Obj No	Chemistry KS3a - 5 Matter 5.1.1 The particle model	Started (/) Completed (X)	Level Achieved
1	State that materials are made up of particles		1 2 3 4 5 6 7 8
2	State that the properties of substances can be described in terms of particles in motion		1 2 3 4 5 6 7 8
3	State what toy building bricks are representing when they are used to model substances		1 2 3 4 5 6 7 8
4	Explain, in terms of particles, why different substances have different properties		1 2 3 4 5 6 7 8
5	Explain properties, such as density, based on the arrangement and mass of particles		1 2 3 4 5 6 7 8
6	Use models to investigate the relationship between the properties of a material and the arrangement of its particles		1 2 3 4 5 6 7 8
7	Evaluate particle models that explain the properties of substances		1 2 3 4 5 6 7 8
8	Use data about particles to predict and explain differences in properties such as density		1 2 3 4 5 6 7 8
9	Design and explain a new representation for the particle model		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 5 Matter 5.1.2 States of matter	Started (/) Completed (X)	Level Achieved
1	Describe the properties of a substance in its three states		1 2 3 4 5 6 7 8
2	State that the properties of substances can be described in terms of the arrangement and movement of its particles		1 2 3 4 5 6 7 8
3	Make relevant observations in order to decide is a substance is in its solid, liquid or gas state		1 2 3 4 5 6 7 8
4	Compare the properties of a substance in its three states		1 2 3 4 5 6 7 8
5	Explain the properties of solids, liquids, and gases based on the arrangement and movement of their particles		1 2 3 4 5 6 7 8
6	Use observations to decide if a substance is in its solid, liquid or gas state		1 2 3 4 5 6 7 8
7	Argue for how to classify substances which behave unusually as solids, liquids, or gases		1 2 3 4 5 6 7 8
8	Justify whether a given property of a substance in a given state can be explained by the arrangement, or by the movement, of its particles		1 2 3 4 5 6 7 8
9	Evaluate a representation of the particle model		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 5 Matter 5.1.3 Melting and freezing	Started (/) Completed (X)	Level Achieved
1	Describe how the properties of a substance change as it melts or freezes		1 2 3 4 5 6 7 8
2	Recognise an energy transfer during a change of state		1 2 3 4 5 6 7 8
3	Describe the observations as stearic acid cools in terms of states of matter		1 2 3 4 5 6 7 8
4	Draw annotated before and after diagrams of particles, and use words, to explain observations about melting and freezing		1 2 3 4 5 6 7 8
5	Explain melting and freezing in terms of changes to the energy of particles		1 2 3 4 5 6 7 8
6	Use cooling data to identify the melting point of stearic acid		1 2 3 4 5 6 7 8
7	Explain why there is a period of constant temperature during melting and freezing based on the arrangement and movement of particles, and energy transfers		1 2 3 4 5 6 7 8
8	Explain in detail the differences between melting and freezing		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 5 Matter 5.1.4 Boiling	Started (/) Completed (X)	Level Achieved
1	Describe how the properties of a substance change as it boils		1 2 3 4 5 6 7 8
2	Recognise an energy transfer during a change of state		1 2 3 4 5 6 7 8
3	Draw straightforward conclusions from boiling point data presented in tables and graphs		1 2 3 4 5 6 7 8
4	Draw annotated before and after diagrams of particles, and use words, to explain observations about boiling		1 2 3 4 5 6 7 8
5	Explain why different substances boil at different temperatures in terms of changes to the energy of particles		1 2 3 4 5 6 7 8
6	Explain why there is a period of constant temperature during boiling based on the arrangement and movement of particles, and energy transfers		1 2 3 4 5 6 7 8
7	Suggest reasons for the different boiling points of different substances based on the arrangement, movement, and energy transfers of their particles		1 2 3 4 5 6 7 8
