

Sandon Road, Meir, Stoke-on-Trent, ST3 7DF Telephone: 01782 377100 Fax: 01782 377101

Email: info@omera.co.uk Website: www.ormistonmeridianacademy.co.uk

Principal: Mrs C Stanyer

Subject: Science

Year 9

Curriculum Map

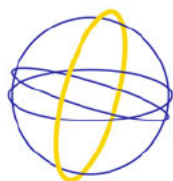
2022 -2023

| Week Commencing | Topic (including links to additional resources) | Assessment Window |
|---|--|-------------------|
| STAFF INSET 05/09 Y7 DAY 06/09 ALL STUDENT IN 07/09 | Ecology 2 (7 lessons) <ul style="list-style-type: none"> ✓ Define the term distribution of a species. ✓ State examples of factors that will determine the distribution of a species. ✓ Suggest how human activities are affecting the distribution of a species. ✓ Recall the meaning of consumer and producer. ✓ Construct pyramids of biomass. ✓ Explain why energy is lost in a food chain. | |
| 12/09/2022 | <ul style="list-style-type: none"> ✓ State what is meant by farming. ✓ Give examples of farmed resources. ✓ Evaluate the efficiency of farming meat (food chains). ✓ Compare farming techniques. ✓ State what is meant by agriculture. ✓ Evaluate the impact of modern farming techniques on yield. ✓ Suggest why crop rotation is important. | |
| 19/09/2022 | <ul style="list-style-type: none"> ✓ State what is meant by human food security. ✓ Evaluate the use of intensive farming techniques. ✓ State what is meant by the water cycle. ✓ Describe the water cycle. ✓ Explain the impact of human activities on the water cycle. ✓ Recall what is meant by an adaptation. ✓ Relate adaptation to function for a variety of extinct animals. ✓ Link the main changes in earths evolution to the change in adaptations of plants. | |
| 26/09/2022 | Photosynthesis and Respiration 2 (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. ✓ 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. | |

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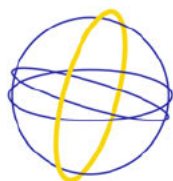
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| 03/10/2022 | <ul style="list-style-type: none"> ✓ Write a word equation for aerobic and anaerobic respiration. ✓ Investigate the effect of temperature on the rate of respiration (yeast). ✓ State what is meant by breathing. ✓ Compare breathing and respirations. ✓ Describe the process of inhalation and exhalation. ✓ Describe the structure of lungs. ✓ Describe how the structure of lungs supports the diffusion of oxygen. ✓ 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. | |
| 10/10/2022 | <p>Forces and Space 3 (5 lessons)</p> <ul style="list-style-type: none"> ✓ Recall the effect of resultant forces acting on an object. ✓ State what is meant by deformation of an object. ✓ Explain the relationship between force applied and deformation (Hooke's law). ✓ State what is meant by pressure. ✓ Describe the relationship between pressure and depth in a fluid. ✓ Explain the relationship between pressure and upthrust. | |
| 17/10/2022 | <ul style="list-style-type: none"> ✓ Describe the relationship between pressure and atmospheric pressure. ✓ State the unit of measure for pressure. ✓ Apply the equation pressure = force/area. ✓ State what is meant by a moment. ✓ Describe the effect on moments on motion. ✓ Apply the equation that links moment, distance and force. ✓ Explain the relationship between moments and work done. | |
| October Half Term | | |
| 31/10/2022 | Buffer | |
| 7/11/2022 | | AR1 |
| 14/11/2022 | | AR1 |

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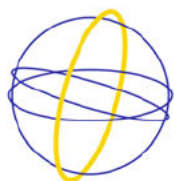
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| 21/11/2022 | <p>Energy 3 (4 lessons)</p> <ul style="list-style-type: none"> ✓ Recall the 3 thermal energy pathways. ✓ Distinguish between heat and temperature. ✓ Define the term thermal energy. ✓ Describe the factors that affect an objects thermal energy. ✓ Compare the effects of temperature difference on thermal energy transfer. ✓ Interpreting cooling curve data. | |
| 28/11/2022 | <ul style="list-style-type: none"> ✓ Define the term work. ✓ Describe the relationship between work done, distance and force. ✓ Apply the equation that links work done, distance and force. ✓ Recall the equation that links work done, force and distance. ✓ Describe how levers/pullies can reduce the amount of work need to complete a function. ✓ Explain why car brakes increase work done. | |
| 5/12/2022 | <p>Cells 3 (12 lessons)</p> <ul style="list-style-type: none"> ✓ Recall the meaning of prokaryotic and eukaryotic ✓ Describe the structure of a bacterial cell ✓ Explain how a bacteria cell is adapted for its function | |
| 12/12/2022 | <ul style="list-style-type: none"> ✓ Recall the structure and adaptations of nerve, muscle, and sperm cells ✓ Describe the structure and adaptations of xylem and phloem tissue ✓ Draw an image as viewed under a LMS. ✓ Use magnification scales to determine object size ✓ Compare light and electron microscopes | |
| Christmas Break | | |
| 02/01/2023 | <ul style="list-style-type: none"> ✓ State when cell differentiation occurs in animals and plants ✓ Describe the cycle ✓ State what a stem cell is ✓ Give examples of where stem cells can be found in animals and plants ✓ Evaluate the use of STEM cells in medical treatments ✓ Describe how stem cells from plants can be used to produce clones of plants ✓ Explain the process of therapeutic cloning | |
| 9/01/2023 | <ul style="list-style-type: none"> ✓ Explain the relationship between joints, tendons and ligaments ✓ Explain the structure of a synovial joint ✓ Evaluate different methods used to improve joint mobility ✓ Recall the definition of diffusion ✓ Explain the factors that affect the rate of diffusion ✓ Describe how the gills, lungs and small intestine support diffusion ✓ Calculate SA to volume ratio ✓ Explain the importance of SA to volume ratio | |
| 16/01/2023 | <ul style="list-style-type: none"> ✓ Define the term osmosis ✓ Investigate the effect of concentration on osmosis in plant tissue ✓ Define the term active Transport ✓ Compare the processes of active transport, osmosis and diffusion | |
| 23/01/2023 | Buffer | |

