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Principal: Mrs C Stanyer

Subject: Science

Year 8 Curriculum Map 2024 - 25

Week Commencing	Topic (including links to additional resources)	Assessment Window
Staff INSET 02/09 Students Return 03/09	Photosynthesis and Respiration 1 (9 lessons) <ul style="list-style-type: none"> State what is meant by a producer State the reactant and products of photosynthesis Describe the process of photosynthesis 	
09/09/2024	Photosynthesis and Respiration 1 (9 lessons) <ul style="list-style-type: none"> Give examples of how plants are adapted for photosynthesis Compare the adaptations of plants in different environments Describe how to test for starch Describe what a fertiliser does State what is meant by respiration State the products and reactants of respiration Compare aerobic and anaerobic respirations Write a word equation for aerobic and anaerobic respiration Investigate the effect of temperature on the rate of respiration (yeast) 	
16/09/2024	<ul style="list-style-type: none"> Photosynthesis and Respiration 1 (9 lessons) State what is meant by breathing Compare breathing and respirations Describe the process of inhalation and exhalation Describe the structure of lungs Describe how the structure of lungs supports the diffusion of oxygen 	
23/09/2024	<ul style="list-style-type: none"> Photosynthesis and Respiration 1 (9 lessons) Explain how RBC are adapted for their functions Explain the effect of sickle cell anaemia on respiration Recall the structure of your lungs Explain how smoking affects respiration Explain how asthma affects respiration 	Learning Checkpoint
30/09/2024	<ul style="list-style-type: none"> Matter 2 (8 lessons) Recall the movement of particles in solids, liquids and gases. State that a pure substance has a fixed melting and boiling point and identify some everyday examples. Recall the definition of the term mixture. Explain why mixtures can be separated. Recall how change in energy causes particles to change how they move, leading to a change in state. Identify that the method chosen to separate a mixture depends on which physical properties of the individual substances are different. Describe the process of filtration. Describe the process of simple distillation. 	

Ormiston Meridian Academy is committed to safeguarding and promoting the welfare of children and young people and expects all staff and volunteers to share this commitment.



07/10/2024	<ul style="list-style-type: none"> Describe the process of evaporation. Recall the names of the main changes of state. Define the terms solute, solvent and solution Identify the relationship between a solvent, solute and solution. Define the term solubility and identify units that could be used. Recall how to use melting point and boiling point data to predict the state of matter a substance will be at a specific temperature Describe the process of chromatography. Identify that some substances are soluble (i.e. will dissolve) whilst some are insoluble (i.e. won't dissolve). Explain how substances dissolve using the particle model. 	Learning Checkpoint
14/10/2024	<ul style="list-style-type: none"> Reactions 2 (8 lessons) Recall the position of metals and non-metals in the Periodic Table (from Matter Y7) Identify some common properties of metals and non-metals. Describe some uses of metals. Make links between the properties and uses of metals. State that metals and non-metals react with oxygen. Identify the type of product formed in this reaction. (Practical) Recall that some metals are more reactive than others. Define the term "displacement" reaction. Describe a simple practical to determine the reactivity of different metals. 	
21/10/2024		Achievement Round 1
October Half Term		
04/11/2024		Achievement Round 1
11/11/2024	<ul style="list-style-type: none"> Use data to determine a reactivity series. Use ideas about a reactivity series to predict the outcomes of a reaction. Make links to everyday chemistry, for example galvanising metals. (Practical) Identify the products of a reaction between a metal and acid. Describe how to test the products of this reaction. Describe how reactivity affects what you see in this sort of reaction. (Practical) Recall the names of the 3 magnetic metals. Identify which metal is a liquid at room temperature. Identify a non-metal that is a liquid at room temperature. Identify an unknown element from its physical and/or chemical properties 	
18/11/2024	<ul style="list-style-type: none"> Recall that some acids can be described as strong, but others can be described as weak. Describe the following reactions with a word equation: <ul style="list-style-type: none"> -Oxidation -Displacement -Metal-acid. Use particle diagrams to represent each of these types of reaction. Use symbol equations to represent these reactions. Deduce the physical or chemical changes that a metal has undergone from its appearance. Justify the use of specific metals and non-metals for different applications (from given data). Deduce a rule about which reactions will occur or not, based on the reactivity series. 	Learning Checkpoint

