

Year 8						
	Half Term 1	Half Term 2	Half Term 3	Half Term 4	Half Term 5	Half Term 6
<b>Topic</b>	Body systems Elements and compounds	Rocks Speed	Magnetism Heating and cooling	Interdependence	Respiration Reactants and products	Evolution
<b>Key concepts</b>	Gas exchange system Tissues and organs Digestive system Elements and compounds Simple and giant structures	Structure of earth Rock cycle Speed Motion graphs	Magnetic field Field around wire Heat transfer	Feeding relationships Competition Biotic and abiotic factors	Aerobic respiration Fermentation Oxidation Thermal decomposition Acid reactions	Variation Natural selection Selective breeding
<b>Knowledge &amp; Understanding Milestones</b>	State the hierarchical organisation of multicellular organisms, Describe the structure and functions of the human musculo-skeletal system. Outline the content of a healthy balanced diet and explain the consequences of an unbalanced diet, Calculate the energy requirements in a healthy diet, Describe the functions of the organs within	Have an understanding of the structure of the earth, how it was formed and what use the different rocks have for humans. Be able to explain some of the effects that human made pollution has upon the earth. Calculate speed using the formula $s=vt$ . Represent a journey on a distance-time graph. Calculate speed using a distance-time graph.	Magnetic poles, attraction and repulsion, including KS4 effect of distance on field strength, induced magnetism Magnetic fields by plotting with compass, representation by field lines Earth's Magnetism, compass and navigation The magnetic effect of a current, electromagnets, D.C. motors (principles only) Energy is transferred because of a temperature difference between two objects.	Define the term ecosystem and give examples of organisms within an ecosystem. Describe how organisms can affect and be affected by their environment. Describe the importance of interdependence and competition within a community. Explain how a change in an abiotic factor or a biotic factor would affect a given community.	Recall the equations for aerobic and anaerobic respiration. Compare and contrast aerobic and anaerobic respiration. Explain the uses of anaerobic respiration in yeast in the brewing and baking industries. Explain the importance of respiration. Investigate respiration. Explain the effect of exercise on respiration. Explain the term 'metabolism'.	Have an understanding of how and why organisms have changed over time

	<p>the human digestive system and the role of enzymes,  Test foods appropriately to ascertain which food group they belong to,  Determine the effect pH has on the function of amylase,  Explain the structure and function of the gas exchange system in humans and the mechanism of breathing,  Describe the impact of exercise, smoking and asthma on the gas exchange system,  Give the names and functions of some plant tissues,  Compare plant organ systems to the gas exchange system and digestive system in humans.</p> <p>To be able to define atoms, elements, compounds and mixtures  To use chemical symbol for elements and compounds  To name compounds  Describe the tests for 4 gases</p>	<p>Recall that distance and speed are scalar quantities.</p>	<p>If there is no net energy transfer the objects are in thermal equilibrium.  Conduction, convection and radiation as mechanisms for heat transfer from the hotter to the cooler object to reduce the temperature difference.  Insulators as materials that reduce heat flow.  Processes that involve energy transfer include: changing motion, dropping an object, completing an electrical circuit, stretching a spring, metabolism of food, burning fuels.</p>	<p>Identify how organisms are adapted  Determine the relationships between organisms.</p>	<p>Explain the different types of chemical reactions  Write word equations for different types of chemical reactions  Explain the role of catalysts.  Understand and write word equations for the different reactions of acids.  Explain how to prepare soluble salts  Understand what happens during a neutralisation reaction and the difference between strong and weak acids and alkalis.</p>	
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<b>Scaffolding for SEND to ensure quality first teaching.</b>	Foundation worksheets on Exp sci Differentiated questioning, TFW, Recall quizzes, Vocab introduction, Dual coding, Knowledge organisers. SEN tests	Foundation worksheets on Exp sci Differentiated questioning, TFW, Recall quizzes, Vocab introduction, Dual coding, Knowledge organisers. SEN tests	Foundation worksheets on Exp sci Differentiated questioning, TFW, Recall quizzes, Vocab introduction, Dual coding, Knowledge organisers. SEN tests	Foundation worksheets on Exp sci Differentiated questioning, TFW, Recall quizzes, Vocab introduction, Dual coding, Knowledge organisers. SEN tests	Foundation worksheets on Exp sci Differentiated questioning, TFW, Recall quizzes, Vocab introduction, Dual coding, Knowledge organisers. SEN tests	Foundation worksheets on Exp sci Differentiated questioning, TFW, Recall quizzes, Vocab introduction, Dual coding, Knowledge organisers. SEN tests
<b>Careers input</b>	Medical professions, medical scientists, dietician, nutritionist, sports coach, horticulture.  Chemical analyst	Geologist – Structure of the Earth and Rock Cycle , Environmental Scientist – Acid Rain Investigation  Engineering, sports.	Engineering  Building, Architecture	Ecology, toxicology, farming, zoology.	Personal trainer. Sports scientist. Brewing industry. Baking industry.  Analytical Chemist – Neutralisation , Health and Safety Officer - Types of Chemical Reactions, Chemical Engineer – Catalysts, Development Chemist - Catalysts	Palaeontologist; geneticist; animal/plant breeder; farmer
<b>Links (prior knowledge, future knowledge)</b>	<b>In subject:</b> <b>Prior:</b> Plants (Y3) Animals (Y3) Animals (Y4) Animals (Y6) Properties and changes of materials (Y5/6)	<b>In subject:</b> <b>Prior:</b> Rocks (Y3) Contact forces (Y7) <b>Future:</b> Earth's resources (Y9) Atmosphere (Y10) Materials (Y11) Acceleration (Y9)	<b>In subject:</b> <b>Prior:</b> Forces and magnets (Y3)  Forces (Y5) Energy transfers (Y7) <b>Future:</b> Fields (Y10)	<b>In subject:</b> <b>Prior:</b> Living things and their habitats (Y4) Animals, including humans (Y4) Evolution and inheritance (Y6) <b>Future:</b>	<b>In subject:</b> <b>Prior:</b> Body systems (Y8) Changing substances (Y7) <b>Future:</b> Photosynthesis (Y10) Cycling materials (Y11) Matter and energy (Y9)	<b>In subject:</b> <b>Prior:</b> Evolution and inheritance (Y5/6) <b>Future:</b> Genetics (Y9); Controlling reproduction