8	Assess the strength of evidence from boiling point data, deciding whether it is sufficient to support a conclusion		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 5 Matter 5.1.5 More changes in state	Started (/) Completed (X)	Level Achieved
1	State the names of changes of state involving gases		1 2 3 4 5 6 7 8
2	Describe one difference between evaporation and boiling		1 2 3 4 5 6 7 8
3	Write a fair test enquiry question on evaporation, and plan the method and how to control the variables		1 2 3 4 5 6 7 8
4	Draw annotated before and after diagrams of particles, and use words, to explain observations about evaporating, condensing and subliming		1 2 3 4 5 6 7 8
5	Explain differences between evaporation, sublimation and boiling based on the arrangement and movement of particles		1 2 3 4 5 6 7 8
6	Make predictions about what will happen during an unfamiliar physical process – deposition – in terms of particles and their energy		1 2 3 4 5 6 7 8
7	Compare evaporation, boiling and sublimation based on the arrangement, movement, and energy transfers of particles		1 2 3 4 5 6 7 8
8	Justify the procedure and evaluate the results in an evaporation investigation		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 5 Matter 5.1.6 Diffusion	Started (/) Completed (X)	Level Achieved
1	Describe examples of diffusion		1 2 3 4 5 6 7 8
2	State that observations about diffusion can be explained in terms of particles in motion		1 2 3 4 5 6 7 8
3	Write a fair test enquiry question on diffusion, identify the independent and dependent variables, and plan the method and how to control the variables		1 2 3 4 5 6 7 8
4	Describe evidence for diffusion		1 2 3 4 5 6 7 8
5	Draw annotated before and after diagrams of particles, and use words, to explain diffusion		1 2 3 4 5 6 7 8
6	Explain why it is important to control variables to provide evidence for a conclusion in a diffusion investigation		1 2 3 4 5 6 7 8
7	Evaluate observations that provide evidence for the existence of particles		1 2 3 4 5 6 7 8
8	Draw annotated before and after diagrams of particles, and use words, to predict the relative speed of diffusion when the value of a given independent variable is changed		1 2 3 4 5 6 7 8
9	Justify the procedure and evaluate the results in a diffusion investigation		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 5 Matter 5.1.7 Gas pressure	Started (/) Completed (X)	Level Achieved
1	Describe examples of gas pressure		1 2 3 4 5 6 7 8
2	Use words to explain gas pressure simply		1 2 3 4 5 6 7 8
3	Collect and interpret simple primary data to provide evidence for gas pressure		1 2 3 4 5 6 7 8
4	Draw annotated before and after particle diagrams, and use words, to explain what happens to gas pressure as conditions are changed		1 2 3 4 5 6 7 8
5	Predict what will happen to gas pressure as conditions are changed in terms of particles and their energy		1 2 3 4 5 6 7 8
6	Evaluate the extent to which a conclusion made from primary data about gas pressure is justified by the evidence collected		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 5 Matter 5.1.8 Inside particles	Started (/) Completed (X)	Level Achieved
1	State definitions of atoms, elements, molecules and compounds		1 2 3 4 5 6 7 8
2	Name one element and one compound		1 2 3 4 5 6 7 8
3	Draw annotated particle diagrams, and use words, to explain gas pressure		1 2 3 4 5 6 7 8
4	Explain unfamiliar observations about gas pressure in terms of particles		1 2 3 4 5 6 7 8
5	Collect, analyse and draw a conclusion from primary data providing evidence for gas pressure		1 2 3 4 5 6 7 8
6	Represent atoms, molecules and elements using models		1 2 3 4 5 6 7 8
7	Use diagrams to represent atoms and molecules of elements and compounds		1 2 3 4 5 6 7 8
8	Compare atoms, molecules and elements using models		1 2 3 4 5 6 7 8
9	Use diagrams to compare molecules of an element and a compound		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 5 Matter 5.2.1 Pure substances and mixtures	Started (/) Completed (X)	Level Achieved
1	State what a mixture is and give examples of mixtures		1 2 3 4 5 6 7 8
2	State that a mixture can be separated as a result of the different melting points of its components		1 2 3 4 5 6 7 8
