Purple - PSHE content

Yellow – key words

KS 4 Science Curriculum 2025-2026 Year 11

Curriculum Intent

The science curriculum will provide all pupils, regardless of starting point with the foundation of knowledge needed to allow them to critically analyse and engage with science, technology and nature in the modern world.

Curriculum Implementation

Year	Start When	No of lessons	Topic	Summary	Big Questions	Assessment for learning	Key Practicals
11	Autumn	8	Rate and extent of chemical change	This topic builds on KS3 chemical reactions 1 and 2 and GCSE Chemical and Energy changes	How can we calculate the rate of reaction? How can we calculate rate of reaction from a graph? What is collision theory? How does surface area affect rate of reaction? How does increasing; temperature, pressure and concentration effect rate of reaction? What is a catalyst? How does a catalyst affect rate of reaction? How does a catalyst change a reaction profile? How are catalysts used in industry?	Cold calling Regular check point questions in the lessons Trust wide standardised 45min exam question test	RP- measuring rate of reaction by measuring volume of gas produced RP-measuring rate of reaction by measuring change of colour/Turbidity

					What is a reversible reaction? What is a closed system? What is dynamic equilibrium? What is Le Chateliers principle?		
11	Autumn	4	Organic Chemistry	Builds on structure and bonding	Describe how crude oil can be split into fractions and identify the first four alkanes. Describe how the properties of different hydrocarbons changes with chain length. Explain what cracking is and how it is done. Describe condensation polymerisation	Cold calling Regular check point questions in the lessons Trust wide standardised 45min exam question test	
11	Autumn	12	Waves	This builds on the KS3 waves and radiation topic and the GCSE Energy topic	What are the types of Waves and their properties? (Transverse/Longitudinal) How can we measure wave speed? How can you use a ripple tank and a stretched string to calculate wave speed? What are the Uses and Hazards of Electromagnetic Waves? How does the amount of infrared radiation absorbed or radiated by a surface depend on the nature of that surface?	Cold calling Regular check point questions in the lessons Trust wide standardised 45min exam question test	RP – How can we measure wave speed? TRP – Reflection TRP – Refraction RP- Effects in Insulation on radiation

11	Autumn	17	Ecology	This topic builds on the KS3 topics biodiversity and plant reproduction and energy and ecosystems.	What is a population? What is a community? What is an Ecosystem? What is a Habitat? What do animals and Plants compete for? What is a Biotic factor? What is an Abiotic factor? What is Interdependence? What is Adaptation? What is an Extremophile? What is a Producer? What is a Consumer? What do Carnivore, Herbivore and Omnivore mean? What do food chains Show? How can we investigate Distribution and abundance? What is a Transect?	Cold calling Regular check point questions in the lessons Trust wide standardised 45min exam question test	RP- investigating distribution of a species across an environment

					What is a Quadrat? What is a predator-prey cycle? Describe the water cycle. How is Carbon cycled through an environment? What is Biodiversity? Why is Biodiversity important? How is rapid population growth of humans affecting waste management? How are Humans reducing available land? What is deforestation and why is it a problem? What are the biological consequences of global warming? How are humans impacting biodiversity?		
11	Autumn/Spring	10	Chemistry of the Atmosphere and Earths Resources	This topic builds on the KS3 topic Earth and Atmosphere	What is the current make up of Earth's atmosphere? What is the current theory for how the Earth's early atmosphere was created? Why is this just a theory?	Cold calling Regular check point questions in the lessons Trust wide standardised	

					How was the oxygen level in the early atmosphere increased? How was the level of Carbon Dioxide in the early atmosphere decreased? How are limestone and fossil fuels produced? What are Greenhouse gases? Why are they important? What Human activities increase greenhouse gas emissions? Why could increased Greenhouse gases lead to Global Climate change? What effects could Global Climate change have? What is a Carbon Footprint? How can carbon emissions be reduced through the life cycle of a product? What is Combustion? How is Acid rain formed? How are solid particles and unburned Hydrocarbons an issue in the atmosphere?	45min exam question test	

					What are the harmful effects of atmospheric pollutants? What is a Finite resource? Name examples of natural products that are supplemented or replaced by agricultural and synthetic products What is Potable Water?		
11	Spring	7	Magnetism and Electromagnetism	This topic builds on the KS3 topic electricity and magnetism	What is the difference between Permanent and Induced Magnets? What is an Electromagnet? What is the Motor Effect? How can we use the Motor Effect?	Cold calling Regular check point questions in the lessons Trust wide standardised 45min exam question test	