	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Theme/Big Idea	Scientists use evidence, communication and evaluation to develop reliable knowledge. Patterns in the Periodic Table help us understand and predict the behaviour of elements. Our choices can have a major impact on health and wellbeing. Electric and magnetic forces can transfer energy and create useful technologies.	Living things depend on chemical processes to obtain and use energy. The properties of substances allow mixtures to be separated and purified.	Energy is transferred, stored and conserved in all physical processes. The properties of materials determine how they are used.	Organisms interact with and adapt to their environments to survive. Earth is a dynamic system shaped by natural processes and human activity.	Characteristics are passed on through genes and can change over time. Forces and pressure explain how objects move and interact with their surroundings. Revision and exam preparation.	KS3 Project Work – Scientific knowledge can be applied to investigate and solve real-world problems.
Content What are they learning? (including keywords)	**Topic: Working Scientifically** **Content:** planning investigations, presenting, analysing and evaluating data, communicating and developing scientific information **Key words:** prediction, hypothesis, reproducibility, variables, independent, dependent, control, risk assessment, pie chart, histogram, liner, directly proportional, peer review **Topic C1: Periodic Table** **Content:** elements, physical properties of metals and non-metals, groups and periods, group 1, group 7, group 0	**Continued from last term;** **Topic B1: Health and lifestyle** **Content:** food groups, food tests, unhealthy diet, digestive system, bacteria and enzymes in digestion, drugs, alcohol, smoking **Key words:** nutrients, fibre, balanced, food tests, starch iodine, biuret tests, benedict's solution, starvation, obese, digestion, enzymes, catalysts, *drugs, medicinal, recreational, alcohol, addiction* **Topic P1: electricity and magnetism** **Content:** charging up, circuits, current, potential difference, resistance, charging, series, parallel, magnets, magnetic fields, electromagnets,	**Topic P2: Energy** **Content**: food, fuels, energy resources, temperature, transfer, particles, radiation, forces, power **Key words:** energy, joules, fuels, fossil fuels, non-renewable, thermal and nuclear power, law of conservation of energy, temperature, conduction, convection, radiation, electromagnetic spectrum, energy, work, power **Topic C3: Metals and other materials** **Content:**	**Topic B3: Ecosystem and adaptation** **Content**: Food chains, food webs, disruption to food chains and webs, ecosystems, competition and adaptation, adapting to change **Key words:** Food chains, food webs, *population, bioaccumulation, community habitat, competition, predators, prey, adapting to cope with seasons* **Topic C4: The Earth** **Content:** The earth and the atmosphere, sedimentary, igneous and metamorphic rocks, the carbon cycle, global heating, climate change	**Continued from last term;** **Topic B4: Inheritance** **Content:** Variation, continuous and discontinuous variation, inheritance, natural selection, extinction **Key words:** variation, species, inherited variation, continuous and discontinuous variation, genes, chromosomes, DNA, natural selection, evolution, extinction endangered, gene banks **Topic P3: Motion and pressure** **Content**: speed, motion graphs, pressure in solids, liquids and gases, turning forces	KS3 – Year 8 Project work **Ecology Project:** **Content:** Ecosystems, habitats, biotic and abiotic factors, interdependence, food webs, photosynthesis, respiration, environmental factors, biodiversity, human impact, sustainability, practical investigation using vegetable growth in a polytunnel. **Key words:** ecosystems, habitats, biotic factors, abiotic factors, interdependence, food webs, producers, consumers, decomposers, photosynthesis, respiration, environmental factors, biodiversity, human impact, sustainability