	<p><b>Future:</b> Organ systems (Y10) Feedback and Control (Y11) Periodic table (Y9)</p> <p><b>Outside of subject:</b> Sports science - Applied anatomy and physiology (KS4). Sports science - Health, fitness and well-being (KS4). Food and nutrition - Healthy eating (Y7), Nutrients (Y9/Y10), Enzymes (Y10)</p> <p>Maths - Ratio</p>	<p>Newton's Laws (Y10)</p> <p><b>Outside of subject:</b> Geography – structure of the earth, pollution. PE - Sports performance. Maths - Using and rearranging formulae.</p>	<p>Energy stores (Y10) Energy conservation (Y11)</p> <p><b>Outside of subject:</b> Maths – graphs, calculating means</p> <p>Food tech</p>	<p>Human interaction (Y10)</p> <p><b>Outside of subject:</b> Geography – Ecosystems and conservation</p>	<p>Controlling reactions (Y10) Making substances (Y11)</p> <p><b>Outside of subject:</b> PE - Respiration and anaerobic respiration. Effects of exercise on cardiovascular system. Geography – climate change</p>	<p>(Y10); Diversity of life (Y11)</p> <p><b>Outside of subject:</b> Maths - Measuring and recording data Graph plotting</p>
<p><b>Key Vocabulary</b></p>	<p>Digestion, enzymes, alveoli, bronchi, bronchioles, gas exchange, transpiration, translocation, xylem, phloem.</p> <p>Atom, elements, compound, mixture, properties.</p>	<p>Earth, crust, mantle, core, sedimentary, metamorphic, igneous, pressure, cycle, acid rain</p> <p>Speed, distance, scalar, displacement.</p>	<p>Attraction, repulsion, field, magnetism, poles, electromagnet, motor.</p> <p>Energy, transfer, thermal, conductor, insulator, conduction, convection, radiation, combustion.</p>	<p>Ecosystem, communities, pollination, environment, accumulation, interdependence, competition, organism, food security, biotic, abiotic.</p>	<p>Aerobic, anaerobic, respiration, yeast, metabolism, gas exchange, energy, breathing</p> <p>Combustion, fuels, thermal decomposition, oxidation, displacement, reactivity, catalyst, acid, alkali, neutralisation, soluble.</p>	<p>Variation, continuous, discontinuous, species, selective breeding, natural selection, extinction, preservation.</p>

<p><b>Review &amp; Assessment Dates (including opportunities for retrieval practice)</b></p>	<p>Test (HT2)  POAE – Analysis task marked  Data Analysis    Millar – learn a relationship    POAE – Obtaining task marked    Measurement, evidence to develop explanations    Millar – Learning a fact</p>	<p>Test (HT2)  POAE – Obtaining task marked    Observations and measurements    Millar – Learning a fact and relationship.    POAE – Analysis task marked    Data analysis    Millar – learn a relationship</p>	<p>Test (HT4)  POAE – Obtaining task marked  Measuring and techniques    Millar – learn a relationship    POAE – Planning task marked (and risk assessment)    Knowledge of methods and equipment. Planning. Safety.    Millar - Learn a relationship</p>	<p>Test (HT4)  POAE task – Evaluation task marked    Evaluation. Using evidence to develop explanations.    Millar – Identify a phenomena.</p>	<p>Test (HT6)  POAE task – Planning task marked    Planning. Knowledge of methods. Measuring.    Millar – Learn a relationship</p>	<p>Test (HT6)  POAE task – Planning task marked    Planning. Use of evidence to develop explanations.    Millar – Identify a phenomena. Learn a fact.</p>
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