

Science - Chemistry Target Related Expectation (TReE) Year 8

Pathway 1 (Target Grade 1-3)									
	5.3.1 Elements	5.3.2 Atoms	5.3.3 Compounds	5.3.4 Chemical formulae	5.3.5 Polymers	5.4.1 The Periodic Table	5.4.2 The elements of Group 1	5.4.3 The elements of Group 7	5.4.4 The elements of Group 0
5 Matter	<ul style="list-style-type: none"> State what an element is Understand the Capital / Lower case system for chemical symbols 	<ul style="list-style-type: none"> State what an atom is 	<ul style="list-style-type: none"> State what a compound is and use particle diagrams to classify a substance as an element, mixture, or compound 	<ul style="list-style-type: none"> Name some simple compounds and represent some simple compounds using molymods 	<ul style="list-style-type: none"> State what a polymer is State some uses of polymers 	<ul style="list-style-type: none"> To know about groups and periods as well as identifying patterns down groups and across periods. 	<ul style="list-style-type: none"> Identify patterns in the reactions of group 1 elements 	<ul style="list-style-type: none"> Identify patterns in the reactions of Group 7 elements, to be aware of the hazards of working with Group 7 elements 	<ul style="list-style-type: none"> State that the elements in Group 0 are unreactive and that they show patterns in properties as you go down the group
	6.3.1 Atoms in chemical reactions	6.3.2 Combustion	6.3.3 Thermal decomposition	6.3.4 Conservation of mass	6.4.1 Exothermic and endothermic	6.4.2 Energy level diagrams	6.4.3 Bond energies		
6 Reactions	<ul style="list-style-type: none"> Write word equations from information about chemical reactions 	<ul style="list-style-type: none"> State that combustion is a reaction with oxygen in which energy is transferred to the surroundings as heat and light 	<ul style="list-style-type: none"> State that thermal decomposition is a reaction in which a single reactant is broken down into simpler products by heating 	<ul style="list-style-type: none"> Know that mass is always conserved in a chemical reaction 	<ul style="list-style-type: none"> State the difference between an exothermic and endothermic reaction 	<ul style="list-style-type: none"> Identify whether an energy level diagram is showing an exothermic or endothermic change 	<ul style="list-style-type: none"> State that catalysts are substances that speed up chemical reactions but are unchanged at the end 		
	7.3.1 Global warming	7.3.2 The carbon cycle	7.3.3 Climate change	7.4.1 Extracting metals	7.4.2 Recycling				
7 Earth	<ul style="list-style-type: none"> To describe the greenhouse effect and global warming 	<ul style="list-style-type: none"> State the changes in levels of carbon dioxide over time and name a carbon sink 	<ul style="list-style-type: none"> Give examples of impacts of climate change 	<ul style="list-style-type: none"> State that most metals are found combined with other elements, as a compound, in ores and name two processes used to extract metals from their compounds 	<ul style="list-style-type: none"> State that there is only a limited quantity of any resource on Earth, so the faster it is extracted, the sooner it will run out 				

Pathway 2 (Target Grade 4-6)									
	5.3.1 Elements	5.3.2 Atoms	5.3.3 Compounds	5.3.4 Chemical formulae	5.3.5 Polymers	5.4.1 The Periodic Table	5.4.2 The elements of Group 1	5.4.3 The elements of Group 7	5.4.4 The elements of Group 0
5 Matter	<ul style="list-style-type: none"> Correctly write down the chemical symbols of elements 	<ul style="list-style-type: none"> Represent atoms and elements using particle diagrams 	<ul style="list-style-type: none"> Compare the properties of a compound to the properties of the elements whose atoms it contains 	<ul style="list-style-type: none"> Given chemical formulae, name the elements present and their relative proportions 	<ul style="list-style-type: none"> Represent elements, compounds, and mixtures using particle diagrams and physical models 	<ul style="list-style-type: none"> Use data showing a pattern in physical properties to predict the missing value for an element 	<ul style="list-style-type: none"> Use data showing a pattern in physical properties to predict the missing value for an element in Group 1 	<ul style="list-style-type: none"> Use observations of a pattern in chemical reactions to predict the behaviour of an element in Group 7 	<ul style="list-style-type: none"> Use data showing a pattern in physical properties to predict the missing value for an element in Group 0
	6.3.1 Atoms in chemical reactions	6.3.2 Combustion	6.3.3 Thermal decomposition	6.3.4 Conservation of mass	6.4.1 Exothermic and endothermic	6.4.2 Energy level diagrams	6.4.3 Bond energies		
6 Reactions	<ul style="list-style-type: none"> Interpret particle diagrams and models to explain what happens in a chemical reaction 	<ul style="list-style-type: none"> Predict the products of combustion of a given reactant and show the reaction as a word equation 	<ul style="list-style-type: none"> Explain why a given reaction is an example of combustion or thermal decomposition 	<ul style="list-style-type: none"> Explain observations about mass in a chemical or physical change 	<ul style="list-style-type: none"> Calculate the temperature change and make a conclusion in a range of exothermic and endothermic changes 	<ul style="list-style-type: none"> Compare the energy transferred during the combustion of 1 kg of different heating fuels 	<ul style="list-style-type: none"> Use ideas about bond energies to explain energy changes in chemical reactions 		
	7.3.1 Global warming	7.3.2 The carbon cycle	7.3.3 Climate change	7.4.1 Extracting metals	7.4.2 Recycling				
7 Earth	<ul style="list-style-type: none"> Interpret graphs that show trends over time Describe and explain what is meant by global warming 	<ul style="list-style-type: none"> Use the carbon cycle to identify carbon sinks and how carbon is recycled 	<ul style="list-style-type: none"> Describe how global warming can impact on climate and local weather patterns 	<ul style="list-style-type: none"> Justify the choice of extraction method for a metal, given data about reactivity 	<ul style="list-style-type: none"> Describe how Earth's resources are turned into useful materials or recycled 				

