Year 11						
	Half Term 1	**Half Term 2**	**Half Term 3**	**Half Term 4**	**Half Term 5**	**Half Term 6**
Topic	Feedback and control Carbon chemistry	Making a substance Radioactivity Cycling materials Materials	Diversity of life Energy conservation	Space (Triple only) Controlling reproduction	REVISION EXAMS	N/A
Key concepts	Nervous system Hormonal control Immune system Hydrocarbons Carbon structures	Concentration Moles Radioactive decay Radioactive sources Carbon and water cycles Corrosion, alloys, polymers, fertiliser production	Natural selection Adaptation Calculating energy	Solar system Stars Red shift Hormones in reproduction	N/A	N/A
Knowledge & Understanding Milestones	Describe the structure of the nervous system, endocrine system and immune system. Explain how the above systems function Draw, name and describe the tests for hydrocarbons	Explain how amount of substance can be measured using the mole Calculate mass of product from mass of reactant using a balanced chemical equation. Calculate the concentration of a	Have an understanding of how and why organisms have changed over time Calculating energy changes before and after a change Describing qualitatively and quantitively the changes in energy stores in a variety of situations	Our solar system consists of one star, eight planets plus dwarf planets. Moons orbit planets (natural satellites) Our solar system is one part of the Milky way galaxy The Sun was formed from a nebula,	N/A	N/A

	Explain the process of fractional distillation Explain Carbons different structures	solution in both g/dm^3 and mol/dm^3. Carry out titration calculations to determine the concentration of acids or bases. Use the molar volume constant to calculate the volume of gases. Calculate percentage yield, atom economy and their importance to the chemical industry. Describe the structure of the atom Describe what happens when a nucleus decays To perform calculations involving half life TRIPLE ONLY To explain which isotopes are suitable for which jobs TRIPLE ONLY To describe the difference between Fission and Fusion. Explain the importance of certain materials being recycled in the environment. Recall the parts of the water cycle. Describe the parts of the carbon cycle. Explain the effects that human behaviours	Calculating energy changes associated with change of state Using the Kinetic model to describe changes in pressure of a gas.	students should be able to explain how, using ideas of gravity and fusion. Describe the life cycle of different stars, using HR diagram and explain what happens to the matter at the end of a Stars life cycle. Fusion causes the formation of new elements. Gravity causes natural and artificial satellites to orbit. Connect height of orbit to speed. Red shift as evidence for the expanding universe and big bang theory. Not everything is yet known (Dark energy / matter) How the reproduction cycle can be controlled		

		might have on these cycles e.g. deforestation, land use, burning fossil fuels, climate change. Describe the process of decomposition and the products produced. Investigate the effect of decomposition on the pH of the material being decomposed. Understand the different types of materials we use, where they are obtained and how their properties affect their uses. Understand how ammonia is produced. Explain the compromise conditions for the Haber Process Explain how fertilisers are formed and their importance.				
Scaffolding for SEND to ensure quality first teaching.	Foundation worksheets Differentiated questioning, TFW, Recall quizzes, Vocab introduction, Dual coding, Knowledge organisers. SEN tests	Foundation worksheets Differentiated questioning, TFW, Recall quizzes, Vocab introduction, Dual coding, Knowledge organisers. SEN tests	Foundation worksheets Differentiated questioning, TFW, Recall quizzes, Vocab introduction, Dual coding, Knowledge organisers. SEN tests	Foundation worksheets Differentiated questioning, TFW, Recall quizzes, Vocab introduction, Dual coding, Knowledge organisers. SEN tests	N/A	N/A

Careers input	Doctor, nurse, endocrinologist, drug development Petrochemical scientist, plastics engineer, cosmetic scientist.	Research Chemist , Chemical Engineer, Development Chemist, Analytical Chemist Radiographer, Nuclear Scientist Environmental Science. Materials Scientist, Mining, Oil Industry, Research Chemist, Chemical Engineer, Development Chemist.	Palaeontologist; geneticist Mechanical engineering, electrician	Astronaut, space scientist, rocket scientist, Exobiologist Gynaecologist; Medical Researcher; GP	N/A	N/A
Links (prior knowledge, future knowledge)	**In subject:** **Prior:** Body systems (Y8) Organ systems (Y10) Properties and changes of materials (Y5/6) Substances and particles (Y7) Elements and compounds (Y8) Periodic Table (Y9) Structure and Bonding (Y10)	**In subject:** **Prior:** Changing substances (Y7) Reactants and Products (Y8) Matter and Energy (Y9) Controlling reactions (Y10) Light (Y8) Sounds and waves (Y9)	**In subject:** **Prior:** Evolution (Y8) Energy Transfers (Y7) Heating and Cooling (Y8) Energy stores (Y10) **Future:** Genetic information, variation and relationships between organisms(Y12) The control of gene expression (Y13)	**In subject:** **Prior:** Gravity (Y7) Fields (Y10) Reproduction (Y7) Genetics (Y9) **Future:** Fields and circular motion (Y12/13) Diversity of life (Y11)	N/A	N/A

	Future: Immune system (Y12) Response and control (Y13) **Outside of subject:** Food tech – Food hygiene Geography: Oil production/formation D&T: Materials Food tech: Making alcohol	EM radiation (Y10) Respiration (Y8) Photosynthesis (Y10) Rocks (Y8) Earth's resources (Y9) Atmosphere (Y10) **Future:** Reacting mass and titration (Y12); Gas volumes (Y12); Redox Titration (Y13) Radioactivity (Y13) Nutrient cycles (Y13) Chemical equilibrium (Y12) **Outside of subject:** Maths - Rearrangement of equations, Standard form, Percentage calculations Maths – Fractions (Y7) Geography - Environment	Force & motion Y12 Thermodynamics Y13 **Outside of subject:** Maths - Graphs Geography - Environmental geography Maths - Rearranging formulae - throughout KS3 and 4 Graphs – throughout KS3 and 4	**Outside of subject:** Chemistry - Atomic structure Maths - Speed calculation History - History and medicine		

		Geography – Land use				
Key Vocabulary	Neurone, reflex, sensory, relay, motor, endocrine, enzyme, denature, communicable, microorganism, vaccination, antibiotics, painkillers, negative feedback, hormones Hydrocarbon, polymers, fractional distillation, Alkanes, Alkenes, saturated, unsaturated, cracking.	Mole, balanced, concentration, titration, volume, yield, atom economy, reactants, products, neutralisation Fission, fusion, nucleus, decay, Isotope, stability, half life, contamination, irradiation. Recycled, environment, deforestation, climate change, decomposition Corrosion, prevention, alloys, polymers, composites, Haber process, fertiliser	Classification, selective breeding, evolution, resistant, speciation, fossils, extinction, cloning, quadrats. conservation, pressure, qualitative, transfer	Solar system, planet, nebula, gravity, fusion, satellites, red shift. Menstrual cycle, contraception, fertility, hormones.	N/A	N/A
Review & Assessment Dates (including opportunities for retrieval practice)	Test at the end of the unit	Test at the end of the unit.	Test at the end of the unit	Test at the end of the unit. POAE – Obtaining task marked.	N/A	N/A

				Observations. Knowledge of measurement. Millar – Learn a relationship.		