3	With help, choose a simple technique to separate the substances in a mixture		1 2 3 4 5 6 7 8
4	Explain what a mixture is using the particle model		1 2 3 4 5 6 7 8
5	Explain how to use melting temperatures to distinguish mixtures from pure substances		1 2 3 4 5 6 7 8
6	Devise suitable techniques to separate mixtures, based on their properties		1 2 3 4 5 6 7 8
7	Use particle models to compare mixtures and pure substances		1 2 3 4 5 6 7 8
8	Comment on the purity of a substance by interpreting temperature change data		1 2 3 4 5 6 7 8
9	Justify the suitability of separation techniques in terms of the properties of constituent substances		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 5 Matter 5.2.2 Solutions	Started (/) Completed (X)	Level Achieved
1	When provided with key words, describe solutions using key words		1 2 3 4 5 6 7 8
2	Describe observations when a substance dissolves		1 2 3 4 5 6 7 8
3	Use observations or data to draw a conclusion to distinguish a solution from a pure liquid		1 2 3 4 5 6 7 8
4	Explain how substances dissolve using the particle model		1 2 3 4 5 6 7 8
5	Draw annotated before and after particle diagrams to represent dissolving		1 2 3 4 5 6 7 8
6	Use data to draw a conclusion about the mass of solute dissolved in a solution		1 2 3 4 5 6 7 8
7	Explain the relationship between solutes, solvents, and solutions		1 2 3 4 5 6 7 8
8	Justify whether a given particle diagram represents a solution or a pure substance		1 2 3 4 5 6 7 8
9	Explain the applications of solution chemistry to different contexts		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 5 Matter 5.2.3 Solubility	Started (/) Completed (X)	Level Achieved
1	Suggest a reason for the effect of temperature on solubility for a given solute		1 2 3 4 5 6 7 8
2	Analyse and interpret solubility curves		1 2 3 4 5 6 7 8
3	Justify the procedure and evaluate the results in a solubility investigation		1 2 3 4 5 6 7 8
4	Explain observations about dissolving		1 2 3 4 5 6 7 8
5	Use the solubility curve of a solute to describe and explain simply observations about solutions		1 2 3 4 5 6 7 8
6	Explain why it is important to control variables to provide evidence for a conclusion in a solubility investigation		1 2 3 4 5 6 7 8
7	Suggest a reason for the effect of temperature on solubility for a given solute		1 2 3 4 5 6 7 8
8	Analyse and interpret solubility curves		1 2 3 4 5 6 7 8
9	Justify the procedure and evaluate the results in a solubility investigation		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 5 Matter 5.2.4 Filtration	Started (/) Completed (X)	Level Achieved
1	State that mixtures may be separated due to differences in their physical properties		1 2 3 4 5 6 7 8
2	State that the method chosen to separate a mixture depends on which physical properties of the individual substances are different		1 2 3 4 5 6 7 8
3	Identify a physical property that must be different in order for given separation technique to work		1 2 3 4 5 6 7 8
4	Choose the most suitable technique(s) to separate a mixture of substances		1 2 3 4 5 6 7 8
5	Use annotated before and after particle diagrams, and words, to explain how filtration works		1 2 3 4 5 6 7 8
6	Explain why a stated physical property must be different in order for a given separation technique to work		1 2 3 4 5 6 7 8
7	Justify a chosen technique for separating a mixture of substances		1 2 3 4 5 6 7 8
8	Design a model to explain filtering, and identify advantages and disadvantages of the model		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 5 Matter 5.2.5 Evaporation and distillation	Started (/) Completed (X)	Level Achieved
1	State that mixtures may be separated owing to differences in their physical properties		1 2 3 4 5 6 7 8
2	State that the method chosen to separate a mixture depends on which physical properties of the individual substances are different		1 2 3 4 5 6 7 8
3	Identify the physical property that must be different in order to separate a mixture by evaporation or distillation		1 2 3 4 5 6 7 8
4	Draw annotated before and after particle diagrams, and use words, to explain how evaporation and distillation work		1 2 3 4 5 6 7 8
