

Obj No	Chemistry KS3b - 5 Matter	Started (/) Completed (X)	Level Achieved
	5.3.1 Elements		
1	State what an element is		1 2 3 4 5 6 7 8
2	State the chemical symbols of 16 elements		1 2 3 4 5 6 7 8
3	Correctly write down the chemical symbols of 16 elements and, given chemical symbols, write down their names		1 2 3 4 5 6 7 8
4	Suggest the advantages of using the same chemical symbols in all languages		1 2 3 4 5 6 7 8

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	5.3.2 Atoms		
1	State what an atom is		1 2 3 4 5 6 7 8
2	State that every element has its own type of atom		1 2 3 4 5 6 7 8
3	Represent atoms and elements using particle diagrams		1 2 3 4 5 6 7 8
4	Compare the properties of an atom of an element to the properties of many atoms		1 2 3 4 5 6 7 8
5	Estimate the number of atoms in a sample		1 2 3 4 5 6 7 8
6	Use a model to draw conclusions about how the properties of atoms together contribute to the properties of an element		1 2 3 4 5 6 7 8

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	5.3.3 Compounds		
1	State what a compound is		1 2 3 4 5 6 7 8
2	Use particle diagrams to classify a substance as an element, mixture, or compound		1 2 3 4 5 6 7 8
3	Represent elements, mixtures, and compounds using particle diagrams		1 2 3 4 5 6 7 8
4	Compare the properties of a compound to the properties of the elements whose atoms it contains		1 2 3 4 5 6 7 8
5	Use particle diagrams to help to explain why a compound has different properties to the elements whose atoms it contains		1 2 3 4 5 6 7 8
6	Compare and contrast the properties of elements and compounds and give a reason for their differences		1 2 3 4 5 6 7 8

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	5.3.4 Chemical formulae		
1	Name simple compounds		1 2 3 4 5 6 7 8
2	Use particle diagrams to classify a substance as an element or compound		1 2 3 4 5 6 7 8
3	Represent simple compounds using models		1 2 3 4 5 6 7 8
4	Name compounds using their chemical formulae		1 2 3 4 5 6 7 8
5	Given chemical formulae, name the elements present and their relative proportions		1 2 3 4 5 6 7 8
6	Represent elements, compounds, and mixtures using particle diagrams		1 2 3 4 5 6 7 8
7	Deduce a pattern in the formula of similar compounds and use it to suggest formulae for unfamiliar ones		1 2 3 4 5 6 7 8
8	Given relative masses of atoms, find the element whose atoms contribute the greatest mass to the compound		1 2 3 4 5 6 7 8

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	5.3.5 Polymers		
1	State what a polymer is		1 2 3 4 5 6 7 8
2	State some uses of polymers		1 2 3 4 5 6 7 8
3	Describe the structure of a polymer		1 2 3 4 5 6 7 8
4	Represent elements, compounds, and mixtures using particle		1 2 3 4 5 6 7 8
5	Use particle diagrams to predict physical properties of compounds		1 2 3 4 5 6 7 8
6	Compare properties of different polymers		1 2 3 4 5 6 7 8

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	5.4.1 The Periodic Table									
1	State that the horizontal rows of the Periodic Table are called periods, and the vertical columns are called groups		1	2	3	4	5	6	7	8
2	State that as you go down a group and across a period the elements show patterns in physical properties		1	2	3	4	5	6	7	8
3	Use data to describe a trend in physical properties		1	2	3	4	5	6	7	8
4	Use data showing a pattern in physical properties to predict the missing value for an element		1	2	3	4	5	6	7	8
5	Use data about the properties of elements to identify similarities, patterns, and anomalies		1	2	3	4	5	6	7	8
6	Explain how to predict missing data values using trends in properties		1	2	3	4	5	6	7	8

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	5.4.2 The elements of Group 1		
1	State that the elements in Group 1 all react in a similar way and show a pattern in reactivity		1 2 3 4 5 6 7 8
2	State that as you go down Group 1 the elements show patterns in physical properties		1 2 3 4 5 6 7 8
3	Make and record observations of chemical reactions in a table		1 2 3 4 5 6 7 8
4	Use data to describe a trend in physical properties of Group 1 elements		1 2 3 4 5 6 7 8
5	Use data showing a pattern in physical properties to predict the missing value for an element in Group 1		1 2 3 4 5 6 7 8
6	Use observations of a pattern in chemical reactions to predict the behaviour of an element in Group 1		1 2 3 4 5 6 7 8
7	Use data about the properties of elements to identify similarities, patterns, and anomalies		1 2 3 4 5 6 7 8
8	Choose elements for different uses from their position in the Periodic Table		1 2 3 4 5 6 7 8

