



Learning Journey – 8A The Periodic Table

What have I done previously in my learning journey?				
Previously....	You have learnt previously about atoms, elements and compounds. This has involved: - Describing that all matter is made of particles called atoms. - Explaining the differences between atoms, elements and compounds. - Identifying elements and compounds using chemical symbols and formulae. - Interpreting simple chemical formulae to identify the elements present in a substance. - Using scientific models and diagrams to represent atoms, elements and compounds.			
In this topic...	You will learn about the Periodic Table and the properties of different elements. This will involve learning about: - how the modern periodic table was developed through the work of scientists such as Mendeleev - the arrangement of elements in the periodic table into groups and periods - the differences between metals and non-metals - the physical and chemical properties of different elements - how patterns in the periodic table can be used to predict the properties and reactions of elements - the properties and reactions of elements in Group 1, Group 7 and Group 0 - how elements react and how these reactions can be represented using word equations - how scientists use evidence and patterns to classify and organise elements			
We will develop our learning by studying the following each lesson:		British Values	RAG	Skills in Science checklist
8A.01 The Periodic Table - Describe how the modern periodic table developed through the work of scientists such as Mendeleev - Identify metals, non-metals, groups and periods on the periodic table - Describe the location of elements on the periodic table		☐ Democracy ☐ Rule of law ☐ Tolerance ☐ Individual liberty ☐ Mutual respect		☐ Development of scientific thinking ☐ Experimental skills and strategies ☐ Analysis and evaluation ☐ Scientific literacy ☐ Maths skills
8A.02 Metals and Non-Metals - Explain how elements are classified as metals and non-metals - Use patterns to classify an element as a metal or a non-metal - Describe and compare the physical and chemical properties of metals and non-metals		☐ Democracy ☐ Rule of law ☐ Tolerance ☐ Individual liberty ☐ Mutual respect		☐ Development of scientific thinking ☐ Experimental skills and strategies ☐ Analysis and evaluation ☐ Scientific literacy ☐ Maths skills
8A.03 Patterns in the Periodic Table - Describe what is meant by chemical and physical properties - Use patterns to predict properties of elements - Explain how an element's position in a group or period can be used to predict its properties		☐ Democracy ☐ Rule of law ☐ Tolerance ☐ Individual liberty ☐ Mutual respect		☐ Development of scientific thinking ☐ Experimental skills and strategies ☐ Analysis and evaluation ☐ Scientific literacy ☐ Maths skills
8A.04 Reactions of Metals - Describe how some metals react with water. - Write word equations for reactions between metals and water. - Use observations to compare the reactivity of different metals.		☐ Democracy ☐ Rule of law ☐ Tolerance ☐ Individual liberty ☐ Mutual respect		☐ Development of scientific thinking ☐ Experimental skills and strategies ☐ Analysis and evaluation ☐ Scientific literacy ☐ Maths skills
8A.05 Elements of Group 1 - Make simple observations about the reactivity of Group 1 metals in water - Use patterns to predict properties of Group 1 elements - Interpret data to explain patterns in properties of Group 1 elements.		☐ Democracy ☐ Rule of law ☐ Tolerance ☐ Individual liberty ☐ Mutual respect		☐ Development of scientific thinking ☐ Experimental skills and strategies ☐ Analysis and evaluation ☐ Scientific literacy ☐ Maths skills
8A.06 Elements of Group 7 - Describe what happens in a displacement reaction between halogens - Identify risks of using Group 7 elements using the hazard symbols associated with them - Write word equations to represent displacement reactions		☐ Democracy ☐ Rule of law ☐ Tolerance ☐ Individual liberty		☐ Development of scientific thinking ☐ Experimental skills and strategies ☐ Analysis and evaluation



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	☐ Mutual respect		☐ Scientific literacy ☐ Maths skills
8A.07 Elements of Group 0 - Describe the physical and chemical properties of Group 0 elements - Use patterns to predict properties of Group 0 elements	☐ Democracy ☐ Rule of law ☐ Tolerance ☐ Individual liberty ☐ Mutual respect		☐ Development of scientific thinking ☐ Experimental skills and strategies ☐ Analysis and evaluation ☐ Scientific literacy ☐ Maths skills

Key Words									
Classification	Element	Group	Mendeleev	Period	Conductor	Ductile	Lustrous	Non-metal	Malleable
Chemical property	Physical property	Predict	Trend	Variable	Hydrogen	Observation	Product	Reactant	Reactivity
Alkali metal	Caesium	Lithium	Potassium	Sodium	Bromine	Displacement	Halogen	Hazard	Iodine
Argon	Helium	Inert	Neon	Noble gas					

Future Learning	At GCSE you will build on your knowledge of the Periodic Table by learning how the arrangement of elements is linked to their atomic structure. You will explore how the number and arrangement of electrons determines an element's position in the Periodic Table and helps explain patterns in their chemical properties. You will build on your understanding of metals and non-metals by studying how atoms bond together to form compounds. You will learn how metals and non-metals react to form ions and how these ideas explain the structure and properties of different substances. You will develop your understanding of Group 1, Group 7 and Group 0 by explaining trends in reactivity and properties using electron arrangements. You will also learn how scientists use the Periodic Table to predict the behaviour of unfamiliar elements. You will build on your knowledge of chemical reactions by writing and balancing symbol equations, calculating relative formula masses, and using the Periodic Table to understand a wider range of reactions and chemical processes.
In careers	Understanding the Periodic Table helps people work in many scientific and technical careers. Chemists use their knowledge of elements and reactions to develop new medicines, materials and products (average salary £28,000–£60,000+). Chemical engineers apply their understanding of the properties of elements to design manufacturing processes for fuels, food products and pharmaceuticals (average salary £35,000–£70,000+). Materials scientists use knowledge of metals and non-metals to create new materials for transport, electronics and construction (average salary £30,000–£55,000+). The Periodic Table is also important in careers such as pharmacy (£43,000–£65,000+), environmental science (£28,000–£50,000+) and laboratory technology (£22,000–£35,000+), where understanding the properties and reactions of elements helps solve real-world problems.