5	Use the particle model to explain observations made during the distillation of inky water		1 2 3 4 5 6 7 8
6	Compare evaporation and distillation		1 2 3 4 5 6 7 8
7	Justify whether evaporation or distillation would be suitable for obtaining given substances from solution		1 2 3 4 5 6 7 8
8	Suggest a combination of methods to separate a complex mixture and justify the choices made		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 5 Matter 5.2.6 Chromatography	Started (/) Completed (X)	Level Achieved
1	Describe what happens to a mixture when it undergoes chromatography		1 2 3 4 5 6 7 8
2	Describe what a chromatogram looks like		1 2 3 4 5 6 7 8
3	Use evidence from chromatography to identify unknown substances in mixtures, and to identify the pen or plant a sample is from		1 2 3 4 5 6 7 8
4	Explain how chromatography separates mixtures		1 2 3 4 5 6 7 8
5	Identify one physical property which must be different, and one physical property which must be the same, in order to separate a mixture by chromatography		1 2 3 4 5 6 7 8
6	Use evidence from chromatography to explain how to identify unknown substances in mixtures, and to identify the pen or plant a sample is from		1 2 3 4 5 6 7 8
7	Justify the use of chromatography in different scenarios		1 2 3 4 5 6 7 8
8	Consider how chromatography can be used to monitor the progress of reactions		1 2 3 4 5 6 7 8
9	Suggest possible issues to consider when using chromatography to identify unknown substances		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 6 Reactions 6.1.1 Chemical reactions	Started (/) Completed (X)	Level Achieved
1	Describe some features of chemical reactions		1 2 3 4 5 6 7 8
2	Give examples of chemical reactions and physical changes		1 2 3 4 5 6 7 8
3	Record simple observations from practical work		1 2 3 4 5 6 7 8
4	Explain what a chemical reaction is, giving examples		1 2 3 4 5 6 7 8
5	Deduce whether described change is a physical change or a chemical reaction		1 2 3 4 5 6 7 8
6	Record detailed observations from practical work		1 2 3 4 5 6 7 8
7	Justify the use of specific metals and non-metals for different applications		1 2 3 4 5 6 7 8
8	Compare chemical reactions to physical changes		1 2 3 4 5 6 7 8
9	Deduce whether an observed or described change is a physical change or a chemical reaction		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 6 Reactions 6.1.2 Acids and alkalis	Started (/) Completed (X)	Level Achieved
1	Name some common properties of acids and alkalis		1 2 3 4 5 6 7 8
2	Describe, in simple terms, what the key words 'concentrated' and 'dilute' mean		1 2 3 4 5 6 7 8
3	Label hazard symbols and describe the hazards relating to them		1 2 3 4 5 6 7 8
4	Compare the properties of acids and alkalis		1 2 3 4 5 6 7 8
5	Describe differences between concentrated and dilute solutions of an acid		1 2 3 4 5 6 7 8
6	Identify and describe the meaning of hazard symbols and offer suitable safety precautions		1 2 3 4 5 6 7 8
7	Compare the different particles found in acids and alkalis		1 2 3 4 5 6 7 8
8	Explain what 'concentrated' and 'dilute' mean, in terms of the numbers of particles present		1 2 3 4 5 6 7 8
9	Offer suitable safety precautions when given a hazard symbol, and give a reason for the suggestion		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 6 Reactions 6.1.3 Indicators and pH	Started (/) Completed (X)	Level Achieved
1	State that acids have a pH below 7, neutral solutions have a pH of 7, alkalis have a pH above 7		1 2 3 4 5 6 7 8
2	State that indicators will be different colours in acids, alkalis, and neutral solutions		1 2 3 4 5 6 7 8
3	Identify the pH of a solution using experimental observations		1 2 3 4 5 6 7 8
4	Use the pH scale to measure acidity and alkalinity		1 2 3 4 5 6 7 8
5	Describe how indicators categorise solutions as acidic, alkaline, or neutral		1 2 3 4 5 6 7 8
6	Identify the best indicator to distinguish between solutions of different pH, using data provided		1 2 3 4 5 6 7 8
7	Compare the use of a variety of indicators and a pH probe to measure acidity and alkalinity		1 2 3 4 5 6 7 8