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	5.4.3 The elements of Group 7		
1	State that the elements in Group 7 all react in a similar way and show a pattern in reactivity		1 2 3 4 5 6 7 8
2	State that as you go down Group 7 the elements show patterns in physical properties		1 2 3 4 5 6 7 8
3	Identify hazards of working with Group 7 elements		1 2 3 4 5 6 7 8
4	Use data to describe a trend in physical properties of Group 7 elements		1 2 3 4 5 6 7 8
5	Use observations of a pattern in chemical reactions to predict the behaviour of an element in Group 7		1 2 3 4 5 6 7 8
6	Identify control measures when working with Group 7 elements		1 2 3 4 5 6 7 8
7	Use data about the properties of elements to identify similarities, patterns, and anomalies		1 2 3 4 5 6 7 8
8	Predict the position of an element in the Periodic Table based on information about its chemical properties		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3b - 5 Matter	Started (/) Completed (X)	Level Achieved
	5.4.4 The elements of Group 0		
1	State that the elements in Group 0 are unreactive		1 2 3 4 5 6 7 8
2	State that as you go down Group 0 the elements show patterns in physical properties		1 2 3 4 5 6 7 8
3	Use data to describe a trend in physical properties in Group 0		1 2 3 4 5 6 7 8
4	Use data showing a pattern in physical properties to predict the missing value for an element in Group 0		1 2 3 4 5 6 7 8
5	Describe the reactions of Group 0 elements		1 2 3 4 5 6 7 8
6	Use data about the properties of elements to identify similarities, patterns, and anomalies		1 2 3 4 5 6 7 8
7	Choose elements for different uses based on their positions in the Periodic Table		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3b - 6 Reactions	Started (/) Completed (X)	Level Achieved
	6.3.1 Atoms in chemical reactions		
1	State that in a chemical reaction particles are rearranged, but the total number of atoms is conserved		1 2 3 4 5 6 7 8
2	Write word equations from information about chemical reactions		1 2 3 4 5 6 7 8
3	Identify possible hazards in a demonstration		1 2 3 4 5 6 7 8
4	Interpret particle diagrams and models to explain what happens in a chemical reaction		1 2 3 4 5 6 7 8
5	Draw particle diagrams and make models to show what happens in a chemical reaction		1 2 3 4 5 6 7 8
6	Identify risks, hazards, and control measures in a demonstration		1 2 3 4 5 6 7 8
7	Explain in detail what happens to the particles in chemical reactions such as those between a metal and oxygen		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3b - 6 Reactions	Started (/) Completed (X)	Level Achieved
	6.3.2 Combustion		
1	State that combustion is a reaction with oxygen in which energy is transferred to the surroundings as heat and light		1 2 3 4 5 6 7 8
2	State that chemical changes can be described by a model in which atoms in reactants rearrange to make products		1 2 3 4 5 6 7 8
3	Write word equations from information about chemical reactions		1 2 3 4 5 6 7 8
4	Design a table suitable for gathering specific data		1 2 3 4 5 6 7 8
5	Explain why a given reaction is an example of combustion		1 2 3 4 5 6 7 8
6	Predict the products of combustion of a given reactant and show the reaction as a word equation		1 2 3 4 5 6 7 8
7	Use a particle diagram to show what happens in a reaction		1 2 3 4 5 6 7 8
8	Compare the pros and cons of fuels in terms of their products of combustion		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3b - 6 Reactions	Started (/) Completed (X)	Level Achieved
	6.3.3 Thermal decomposition		
1	State that thermal decomposition is a reaction in which a single reactant is broken down into simpler products by heating		1 2 3 4 5 6 7 8
2	State that chemical changes can be described by a model in which atoms in reactants rearrange to make products.		1 2 3 4 5 6 7 8
3	Write word equations from information about chemical reactions		1 2 3 4 5 6 7 8
4	Explain why a given reaction is an example of combustion or		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3b - 6 Reactions	Started (/) Completed (X)	Level Achieved
	6.3.4 Conservation of mass		
1	State that chemical changes can be described by a model in which atoms in reactants rearrange to make products		1 2 3 4 5 6 7 8
2	Explain observations about mass in a chemical or physical change		1 2 3 4 5 6 7 8
3	Make a conclusion and explain it		1 2 3 4 5 6 7 8
4	Devise a general rule for how a set of compounds thermally		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3b - 6 Reactions	Started (/) Completed (X)	Level Achieved
	6.4.1 Exothermic and endothermic		
1	State that an exothermic reaction is one in which energy is given out, usually as heat or light		1 2 3 4 5 6 7 8
2	State that an endothermic reaction is one in which energy is taken in, usually as heat		1 2 3 4 5 6 7 8
3	Record temperature changes in exothermic and endothermic changes		1 2 3 4 5 6 7 8
4	Compare the characteristics of exothermic and endothermic reactions		1 2 3 4 5 6 7 8
5	Use experimental observations to distinguish exothermic and		1 2 3 4 5 6 7 8
6	Use known masses of reactants or products to calculate unknown masses of the remaining reactant or product		1 2 3 4 5 6 7 8
7	Balance a symbol equation		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3b - 6 Reactions	Started (/) Completed (X)	Level Achieved
	6.4.2 Energy level diagrams		
1	State that an exothermic reaction is one in which energy is given out, usually as heat or light		1 2 3 4 5 6 7 8
2	State that an endothermic reaction is one in which energy is taken in, usually as heat		1 2 3 4 5 6 7 8
3	Identify whether an energy level diagram is showing an exothermic or endothermic change		1 2 3 4 5 6 7 8
4	Use a diagram of relative energy levels of particles to explain energy changes observed during changes of state and chemical reactions		1 2 3 4 5 6 7 8
5	Compare the energy transferred during the combustion of 1 kg of different heating fuels		1 2 3 4 5 6 7 8
6	Use models and diagrams to explain energy level diagrams		1 2 3 4 5 6 7 8
7	Explain exothermic and endothermic reactions in terms of energy transfers to and from the surroundings		1 2 3 4 5 6 7 8
8	Use energy data to select a reaction for a chemical hand warmer or cool pack		1 2 3 4 5 6 7 8