25/11/2024	<p>Forces and Space 2 (10 lessons)</p> <ul style="list-style-type: none"> • Recall the forces acting on a stationary object • Use FBD to represent the forces acting on a moving object • Apply magnitude and scale when drawing force arrows • Explain the effect of gravity on weight • State the meaning of balanced and unbalanced forces • Describe the effect of unbalanced forces on motion • Construct FBD to represent objects with resultant forces acting upon them • State the units of measure for Speed, distance and time. • Apply the equations $V = S/t$ • Recall the equation that links Speed, distance and time. • Investigate the effect of height on the speed of a car (investigation) 	
02/12/2024	<p>Forces and Space 2 (10 lessons)</p> <ul style="list-style-type: none"> • Recall the equation that links Speed, distance and time. • Investigate the effect of varying frictional forces on the speed of a car (investigation) • Recall the equation that links speed, distance and time • Describe the motion of an object from a Distance time graph • Determine the average speed of an object from the gradient of a distance time graph, 	Learning Checkpoint
09/12/2024	Buffer	
16/12/2024	<p>Cells 2 (10 lessons)</p> <ul style="list-style-type: none"> • Compare different models • Identify structures of animal cells in non-familiar cells. • Define the term prokaryotic • Compare prokaryotic and eukaryotic cells. • Justify why cells have adaptations to function • Describe the structural adaptations of yeast cells • Compare the systems of unicellular and multicellular organisms • Identify structures of plant cells in non-familiar cells 	
Christmas Break		
06/01/2025	<ul style="list-style-type: none"> • Compare animal and plant cell structure • Explain how to use a microscope to compare different types of cells • Calculate total magnification • Suggest what tissue is made of based on its properties • Recall the different organ system • Identify common respiratory and digestive illnesses • Explain how ventilation technology was utilised during the COVID outbreak • Interpret data on respiratory illness 	
13/01/2025	<ul style="list-style-type: none"> • Cells 2 (10 lessons) • Identify structures of plant cells in non-familiar cells • Compare animal and plant cell structure • Explain how to use a microscope to compare different types of cells • Calculate total magnification • Suggest what tissue is made of based on its properties • Recall the different organ system • Identify common respiratory and digestive illnesses 	

20/01/2025	<ul style="list-style-type: none"> • Explain how ventilation technology was utilised during the COVID outbreak • Interpret data on respiratory illness • Describe the 4 main functions of the skeletal system • Define the term joint, ligament, and tendon • Predict the consequence of damage to joints • Justify your opinion using a moral or social argument • explain how antagonistic muscles work • Define the term diffusion • Describe situations where diffusion is occurring (biological) 	Learning Checkpoint
27/01/2025		Achievement Round 2
03/02/2025		Achievement Round 2
10/02/2025	<ul style="list-style-type: none"> • Health and Reproduction 2 (9 lessons) • Recall the structure of the male and female reproductive organs • State the purpose of a period/menstruation • Describe the main stages of the menstrual cycle • State what is meant by infertility • Suggest why infertility is an increasing concern • Evaluate different methods used to treat infertility • Recall the meaning of infertility • Compare infertility with contraception • Evaluate different methods of contraception 	
February Half Term		
24/02/2025	<ul style="list-style-type: none"> • Give examples of recreational drugs • Identify drugs as legal or illegal • Describe the effect of stimulants and depressants on the body • Define the term drugs and health • Explain the relationships between drugs and health • Recall the meaning of a depressant • Evaluate the use of cannabis as legal prescribed drug • WS Evaluate the use of cannabis as a n illegal recreational drug 	
03/03/2025	<ul style="list-style-type: none"> • Define the term pathogen • Name the 3 main pathogen • Describe the effect of 3 named pathogens on the human body 	
10/03/2025	<ul style="list-style-type: none"> • State some common diseases caused by pathogens (mix STI and others) • Describe their symptoms • Compare the effect of painkillers and antibiotics • Recall the term "pathogen" • Recall the effects of pathogens on our body • Describe the action of scientists on the COVID vaccine roll out 	
17/03/2025	<ul style="list-style-type: none"> • Investigate the effectiveness of different chemicals on killing pathogens • Give examples of passive immunity • Describe the role of WBC in your body • State what is meant by a vaccine • Explain the term "antivaxxer" • Evaluate the impacts of social media 	Learning Checkpoint