8	Deduce the hazards of different acids and alkalis using data about their pH		1 2 3 4 5 6 7 8
9	Evaluate the accuracy of the pH values chosen through the experimental observations		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 6 Reactions 6.1.4 Acid strength	Started (/) Completed (X)	Level Achieved
1	State examples of strong and weak acids		1 2 3 4 5 6 7 8
2	State the pH range for acidic solutions		1 2 3 4 5 6 7 8
3	Explain the difference between a strong acid and a weak acid		1 2 3 4 5 6 7 8
4	Compare pH values of concentrated and dilute solutions of the same acid		1 2 3 4 5 6 7 8
5	Use models to show the difference between a strong acid and a weak acid		1 2 3 4 5 6 7 8
6	Explain the difference between acid strength and acid concentration		1 2 3 4 5 6 7 8
7	Deduce the hazards of different acids using data about their concentration and pH		1 2 3 4 5 6 7 8
8	Evaluate models for strong and weak acids, and suggest improvements		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 6 Reactions 6.1.5 Neutralisation	Started (/) Completed (X)	Level Achieved
1	State simply what happens during a neutralisation reaction		1 2 3 4 5 6 7 8
2	Give one example of a neutralisation reaction		1 2 3 4 5 6 7 8
3	Identify independent, dependent, and control variables in an investigation		1 2 3 4 5 6 7 8
4	Describe a method for making a neutral solution from an acid and an alkali		1 2 3 4 5 6 7 8
5	Explain how neutralisation reactions are used in a range of situations		1 2 3 4 5 6 7 8
6	Design an investigation to find out which indigestion remedy is 'better'		1 2 3 4 5 6 7 8
7	Interpret a graph of pH changes during a neutralisation reaction		1 2 3 4 5 6 7 8
8	Justify the method chosen to investigate which indigestion remedy is 'better'		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 6 Reactions 6.1.6 Making salts	Started (/) Completed (X)	Level Achieved
1	State the type of substances made when an acid and alkali react		1 2 3 4 5 6 7 8
2	Match the type of salt that will form from the type of acid used		1 2 3 4 5 6 7 8
3	Describe observations during an experiment		1 2 3 4 5 6 7 8
4	Describe what a salt is		1 2 3 4 5 6 7 8
5	Choose the correct name of the salt formed in a neutralisation reaction from a list of possible salts		1 2 3 4 5 6 7 8
6	Describe the steps in making a salt in a neutralisation reaction		1 2 3 4 5 6 7 8
7	Explain what salt formation displaces from the acid		1 2 3 4 5 6 7 8
8	Predict the names of salts formed when acids react with metals or bases and write word equations to represent the reactions		1 2 3 4 5 6 7 8
9	Describe and explain the steps involved in making a salt in a neutralisation reaction		1 2 3 4 5 6 7 8
10	Estimate the pH value of an acid based on information about its reactions		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 6 Reactions 6.2.1 More about elements	Started (/) Completed (X)	Level Achieved
1	State what an element is		1 2 3 4 5 6 7 8
2	State examples of elements		1 2 3 4 5 6 7 8
3	Present some simple facts about an element		1 2 3 4 5 6 7 8
4	Identify an unknown element from its physical and chemical properties		1 2 3 4 5 6 7 8
5	Compare the properties of typical metals and non-metals		1 2 3 4 5 6 7 8
6	Record observations and data on elements		1 2 3 4 5 6 7 8
7	Justify the use of specific metals and non-metals for different applications, using data provided		1 2 3 4 5 6 7 8
8	Deduce the relationship between the position of an element in the periodic table and its properties		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 6 Reactions 6.2.2 Chemical reactions of metals and non-metals	Started (/) Completed (X)	Level Achieved
1	State that many elements react with oxygen to form oxides		1 2 3 4 5 6 7 8
2	State what the arrow means in a word equation		1 2 3 4 5 6 7 8
3	Describe a difference in physical properties between typical metal and non-metal oxides		1 2 3 4 5 6 7 8
4	Use particle diagrams to represent oxidation reactions		1 2 3 4 5 6 7 8
5	Describe an oxidation reaction with a word equation		1 2 3 4 5 6 7 8
