	Year 8	**Pathway 2/3/4**	**Science - Autumn - Term 1**

Learning Intention: <u>Chemistry</u> - Materials and their Behaviour

<u>States of Matter</u>

Students will have the opportunity to learn and extend their understanding of the health and safety in the Laboratory .This unit develops an understanding of the different properties of solids, liquids and gases, the water cycle,compounds and mixtures. By using this knowledge they will go on to identify hazards in the laboratory,this also provides opportunities to introduce the methods of working in a science laboratory, which will differ from the science learning experience that most students will have had previously.To recall the three states of matter; To recognise properties of s,l,g using a simple model or analogy; know the particle arrangement in each.

Key knowledge that should be learned during this SoW	All (Pathway 2)	Most (Pathway 3)	Some (Pathway 4)
Concept:	Scientific methods and ideas on experiments, observation, hypotheses and theories are discussed, leading to an understanding of the particle theory of matter.		
Knowledge:	To know and identify the hazards in the laboratory, know how to separate mixtures.To identify the arrangement of particles and how compounds are formed.	To understand and identify the hazards in the laboratory, know how to separate mixtures.To describe the arrangement of particles and how compounds are formed.	To gain understanding of the hazards in the laboratory, know how to separate mixtures.To explain the arrangement of particles and how compounds are formed

Key Skills:	• Observe diffusion of potassium permanganate crystals. • To refresh knowledge of changing states of water. • To recall` The Water Cycle'. • Finding out if temperature affects the rate of solubility? • To make a solution and recall what dissolving means. • Recognise models of elements and compounds.	• Describe diffusion of potassium permanganate crystals. • To refresh knowledge of changing states of water. • To identify 'The Water Cycle'. • Separating water from solids to make clean water • Discover if temperature affects the rate of solubility? • To make a solution and recall what dissolving means. • Making models of elements and compounds. • To refresh knowledge of changing states of water: time each stage from ice to steam, plus record temperatures • Making models of elements and compounds.	• To know that some reactions are reversible and some are irreversible. • Interpret diffusion of potassium permanganate crystals • Use experimental evidence to show that common metals react with acids at different rates. • To refresh knowledge of changing states of water: time each stage from ice to steam, plus record temperatures along the way and draw a graph. • To describe and carry out a separation technique: solubility. • To describe a particle model to explain the differences between the terms atoms, elements, compounds
Language and/or communication skills:	• Diffusion • Temperature • Solids • Liquid • Reaction	• Particles • solubility • Compounds • Dissolve • Evaporation • Reversible	• Solvent • Solute • Condensation • Melting point • Irreversible
Curricular Links	Links to other learning within the subject are: Science/Resistant Materials/ PSHCE/PE		

	Year 8	**Pathway 2/3/4**	**Science - Autumn - Term 2**

Learning Intention: <u>Chemistry</u> - The Environment

<u>The Environment, Earth and the Universe</u>

Is to inspires a love of learning and curiosity about the world, develop their practical knowledge and skills to use scientific equipment safely and accurately to competently test ideas and demonstrate phenomena.To inform knowledge of the key workings of the human body so that educated opinions and decisions can be made about health, products and stories in the media. To combine basic Maths and English skills in context to help students develop their application skills, to improve transferable skills such as time-keeping, teamwork and develop students' learning skills and independence so they can go on to be life-long learners.

Students will have the opportunity to gain a deeper understanding of the natural causes and the impact mankind can affect climate change. This includes the impact of human activity and the importance of biodiversity. This unit looks at ecosystems and the factors that affect them. This unit builds on work from Year 7 on the Solar System and looks at the Earth, including the seasons and the Earth's magnetic field and gravity. It also looks at the Solar System and what is beyond the Solar System.

Key knowledge that should be learned during this SoW	All (Pathway 2)	Most (Pathway 3)	Some (Pathway 4)
Concept:	Natural causes and human activity over a long period of time can affect climate. Scientific methods and ideas on experiments, observation, hypotheses and theories are discussed, leading to an understanding of the impact of natural and human activity on the environment and exploring the Solar system.		
Knowledge:	To recognise that natural causes and human activity can affect changes in the climate.To identify the Planets in	To understand that natural causes and human activity can affect changes in the climate.To understand	To gain more understanding of natural causes and human activity can affect changes in the climate.To

	our Solar system and how they are arranged.	the Planets in our Solar system and how they are arranged, the asteroids and how comets are formed.	understand the Planets in our Solar system and how they are arranged, the asteroids and how comets are formed.
Key Skills:	• Observe acid rain and Greenhouse effect in a bottle. • Watch a demonstration of how day and nights occurs. • Making a model of the Solar system • Making honeycomb candy with support to show how Igneous rocks are formed.	• To design a model volcanic eruption. • Design a poster about the problems with plastics and how to reduce the problem. • Watch a demonstration and describe how day and night occurs. • Carry out Salol practical and draw and record observations to see how the rate of cooling affects the size of crystals formed • Making a model of the Solar system(to scale) • To research facts about a planet and produce a poster. • Making honeycomb candy with little support to show how Igneous rocks are formed.	• Making a model of the Solar system(to scale) • Watch a demonstration and describe how day and night occurs • To research facts about a planet and produce a poster. • Carry out Salol practical and draw and record observations to see how the rate of cooling affects the size of crystals formed
Language and/or communication skills:	• Acid rain • Igneous rocks • Solar system • Heat	• Sedimentary • Asteroids • Gravity • Crystals • Pressure	• Comets • Metroids • Green house • Biodegradable • Magnetic field
Curricular Links	Links to other learning within the subject are: Science/Resistant Materials/ PSHCE/PE		