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	6.4.3 Bond energies		
1	State that during a chemical reaction bonds are broken (requiring energy) and new bonds formed (releasing energy). If the energy released is greater than the energy required, the reaction is exothermic. If the reverse, the reaction is endothermic		1 2 3 4 5 6 7 8
2	State that catalysts are substances that speed up chemical reactions but are unchanged at the end		1 2 3 4 5 6 7 8
3	Use ideas about bond energies to outline an explanation about energy changes in chemical reactions		1 2 3 4 5 6 7 8
4	Use a diagram of relative energy levels of particles to explain energy changes observed during a change of state		1 2 3 4 5 6 7 8
5	Use ideas about bond energies to explain energy changes in		1 2 3 4 5 6 7 8
6	Suggest why the temperature of the system decreases at first for an endothermic process		1 2 3 4 5 6 7 8
7	Use models and diagrams to explain energy level diagrams clearly and in detail		1 2 3 4 5 6 7 8
8	Use an energy level diagram to explain whether a given reaction would be more suitable for a chemical hand warmer or a cool pack		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3b - 7 Earth	Started (/) Completed (X)	Level Achieved
	7.3.1 Global warming		
1	State that global warming is the gradual increase in surface		1 2 3 4 5 6 7 8
2	Design a model to explain the greenhouse effect, and use an annotated diagram to describe the model in detail		1 2 3 4 5 6 7 8
3	Interpret graphs that show trends over time		1 2 3 4 5 6 7 8
4	Describe and explain what is meant by global warming		1 2 3 4 5 6 7 8
5	Compare the relative effects of human-produced and natural global warming		1 2 3 4 5 6 7 8
6	Design and evaluate a model to explain the greenhouse effect, and use an annotated diagram to describe the model in detail.		1 2 3 4 5 6 7 8
7	Interpret graphs that show trends over time, and explain their limitations		1 2 3 4 5 6 7 8