6	Classify the products obtained when typical metal and non-metal elements react with oxygen		1 2 3 4 5 6 7 8
7	Decide whether a word equation represents an oxidation reaction		1 2 3 4 5 6 7 8
8	Interpret a word equation to name reactants and products		1 2 3 4 5 6 7 8
9	Deduce the physical or chemical changes a metal has undergone from its appearance		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 6 Reactions 6.2.2 Chemical reactions of metals and non-metals	Started (/) Completed (X)	Level Achieved
1	Describe what happens when metals react with acids		1 2 3 4 5 6 7 8
2	State that when a metal reacts with an acid the products are a salt and hydrogen gas		1 2 3 4 5 6 7 8
3	State which metals produce bubbles when reacting with acid		1 2 3 4 5 6 7 8
4	Compare the reactions of different metals with dilute acids		1 2 3 4 5 6 7 8
5	Predict the names of the products formed in a metal-acid reaction, and describe the reaction with a word equation or represent it with a particle diagram		1 2 3 4 5 6 7 8
6	Suggest how temperature changes may be linked with differences in reactivity between metals with acid		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 6 Reactions 6.2.4 Metals and oxygen	Started (/) Completed (X)	Level Achieved
1	State the product of a reaction between a metal and oxygen		1 2 3 4 5 6 7 8
2	Name one metal that reacts vigorously with oxygen and one metal that does not react with oxygen		1 2 3 4 5 6 7 8
3	Make observations about how different metals react with oxygen		1 2 3 4 5 6 7 8
4	Compare the reactions of different metals with oxygen		1 2 3 4 5 6 7 8
5	Describe an oxidation reaction with a word equation		1 2 3 4 5 6 7 8
6	Rank metals in order of how vigorously they react with oxygen		1 2 3 4 5 6 7 8
7	Explain the reactivity of metals according to how they react with oxygen		1 2 3 4 5 6 7 8
8	Justify the use of specific metals for different applications, using data provided		1 2 3 4 5 6 7 8
9	Deduce the physical or chemical changes a metal has undergone from its appearance		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 6 Reactions 6.2.5 Metals and water	Started (/) Completed (X)	Level Achieved
1	State the products of the reaction between metals and water		1 2 3 4 5 6 7 8
2	State whether a metal is more or less reactive than another metal		1 2 3 4 5 6 7 8
3	Write a simple method to find out how easily metals react with acids or water		1 2 3 4 5 6 7 8
4	Compare the reactions of different metals with water		1 2 3 4 5 6 7 8
5	Use the reactivity series to predict reactions, and place an unfamiliar metal into the reactivity series based on information about its reactions		1 2 3 4 5 6 7 8
6	Plan a practical to compare the reactivity of three metals, including identifying control variables and planning how to control them		1 2 3 4 5 6 7 8
7	Link a metal's reactions with its place in the reactivity series		1 2 3 4 5 6 7 8
8	Deduce a rule from data about which reactions will occur or not, based on the reactivity series		1 2 3 4 5 6 7 8
9	Write a suitable fair test question and plan in detail which variables to control and how to control them		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 6 Reactions 6.2.6 Metal displacement reactions	Started (/) Completed (X)	Level Achieved
1	State which metal is more reactive in a pair of named metals		1 2 3 4 5 6 7 8
2	State where different metals are found in the reactivity series		1 2 3 4 5 6 7 8
3	Use observations from experiment to state whether or not a displacement reaction has occurred		1 2 3 4 5 6 7 8
4	Predict if a given pair of substances will react in displacement reactions		1 2 3 4 5 6 7 8
5	Use the reactivity series to explain displacement reactions		1 2 3 4 5 6 7 8
6	Use word equations and particle diagrams to represent displacement reactions		1 2 3 4 5 6 7 8
7	Explain predictions about displacement reactions		1 2 3 4 5 6 7 8
8	Devise a model to explain displacement reactions		1 2 3 4 5 6 7 8
9	Suggest the identity of unknown metals, given information about their reactions		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 7 Earth 7.1.1 The structure of the Earth	Started (/) Completed (X)	Level Achieved
