skills: particular focus on recording, processing, graphing and analysis.</p>
Spring 2	Complete 7.3	
Summer 1	7.4 Solutions	<ol style="list-style-type: none"> 1. Use the words solvent, solute, solution, soluble, insoluble, dissolve 2. Describe how to separate salt from rock salt 3. Explain how to form salt crystals from a solution 4. Describe the effect of surface area on the speed something dissolves 5. Describe how temperature affects solubility 6. Explain what a saturated solution is 7. Draw more complicated line graphs 8. Interpret a solubility-temperature curve 9. Describe how to carry out paper chromatography 10. Explain the results seen on a chromatogram 11. Label a diagram of distillation apparatus 12. Explain how distillation works <p>Disciplinary knowledge in science is interwoven throughout the topic with a particular focus on:</p>

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Summer 2	Complete 7.4	

Year 8 CHEMISTRY Curriculum Map

Term	Topic/Unit title	Essential knowledge and skills (what students should <i>know, understand and be able to do</i> by the end of the unit/topic)
Autumn 1	8.1 Rocks and weathering	<ol style="list-style-type: none"> 1. Know the three main rock types 2. Use features to classify a rock into the correct types 3. Describe the common features of igneous rocks 4. Explain the effect cooling rate has on an igneous rock 5. Describe common features of sedimentary rocks 6. Discuss the processes that form a sedimentary rock 7. Describe what fossils are and how they form 8. Explain how metamorphic rocks form, giving several types 9. Give examples of physical weathering and the effect it has on a rock 10. Explain what chemical weathering is and the effect it has on a rock 11. Explain why chemical weathering will only affect some rock types 12. Discuss the processes in the rock cycle <p>Disciplinary knowledge in science is interwoven throughout the topic with a particular focus on:</p>

		<p>-working scientifically: plan and conduct investigations objectively, then analyse, evaluate and conclude.</p> <p>-apparatus and technique: select the most appropriate pieces of equipment and use them in the correct way to ensure accurate results are obtained.</p> <p>-mathematical skills: particular focus on recording, processing, graphing and analysis.</p>
<p>Autumn 2</p>	<p>(Complete 8.1, followed by:)</p> <p>8.2 Elements</p>	<ol style="list-style-type: none"> 1. Understand what elements and atoms are 2. Represent elements by name and symbol 3. Use an atomic number and draw electrons in shells (energy levels) 4. Explain the similarity and difference between a molecule and a compound 5. Start to represent molecules and compounds as names and formulae 6. Use properties to explain why a metal is suitable for a particular use 7. Identify metals and non-metals on the Periodic Table 8. Navigate a Periodic Table using Groups and Periods 9. Identify reactants and products in a reaction 10. Represent simple reactions using word equations 11. Use the concept of Conservation of mass 12. Start to form balanced symbol equations <p>Disciplinary knowledge in science is interwoven throughout the topic with a particular focus on:</p>

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<p>Spring 1</p>	<p>(Complete 8.2, followed by:)</p> <p>8.3 Reaction types</p>	<ol style="list-style-type: none"> 1. Know the difference between exothermic and endothermic reactions 2. Give some uses of thermal reactions 3. Explain what happens in thermal decomposition 4. Describe the chemical test for carbon dioxide 5. Explain why displacement reactions occur 6. Write word equations for displacement reactions 7. Explain what a catalyst is 8. Draw a graph on catalysis and interpret information provided 9. Explain what is meant by the term oxidation 10. Give some examples of oxidation processes 11. Describe how a glow stick works 12. Give some uses of thermochromic objects 13. Explain what happens in a neutralisation reaction 14. Describe how to carry out a titration

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Spring 2	Complete 8.3	
Summer 1	8.4 Types of substance	<ol style="list-style-type: none"> 1. Explain what a mixture is and why these can easily be separated 2. Describe ways to separate mixtures, picking the best for a certain mixture 3. Explain what is meant by the term pure 4. Interpret data on how melting and boiling point is altered by impurities 5. Describe what a composite material is using matrix and reinforcement 6. Give some properties and uses of composite 7. Describe how an addition polymer forms 8. Draw diagrams to represent monomers, repeating units and polymers 9. Name a polymer from the monomer and visa-versa 10. Give some properties and uses of polymers 11. Describe the conditions needed to make a ceramic material

		<p>12. Give some properties and uses of ceramic materials</p> <p>Disciplinary knowledge in science is interwoven throughout the topic with a particular focus on:</p> <ul style="list-style-type: none"> -working scientifically: plan and conduct investigations objectively, then analyse, evaluate and conclude. -apparatus and technique: select the most appropriate pieces of equipment and use them in the correct way to ensure accurate results are obtained. -mathematical skills: particular focus on recording, processing, graphing and analysis.
Summer 2	Complete 8.4	