	Key words: copper, sulfur, germanium, metals, non-metals, conductor, malleable, ductile, reactive, *alkali metal, halogen, noble gas* **Topic B1: Health and lifestyle** **Content**: food groups, food tests, unhealthy diet, digestive system, bacteria and enzymes in digestion, drugs, alcohol, smoking **Key words:** nutrients, fibre, balanced, food tests, starch iodine, biuret tests, benedict's solution, starvation, obese, digestion, enzymes, catalysts, *drugs, medicinal, recreational, alcohol, addiction* **Topic P1: electricity and magnetism** **Content:** charging up, circuits, current, potential difference, resistance, charging, series, parallel, magnets, magnetic fields, electromagnets, **Key words:** attract, repel, protons, electrons neutron, electric field, ammeter, cell, volts, ohms, conductors, insulators, magnetic material, motor	**Key words:** attract, repel, protons, electrons neutron, electric field, ammeter, cell, volts, ohms, conductors, insulators, magnetic material, motor **Topic B2: Biological Processes** **Content**: photosynthesis, leaves, plant minerals, aerobic and anaerobic respiration **Key words**: photosynthesis, consumers, producers, chlorophyll, stomata, guard cells, minerals, deficiency, fertilisers, aerobic and anaerobic respiration, oxygen debt, fermentation **Topic C2: Separation techniques** **Content:** Pure substances, mixtures, solutions, solubility, filtration, evaporation, distillation, chromatography **Key words**: pure, mixture, solution, solvent, solubility, saturated, soluble, filtrate, residue, chromatogram	*metals and acids, metals and oxygen, reactivity series, metal displacement reactions, extracting metals, ceramics, polymers, composites* ***Key words:*** salts, unreactive, reactive, potassium, gold, displaces, ores, carbon, ceramics, polymers, synthetics, composites, carbon fibre	**Key words:** crust, mantle, core, atmosphere, troposphere, porous, *igneous, sedimentary, metamorphic, weathering, erosion and transportation, deposition, compaction, global warming, recycling* **Topic B4: Inheritance** **Content:** Variation, continuous and discontinuous variation, inheritance, natural selection, extinction **Key words:** variation, species, inherited variation, continuous and discontinuous variation, genes, chromosomes, DNA, natural selection, evolution, extinction endangered, gene banks **Topic P3: Motion and pressure** **Content**: speed, motion graphs, pressure in solids, liquids and gases, turning forces **Key words:** speed, distance time graphs, accelerating, gas pressure, compressed, atmospheric pressure, density, liquid pressure, incompressible, Newtons per, metre squared, pivot, moments,	**Key words:** speed, distance time graphs, accelerating, gas pressure, compressed, atmospheric pressure, density, liquid pressure, incompressible, Newtons per, metre squared, pivot, moments, **Revision** **End of Year Exam**	**Misson to Mars Project:** **Content:** Mars, environment, atmosphere and breathing, oxygen production, water filtration, food production, plant growth, energy and electricity, forces and engineering, habitats, temperature control, and survival challenges for sustaining a human colony on Mars. **Keywords:** Mars, atmosphere, oxygen, carbon dioxide, gravity, water filtration, recycling, plant, growth, greenhouse, solar energy, electricity, forces, engineering, habitats, temperature control

Skills How are they learning it?	Planning investigations; developing hypotheses; identifying variables; conducting risk assessments; presenting data using pie charts and histograms; interpreting patterns; evaluating evidence; researching health issues; constructing and testing electrical circuits; using scientific models to explain observations.	Carrying out food tests; analysing lifestyle data; interpreting biological processes using models and diagrams; separating mixtures using practical techniques such as filtration, evaporation, distillation and chromatography; evaluating experimental methods and results.	Measuring and calculating energy transfers; analysing data; comparing materials and their properties; investigating reactivity; interpreting trends and patterns; applying mathematical skills to scientific contexts.	Constructing and interpreting food webs; analysing environmental changes; investigating ecosystems; evaluating evidence relating to climate change; explaining scientific phenomena using models; developing scientific arguments from evidence.	Interpreting data on inheritance and variation; analysing graphs of motion; calculating speed and pressure; applying knowledge to unfamiliar situations; linking concepts across biology, chemistry and physics; practising exam-style questions.	Planning and carrying out independent enquiries; researching from reliable sources; collecting and analysing data; presenting findings; communicating scientific ideas; evaluating methods and conclusions; collaborative problem-solving.
Key Questions	**Working Scientifically:** How do scientists ensure that investigations produce reliable and reproducible results? How can scientific evidence be communicated, analysed and evaluated effectively? **Periodic Table:** How does the Periodic Table help scientists organise and predict the properties of elements? What patterns exist between metals, non-metals and different groups of elements? **Health and Lifestyle:** How do diet and lifestyle choices affect human health? How do the digestive system and enzymes help the body obtain nutrients? **Electricity and Magnetism:** How do electric circuits transfer energy? How are electricity and magnetism linked in everyday technology?	**Biological Processes:** How do plants and animals obtain and use energy? Why are photosynthesis and respiration essential for life on Earth? **Separation Techniques:** How can mixtures be separated using differences in physical properties? Why are separation techniques important in science and industry?	**Energy:** How is energy transferred, stored and conserved? How can understanding energy help us make sustainable choices? **Metals and Other Materials:** Why do different materials have different properties and uses? How does the reactivity of metals influence the way they are extracted and used?	**Ecosystems and Adaptation:** How do organisms depend on one another within ecosystems? How do organisms adapt to survive changes in their environment? **The Earth:** How has Earth changed over time and what processes continue to shape it? How do human activities affect the atmosphere and climate?	**Inheritance:** Why do individuals of the same species show variation? How does inheritance contribute to evolution and survival? **Motion and Pressure:** How can we describe and measure the motion of objects? How does pressure affect solids, liquids and gases in everyday life?	**KS3 Project Work** How can scientific knowledge be used to investigate a real-world problem? How can evidence be gathered, analysed and communicated effectively?

Assessment (specific assessed piece(s); milestone(s))	Marking Milestone: End of Topic Assessments: Working Scientifically, Periodic Table, Health & Lifestyle, Electricity & Magnetism	Marking Milestone: End of Topic Assessments: Biological Processes, Separation Techniques	Marking Milestone: End of Topic Assessments: Energy, Metals and Other Materials	Marking Milestone: End of Topic Assessments: Ecosystems & Adaptation, The Earth	Marking Milestone: End of Topic Assessments: Inheritance, Motion & Pressure, End of Year 8 Examination End of Year 7 Exam	KS3 Project Work Assessment / Marking Milestone