1	Name the layers of the Earth		1 2 3 4 5 6 7 8
2	State what a mineral is		1 2 3 4 5 6 7 8
3	Design a simple model of the Earth using information about its structure		1 2 3 4 5 6 7 8
4	Describe properties of the different layers of the Earth's structure		1 2 3 4 5 6 7 8
5	Explain that most rocks are mixtures of minerals		1 2 3 4 5 6 7 8
6	Describe advantages and disadvantages of a given model of the Earth's structure		1 2 3 4 5 6 7 8
7	Compare the different layers of the Earth in terms of their properties		1 2 3 4 5 6 7 8
8	Interpret data about the elements that make up the Earth's crust		1 2 3 4 5 6 7 8
9	Explain why models are good or poor representations of the Earth's structure in terms of materials used		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 7 Earth 7.1.2 Sedimentary rocks	Started (/) Completed (X)	Level Achieved
1	State a property of sedimentary rocks		1 2 3 4 5 6 7 8
2	Describe how sedimentary rocks are made		1 2 3 4 5 6 7 8
3	State the processes shown by different models of the stages in sedimentary rock formation		1 2 3 4 5 6 7 8
4	Explain why a sedimentary rock has a particular property based on how it was formed		1 2 3 4 5 6 7 8
5	Identify the causes of weathering and erosion and describe how they occur		1 2 3 4 5 6 7 8
6	Explain how a given model represents a particular process in the formation of sedimentary rock		1 2 3 4 5 6 7 8
7	Predict planetary conditions from descriptions of rocks on other planets		1 2 3 4 5 6 7 8
8	Explain in detail each stage in the formation of a sedimentary rock		1 2 3 4 5 6 7 8
9	Evaluate strengths and weaknesses for models of sedimentary rock formation, giving reasons		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 7 Earth 7.1.3 Igneous and metamorphic rocks	Started (/) Completed (X)	Level Achieved
1	State one difference between igneous and metamorphic rocks		1 2 3 4 5 6 7 8
2	Describe how igneous and metamorphic rocks are formed		1 2 3 4 5 6 7 8
3	Describe what you see when a substance representing lava is cooled		1 2 3 4 5 6 7 8
4	Explain in detail how igneous and metamorphic rocks form		1 2 3 4 5 6 7 8
5	Explain why igneous and metamorphic rocks have particular properties based on how they were formed		1 2 3 4 5 6 7 8
6	Predict observations when a substance representing lava is cooled at different temperatures		1 2 3 4 5 6 7 8
7	Discuss examples of rocks that illustrate the different methods of formation of igneous and metamorphic rocks		1 2 3 4 5 6 7 8
8	Identify circumstances that indicate fast processes of change on Earth and those that indicate slower processes		1 2 3 4 5 6 7 8
9	Predict observations when a substance representing lava is cooled, using knowledge about igneous rock formation to explain the answer.		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 7 Earth 7.1.4 The rock cycle	Started (/) Completed (X)	Level Achieved
1	Give simple facts about how a rock can be changed from one type to another		1 2 3 4 5 6 7 8
2	State what happens to wax in a model rock cycle		1 2 3 4 5 6 7 8
3	Use the rock cycle to explain how the material in rocks is recycled		1 2 3 4 5 6 7 8
4	Describe how changes in the wax used to represent a rock represent the real rock cycle		1 2 3 4 5 6 7 8
5	Give a detailed description and explanation of the journey of material through the rock cycle		1 2 3 4 5 6 7 8
6	Suggest similarities and differences between the rock cycle and everyday physical and chemical processes		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 7 Earth 7.1.5 Ceramics	Started (/) Completed (X)	Level Achieved
1	List the properties of ceramics		1 2 3 4 5 6 7 8
2	List some uses of ceramics		1 2 3 4 5 6 7 8
3	Suggest a simple method for comparing the strength of ceramic materials given a choice of apparatus		1 2 3 4 5 6 7 8
4	Use data on properties to decide which materials might be ceramics		1 2 3 4 5 6 7 8
5	Explain why properties of ceramics make them suitable for their uses		1 2 3 4 5 6 7 8