24/03/2023	<p>Electricity 1 (9 lessons)</p> <ul style="list-style-type: none"> • Recall the structure of the atom and charges on the particles • State what is meant by static electricity • Describe how a static charge is generated • Explain what causes a spark • Recall the meaning of "circuit" • Identify the different components of a circuit 	
31/03/2025	<ul style="list-style-type: none"> • Construct simple series circuits and accurately draw • Define the term current • Use a model to describe the relationships between current, voltage and resistance • Compare the effectiveness of different models • Recall the meaning of "circuit" • Identify a component from its symbol • Describe the function of different components 	
07/04/2025	<ul style="list-style-type: none"> • Use an ammeter and voltmeters to determine values for pd and Amps • Explain how to manage a "zero error" • Recall the units for current and pd • Prove $A_0=A_1=A_2=A_3\dots$ in a series circuit 	
Easter Break		
28/04/2025	<ul style="list-style-type: none"> • Recall the rule that links current in a series circuit • Predict how components will behave in a series circuit • Explain observations • Establish connections between the science of series circuits and everyday life. • recall the interactions between the poles of magnets • recall the relationship between a magnet and its field • describe the difference between permanent and induced magnets • compare the practical application of the two types of magnets 	Learning Checkpoint
05/05/25	<p>The Earth (11 lessons)</p> <ul style="list-style-type: none"> • Label the structure of the earth • Describe the changes at plate boundaries • Make a model and evaluate its effectiveness • Name the 3 types of rock • Describe the formation of the three types of rock • Explain the appearances of the different rock types. • Recall the 3 types of rock • Model how sedimentary rock forms • Explain the relationship between sedimentary rocks and crude oil • Explain why crude oil is hard to find. 	
12/05/2025	<ul style="list-style-type: none"> • Label the rock cycle • Produce a model of the rock cycle • evaluate a model of the rock cycle. • state what is meant by erosion • compare the process of erosion and weathering • describe the effect of biological weathering • explain what is meant by Freeze thaw. • Identify different types of resources we extract from the earth (metals, fuels) • Describe the importance of these on the development of society • Evaluate the impact of mining 	