Year 9 CHEMISTRY Curriculum Map

Term	Topic/Unit title	Essential knowledge and skills (what students should <i>know, understand and be able to do</i> by the end of the unit/topic)
Autumn 1	9.1 Earth and building materials	<ol style="list-style-type: none"> 1. Name the layers in the Earth 2. Give several pieces of evidence for Continental drift 3. Explain a mechanism for how plate tectonics works 4. Explain where and how earthquakes occur 5. Evaluate why people may not leave an earthquake zone 6. Construct a limestone cycle 7. Write equations for processes from the limestone cycle 8. Give some uses of calcium hydroxide 9. Give some uses of limestone in construction 10. Analyse data on the strength of types of concrete 11. Evaluate the pros and cons of quarrying limestone 12. Take part in a limestone debate 13. Describe the composition of our atmosphere and how this may change 14. Relate the above to carbon cycles, recycling and Global warming <p>Disciplinary knowledge in science is interwoven throughout the topic with a particular focus on:</p>

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<p>Autumn 2</p>	<p>(Complete 9.1, followed by:)</p> <p>9.2 Metals and reactivity</p>	<ol style="list-style-type: none"> 1. Give typical properties of metals 2. Write equations for metals reacting with oxygen (tarnishing) 3. Write equations for Group 1 metals reacting with water 4. Interpret data from an investigation 5. Write word equations for metals reacting with various acids 6. Describe a test for hydrogen gas 7. Use the experiments above to produce a reactivity series 8. Describe how to extract a metal using carbon reduction 9. Relate a metal's reactivity to the suitability of being added to acid 10. Explain what a displacement reaction is and why these take place 11. Write equations for metal carbonates reacting with acids 12. Describe a test for carbon dioxide gas 13. Explain the steps in making salt crystals from a metal oxide and acid <p>Disciplinary knowledge in science is interwoven throughout the topic with a particular focus on:</p>

		<ul style="list-style-type: none"> -working scientifically: plan and conduct investigations objectively, then analyse, evaluate and conclude. -apparatus and technique: select the most appropriate pieces of equipment and use them in the correct way to ensure accurate results are obtained. -mathematical skills: particular focus on recording, processing, graphing and analysis.
Spring 1	Continue 9.2	
Spring 2	<p>Complete 9.2 and End of KS3 assessment, followed by:</p> <p>GCSE Topic 1 - Atomic structure and the Periodic Table</p>	<p>Periodic Table skills revision</p> <ul style="list-style-type: none"> -Find metals and non-metals on the Periodic Table -Use Groups and Periods to navigate a Periodic Table -Use symbols and the Atomic number -Identify atoms, elements, molecules and compounds -Name simple compounds -Balance simple symbol equations -Describe how to separate mixtures and why compounds are hard to separate <p>Atomic structure</p> <ul style="list-style-type: none"> -State the location, charge and mass of the sub-atomic particles -Work out how many protons, neutrons and electrons an atom contains

	<ul style="list-style-type: none">-Explain why atoms are neutral-Draw electrons in shells and explain electron configurations-Relate electron arrangement to Group and Period-State why Noble gases are unreactive/stable-Suggest why elements in Groups have similar properties-Describe the Plum pudding model and Nuclear model-Use an alpha scattering experiment to discuss the nuclear model <p>Periodic table in detail</p> <ul style="list-style-type: none">-Identify metals, non-metals, Groups, Periods and Transition metals-Describe how the Periodic Table developed (Triads, Law of Octaves, Mendeleev, Atomic number) <p>Group 0</p> <ul style="list-style-type: none">-Describe the trend in boiling point down Group 0-Explain why Group 0 are stable and unreactive-Give some uses of Group 0 elements <p>Group 1</p> <ul style="list-style-type: none">-Describe reactions/give equations of Group 1 metals with water and make predictions-Explain the trend in reactivity down Group 1
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		<p>-Know Group 1 compounds are white solids and dissolve to form colourless solutions</p> <p>Group 7</p> <p>-Give the formula and appearance of Group 7 elements</p> <p>-Explain the melting point down Group 7</p> <p>-Use displacement reactions/equations to explain the reactivity of Group 7 elements - Explain the trend in reactivity down Group 7</p> <p>Transition metals</p> <p>-Identify Transition metals, giving common properties and uses</p> <p>-Understand Transition properties: catalysts , colours of ions, variable charges</p>
Summer 1	Continue GCSE Topic 1	
Summer 2	Complete GCSE Topic 1	