




Chemistry

	Particles and the Nature of Matter	Atoms, Elements and Compounds	Pure and Impure Substances	Chemical Reactions	Energetics	The Periodic Table	Materials	Earth and Atmosphere
Band 1								I can state that there are different types of rocks
Band 2								
Band 3	I can name the three states of matter	I can list examples of atoms, elements and compounds	I can list some mixtures	I can state that an indicator may be used to determine if a solution is acidic or alkaline		I can list the properties of metals and non-metals		I can name some resources that humans use from the Earth
Band 4	I can list the changes of states		I can select appropriate simple techniques for separating given mixtures I can identify simple techniques for separating mixtures I can identify pure and impure substances from data	I can state that during chemical reactions reactants become products I can state that different acids and alkalis may have different strengths		I can state that all elements currently known may be found listed in the Periodic Table	I can state that different materials have different properties	I can list the parts which make up the structure of the Earth I can name the three different types of rocks I can name the main elements that make up the composition of the atmosphere
Band 5	I can describe the properties of the three states of matter	I can represent elements using chemical symbols I can describe the differences between atoms, elements and compounds	I can describe how to carry out simple techniques for separating mixtures I can describe what a pure substance is I can describe a mixture, including dissolved substances	I can represent chemical reactions using word equations	I can state that during changes of state, there are energy changes I can describe that during chemical reactions, surroundings may increase or decrease in temperature	I can state that the modern Periodic Table was developed by Mendeleev I can state that the Periodic Table is arranged in periods and groups I can identify where metals and non-metals can be found on the Periodic Table	I can state that some materials are more reactive than others I can describe some properties of different materials e.g. ceramics, polymers and composites	I can name the main elements that make up the composition of the Earth I can identify the parts which make up the structure of the Earth, by labelling a diagram I can state that humans use the Earth as a source of resources


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Band 6	I can describe how changes of states may occur	I can represent compounds using chemical formulae	I can state that particles may move through a fluid by diffusion	I can describe how to use Universal indicator to find the strength of an acid or an alkali, using the pH scale	I can state that during chemical reactions, energy may be released or absorbed	I can describe how elements with similar physical and chemical properties are grouped together		I can state that the Earth's resources are limited
	I can describe how pressure occurs in gases	I can label the subatomic particles of a simple atomic model	I can describe diffusion in terms of the particle model	I can describe neutralisation, combustion, thermal decomposition, oxidation, displacement and the reaction of metals and acids as examples of chemical reactions		I can describe how the properties of metals and non-metals make them suitable for different uses	I can describe simple displacement reactions when given the order of metals and carbon in the reactivity series	I can name some of the molecules that contain carbon on the Earth and in its atmosphere
	I can represent the three states of matter with drawings of particles	I can recognise a simple atomic model		I can state neutralisation, combustion, thermal decomposition, oxidation, displacement and the reaction of metals and acids, as examples of chemical reactions		I can explain how metals and non-metals react with water using word equations		I can list human activities that impact on the climate by producing carbon dioxide
		I can state that mass is conserved during changes of state and chemical reactions	I can describe how impurities may affect boiling and melting points of impure substance	I can state some other ways to speed up chemical reactions e.g. increase temperature, increase concentrations or increase surface area I can state that during chemical reactions atoms are rearranged in order for reactants to become products	I can state that catalysts speed up chemical reactions	I can state that elements in the same group of the Periodic Table will have similar patterns in reactions I can state that the Periodic Table can be used to predict patterns in reactions		I can describe what it means that the Earth's resources are limited I can describe how the three different types of rocks are formed
		I can suggest how the rate of diffusion may be affected	I can suggest some applications for making substances impure	I can state that catalysts speed up chemical reactions I can describe how using catalysts, increasing temperature, increasing concentrations or increasing surface area will affect reaction rate, with reference to particles and collisions	I can state that metal and non-metal oxides react differently with water	I can explain how metals can be obtained from metal oxides using carbon, when given the reactivity series	I can describe ways that carbon can move between organisms and parts of the Earth I can discuss the efficacy of recycling	

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Band 7	I can explain changes of states with reference to energy levels of particles	I can explain why mass is conserved during changes of state and chemical reactions	I can explain how mixtures are different from elements and compounds	I can represent chemical reactions using symbol equations	I can describe changes of states with reference to energy changes	I can explain some of the properties of metals and non-metals with reference to their structure	I can suggest uses for different materials based on their properties	I can state that carbon is present in different forms on the Earth and its atmosphere
	I can explain the properties of the three states of matter with reference to the particle model	I can identify the relative masses and charges of subatomic particles	I can describe dissolving, with reference to particles	I can explain the conditions and uses of neutralisation, combustion, thermal decomposition, oxidation, displacement and the reaction of metals and acids, as examples of chemical reactions	I can explain that during chemical reactions, energy may be absorbed or released during the making and breaking of bonds	I can describe the patterns of reactivity for Group 1 and Group 7 in the Periodic Table		I can describe ways that human activities impact on the climate by producing carbon dioxide
		I can draw accurate diagrams of nuclei of atoms of particular elements using the Periodic Table	I can explain how simple techniques for separating mixtures work	I can explain how collisions are random and must be successful in order for a reaction to occur		I can describe the changes that Mendeleev made when he developed the modern Periodic Table		I can describe the composition of the atmosphere, with reference to different parts of its structure
			I can explain how diffusion happens in terms of the particle model	I can represent chemical reactions using balanced symbol equations		I can describe that metal oxides react with water to form an alkaline solution and non-metal oxides react with water to form acidic solutions	I can discuss and suggest methods that may be used to extract metals more reactive than carbon	I can link the formation of rocks together to describe and explain the rock cycle I can explain the impact of human activities on the climate by producing carbon dioxide I can explain in detail how the three different types of rocks are formed, with reference to factors that may alter the appearance and properties of these rocks
						I can explain why Mendeleev made the changes he did when developing the modern Periodic Table		

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Band 8	<p>I can explain how pressure in gases may change</p>	<p>I can draw accurate diagrams of electron structure of atoms of particular elements using the Periodic Table</p>			<p>I can explain changes of state with reference to the energy levels of particles</p>	<p>I can link group number and electron structure to explain the patterns of reactivity for Group 1 and Group 7 in the Periodic Table</p> <p>I can explain how metals and non-metals react with water using symbol equations, recognising the chemical forms which result in the solution being either acidic or alkaline</p>	<p>I can explain the differences in properties of different materials with reference to their structure</p>	<p>I can suggest ways that the level of carbon dioxide in the atmosphere can be reduced</p> <p>I can suggest methods to extend the time left before various resources from the Earth become depleted</p> <p>I can explain how the composition of the Earth gives rise to characteristics of the Earth</p> <p>I can explain how the composition of the atmosphere gives rise to characteristics of the Earth</p>
Band 9								