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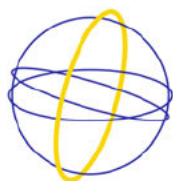
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| 30/01/2023 | <p>Reactions 3 (7 lessons)</p> <ul style="list-style-type: none"> ✓ Define the term "combustion". ✓ Describe the energy transfer in a combustion reaction. ✓ Compare the pros and cons of different fuels for different situations. ✓ Justify your choice. ✓ Define the term "thermal decomposition". ✓ Identify examples of thermal decomposition reactions. ✓ Describe how atoms rearrange during this type of reaction. ✓ Describe chemical changes as a model, drawing on ideas about conservation of mass. ✓ Explain why a reaction is an example of combustion or thermal decomposition. ✓ Predict the products of the combustion of thermal decomposition, and show the word equation. | |
| 6/02/2023 | | AR2 |
| 13/02/2023 | | AR2 |
| February Half Term | | |
| 27/02/2023 | <ul style="list-style-type: none"> ✓ Recall the rule of conservation of mass. ✓ Describe a simple experiment to prove this rule. ✓ Explain observation about mass change in a chemical reaction. ✓ Recall the arrangement of particles in solids, liquids and gases. ✓ Use particle diagrams to show what happens in a reaction. ✓ Write word equations to describe what happens in a chemical reaction. ✓ Use symbol equations to show what happens in a chemical reaction. ✓ Recall the following reactions with a word equation: -Oxidation -Displacement -Metal-acid. ✓ Devise a general rule for how a set of compounds reacts with oxygen or thermally decomposes. ✓ Describe an experiment to prove the rule of conservation of mass. | |
| 6/03/2023 | <ul style="list-style-type: none"> ✓ Use the mass of a reactant in an equation to determine the mass of a product. ✓ Balance a symbol equation ✓ Apply this skill to new problems. | |
| 13/03/2023 | <p>Electricity 2 (9 lessons)</p> <ul style="list-style-type: none"> ✓ Recall the meaning of current ✓ Describe the relationship between current and resistance ✓ Explain the effect of temperature on current | |
| 20/03/2023 | <ul style="list-style-type: none"> ✓ Recall the units for resistance, current and pd. ✓ Apply $V=IR$ in practical contexts ✓ Apply $V=IR$ in theoretical contexts | |

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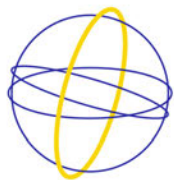
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| 27/03/2023 | <ul style="list-style-type: none"> ✓ Investigate the relationships between wire diameter and resistance (investigation HSW context) | |
| Easter | | |
| 17/04/2023 | <ul style="list-style-type: none"> ✓ state what is meant by an insulator/conductor ✓ investigate the relationship between resistance and the conductivity of a material (Investigation HSW context) ✓ State what is meant by a cell ✓ Compare the use of cells and batteries ✓ Evaluate the increasing use of batteries | |
| 24/04/23 | <ul style="list-style-type: none"> ✓ Justify the statement "batteries determine technological development" ✓ recall the meaning of static charge ✓ describe everyday situations where the principles of static charge can be used usefully ✓ explain the link between static electricity and the evolution of life | |
| 1/05/2023 | <p>Cells and Organs 4 (15 lessons)</p> <ul style="list-style-type: none"> ✓ recall the structure of eukaryotic cells ✓ compare eukaryotic and prokaryotic cells. ✓ Compare the sizes of different cells and subcellular structures. | |
| 8/05/2023 | <ul style="list-style-type: none"> ✓ Recall the main sub cellular structures in animal cells ✓ Recall the additional sub cellular structures in plant cells | |
| 15/05/23 | <ul style="list-style-type: none"> ✓ Describe how cells become specialised and give examples of specialised cells. ✓ Describe how cells differentiate, and uses of undifferentiated cells. | |
| 22/05/23 | <ul style="list-style-type: none"> ✓ Describe how microscopy techniques have developed over time. ✓ Explain how electron microscopy has increased our understanding of sub cellular structures. | |
| May Half Term | | |
| 05/06/2023 | | AR3 |
| 12/06/2023 | | AR3 |

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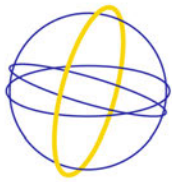
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| 19/06/2023 | <ul style="list-style-type: none"> ✓ Calculate magnification, using data about real size and image size. ✓ Describe how cell division occurs by mitosis | |
| 26/06/2023 | <ul style="list-style-type: none"> ✓ Describe how stem cells from embryos can be cloned. ✓ Describe how meristem cells in plants can differentiate into any type of plant cell. ✓ Compare the positive and negative aspects of therapeutic cloning. | |
| 3/07/2023 | <ul style="list-style-type: none"> ✓ Describe how particles are transported by diffusion. ✓ Explain how different factors affect the rate of diffusion. ✓ Calculate surface area to volume ratio | |
| 10/07/2023 | <ul style="list-style-type: none"> ✓ Describe how water can move via osmosis. ✓ Describe the process of active transport ✓ Compare the processes of osmosis, active transport and diffusion. | |
| 17/07/2023 | Buffer | |
| 24/07/2023 | Buffer | |

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