19/05/2025	<ul style="list-style-type: none"> • State what is meant by recycling • Name the main gases found in the atmosphere • State the relative abundance of each • Interpret data on the effect of human activity on the distribution, abundance and composition of atmospheric gases 	
May Half Term		
02/06/2025	<ul style="list-style-type: none"> • State what is meant the greenhouse effect • State the 3 main greenhouse gases • Describe the effect of global warming • Explain the link between human activity and climate change • State what is meant by bias • Compare primary and secondary sources of evidence (from third parties) • Suggest the effect of bias on the reliability of evidence • Explain the impact of social media on mis-information and fake science. • Evaluate the increasing use of electric cars. • *case study- Are electric cars the solution to global warming 	Learning Checkpoint
09/06/2025	<p>Energy 2 (8 lessons)</p> <ul style="list-style-type: none"> • Recall the meaning of renewable and non-renewable • Recall the changes in energy stores in a FF PowerStation • Compare the use of FF and Nuclear fuels as an energy resource • State the unit measure for power • Describe the link between power and energy • Compare the energy transferred by different domestic appliances (by applying the formula) • Recall the 3 fossil fuels • Label the main components of the national grid • Determine energy usage from meter readings • Calculate the cost of home energy usage 	
16/06/2025		Achievement Round 3
23/06/2025		Achievement Round 3
30/06/2025		Achievement Round 3
07/07/2025	<ul style="list-style-type: none"> • State ways domestic energy use could be reduced • Evaluate the different approaches taken by governments to rescue a countries net energy use • Recall the 8 energy stores • State what is meant by an energy pathway • Describe the process of conduction • Identify materials as insulators or conductors • Compare the effectiveness of different insulators at reducing energy transfer (investigation) <p>Variation and Inheritance (9lessons)</p> <ul style="list-style-type: none"> • Recall the function of the nucleus • Place DNA, chromosomes, Nucleus, and genes into an order of magnitude • Describe the structure of chromosomes • Explain the role of Watson, Crick, Wilkins and Franklin in developing the model of DNA • Identify the name of common apparatus 	Learning Checkpoint

	<ul style="list-style-type: none"> ● Follow a scientific process and extract DNA ● Evaluate the use of DNA extraction to solve crimes ● recall the structures of chromosomes ● state what is meant by a gene ● Describe how genes can be modified ● Evaluate the use of genetic modification 	
14/07/2025	<ul style="list-style-type: none"> ● recall the different parts of the reproductive organs of humans ● state the meaning of gametes ● describe the process of fertilisation ● predict the number of chromosomes in an organism ● State what is meant by variation ● State what is meant by inheritance ● Give examples of inherited characteristics ● Compare inherited and environmental influences on characteristics ● Recall the meaning of variation ● Give examples of continuous and discontinuous variation WS ● Interpret data on variation ● Explain the importance of gene banks on preserving heredity material ● recall examples of characteristics influenced by genetic, the environmental or both ● suggest of variation can improve an organism's chance of survival (delta variant) ● explain what is meant by a genetic mutation (delta variant) ● Explain the role of Genetics in helping to beat COVID 	Learning Checkpoint
21/07/2025	<p>Matter 2 (9 lessons)</p> <ul style="list-style-type: none"> ● Recall the movement of particles in solids, liquids and gases. ● State that a pure substance has a fixed melting and boiling point and identify some everyday examples. ● Recall the definition of the term mixture. ● Explain why mixtures can be separated. ● Recall how change in energy causes particles to change how they move, leading to a change in state. ● Identify that the method chosen to separate a mixture depends on which physical properties of the individual substances are different. ● Describe the process of filtration. ● Describe the process of simple distillation. ● Describe the process of evaporation. ● Recall the names of the main changes of state. ● Define the terms solute, solvent and solution ● Identify the relationship between a solvent, solute and solution. ● Define the term solubility and identify units that could be used. ● Recall how to use melting point and boiling point data to predict the state of matter a substance will be at a specific temperature ● Describe the process of chromatography. ● Identify that some substances are soluble (i.e. will dissolve) whilst some are insoluble (i.e. won't dissolve). ● Explain how substances dissolve using the particle model. ● Recall the movement of particles in a liquid. ● Use the solubility curve of a solute to explain observations about solutions. ● Use evidence from chromatography to identify unknown substances in mixtures. ● Choose the most suitable technique to separate out a mixture of substances. ● Recall changes in states in terms of changes to the energy of particles. ● Analyse and interpret solubility curves. ● Suggest a combination of methods to separate a complex mixture and justify the choices 	Learning Checkpoint

	<ul style="list-style-type: none">• Evaluate the evidence for identifying an unknown substance using separating techniques. (Practical investigation)•	
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