6	Plan a method for comparing the strength of ceramic materials, including devising a fair test question, identifying control variables, and identifying risks, hazards and control measures		1 2 3 4 5 6 7 8
7	Justify decisions made from property data about which materials might be ceramics		1 2 3 4 5 6 7 8
8	Suggest how ceramic materials might be similar to some types of rock		1 2 3 4 5 6 7 8
9	Plan a method for comparing the strength of ceramic materials, justifying choices of experimental techniques, apparatus and the measures to control risk		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 7 Earth 7.2.1 The night sky	Started (/) Completed (X)	Level Achieved
1	Name some objects seen in the night sky		1 2 3 4 5 6 7 8
2	State a unit that astronomers use to measure distance		1 2 3 4 5 6 7 8
3	Identify scientific evidence from secondary evidence		1 2 3 4 5 6 7 8
4	Describe how space observation of stars is affected by the scale of the Universe		1 2 3 4 5 6 7 8
5	Explain the choice of light years as a unit of measuring distances in astronomy		1 2 3 4 5 6 7 8
6	Draw valid conclusions that utilise more than one piece of supporting evidence		1 2 3 4 5 6 7 8
7	Describe the structure of the Universe in detail, in order of size and of distance away from the Earth		1 2 3 4 5 6 7 8
8	Use the speed of light to describe distances between astronomical objects		1 2 3 4 5 6 7 8
9	Assess the strength of evidence, deciding whether it is sufficient to support a conclusion		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 7 Earth 7.2.2 The Solar System	Started (/) Completed (X)	Level Achieved
1	Name some objects in the Solar System		1 2 3 4 5 6 7 8
2	Explain how we see planets		1 2 3 4 5 6 7 8
3	Identify some patterns in the Solar System		1 2 3 4 5 6 7 8
4	Describe how objects in the Solar System are arranged		1 2 3 4 5 6 7 8
5	Explain why we see objects in the Solar System, and describe how they appear to move		1 2 3 4 5 6 7 8
6	Describe how space exploration is affected by the scale of the Universe		1 2 3 4 5 6 7 8
7	Explain how the properties and features of planets are linked to their place in the Solar System		1 2 3 4 5 6 7 8
8	Explain why we see objects in the Solar System, and why they appear to move as they do		1 2 3 4 5 6 7 8
9	Make deductions from observation data of planets, stars, and galaxies		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 7 Earth 7.2.3 The Earth	Started (/) Completed (X)	Level Achieved
1	Describe differences between seasons		1 2 3 4 5 6 7 8
2	Describe the motion of the Sun, stars, and Moon across the sky		1 2 3 4 5 6 7 8
3	Describe patterns in data linking day length during the year		1 2 3 4 5 6 7 8
4	Explain the motion of the Sun, stars, and Moon across the sky		1 2 3 4 5 6 7 8
5	Explain why seasonal changes happen		1 2 3 4 5 6 7 8
6	Use data to show the effect of the Earth's tilt on temperature and day-length		1 2 3 4 5 6 7 8
7	Predict the effect of the Earth's tilt on temperature and day length		1 2 3 4 5 6 7 8
8	Predict how seasons would be different if there were no tilt		1 2 3 4 5 6 7 8
9	Interpret data to predict how the Earth's tilt affects temperature and day length		1 2 3 4 5 6 7 8

Obj No	Chemistry KS3a - 7 Earth 7.2.4 The Moon and changing ideas	Started (/) Completed (X)	Level Achieved
1	Name some phases of the Moon		1 2 3 4 5 6 7 8
2	Explain simply why we see the Moon from Earth		1 2 3 4 5 6 7 8
3	Show the different phases of the Moon using models provided		1 2 3 4 5 6 7 8
4	Name the current model of the Solar System		1 2 3 4 5 6 7 8
5	Describe the phases of the Moon		1 2 3 4 5 6 7 8
6	Describe the appearance of the Moon from diagrams of the Earth, Sun and Moon		1 2 3 4 5 6 7 8
7	Explain phases of the Moon using the models provided		1 2 3 4 5 6 7 8
8	Describe evidence that led to a change in the model of the Solar System		1 2 3 4 5 6 7 8
9	Predict phases of the Moon at a given time		1 2 3 4 5 6 7 8
10	Explain how total eclipses are linked to phases of the Moon		1 2 3 4 5 6 7 8
11	Predict the phases of the Moon using models provided		1 2 3 4 5 6 7 8
12	Compare explanations about the motion and structure of the Universe from different periods in history		1 2 3 4 5 6 7 8