Pathway 3 (Target Grade 7-8)									
	5.3.1 Elements	5.3.2 Atoms	5.3.3 Compounds	5.3.4 Chemical formulae	5.3.5 Polymers	5.4.1 The Periodic Table	5.4.2 The elements of Group 1	5.4.3 The elements of Group 7	5.4.4 The elements of Group 0
5 Matter	<ul style="list-style-type: none"> Suggest the advantages of using the same chemical symbols in all languages 	<ul style="list-style-type: none"> Use moles to estimate the number of atoms in a sample 	<ul style="list-style-type: none"> Compare and contrast the properties of elements and compounds and give a reason for their differences 	<ul style="list-style-type: none"> Deduce a pattern in the formula of similar compounds and use it to suggest formulae for unfamiliar ones and calculate percentage by mass 	<ul style="list-style-type: none"> Use particle diagrams to predict physical properties of compounds 	<ul style="list-style-type: none"> Use data about the properties of elements to identify similarities, patterns, and anomalies Explain how to predict missing data values using trends in properties 	<ul style="list-style-type: none"> Use data about the properties of elements to identify similarities, patterns, and anomalies 	<ul style="list-style-type: none"> Use data about the properties of elements to identify similarities, patterns, and anomalies 	<ul style="list-style-type: none"> Use data about the properties of elements to identify similarities, patterns, and anomalies
	6.3.1 Atoms in chemical reactions	6.3.2 Combustion	6.3.3 Thermal decomposition	6.3.4 Conservation of mass	6.4.1 Exothermic and endothermic	6.4.2 Energy level diagrams	6.4.3 Bond energies		
6 Reactions	<ul style="list-style-type: none"> Explain in detail what happens to the particles in chemical reactions such as those between a metal and oxygen 	<ul style="list-style-type: none"> Compare the pros and cons of fuels in terms of their products of combustion 	<ul style="list-style-type: none"> Devise a general rule for how a set of compounds thermally decomposes 	<ul style="list-style-type: none"> Use known masses of reactants or products to calculate unknown masses of the remaining reactant or product Balance a symbol equation 	<ul style="list-style-type: none"> Explain exothermic and endothermic reactions in terms of energy transfers to and from the surroundings 	<ul style="list-style-type: none"> Use models and diagrams to explain energy level diagrams clearly and in detail 	<ul style="list-style-type: none"> Calculate whether a chemical reaction will be exothermic or endothermic given data on bond strengths 		
	7.3.1 Global warming	7.3.2 The carbon cycle	7.3.3 Climate change	7.4.1 Extracting metals	7.4.2 Recycling				
7 Earth	<ul style="list-style-type: none"> Interpret graphs that show trends over time, and explain their limitations 	<ul style="list-style-type: none"> Explain changes in the levels of carbon dioxide using stages of the carbon cycle and use equations to explain processes that exchange carbon dioxide into and out of the atmosphere. 	<ul style="list-style-type: none"> Evaluate the implications of a proposal to reduce carbon emissions 	<ul style="list-style-type: none"> Suggest how a laboratory practical is like and unlike an industrial process to extract a metal 	<ul style="list-style-type: none"> Suggest ways in which changes in behaviour and the use of alternative materials may limit the consumption of natural resources 				