

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 7**

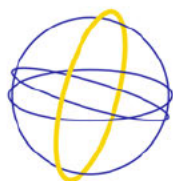
**Curriculum Map**

**2022 -2023**

Week Commencing	Topic <b>(including links to additional resources)</b>	Assessment Window
STAFF INSET 05/09 Y7 DAY 06/09 ALL STUDENT IN 07/09	<b>Introduction to Science (6 lessons)</b> <ul style="list-style-type: none"> <li>✓ Pupils can identify the health and safety issues within a laboratory.</li> <li>✓ Pupils are asked to identify hazards in a lab and to recognise the common hazard symbols found on chemicals in a lab.</li> <li>✓ Pupils are encouraged to list some health and safety rules to be used in the lab.</li> </ul>	
12/09/2022	<b>Introduction to Science (6 lessons)</b> <ul style="list-style-type: none"> <li>✓ Pupils should be able to Identify some scientific equipment found in a laboratory, both diagrams and scientific pictures.</li> <li>✓ Pupils should practise drawing some common scientific equipment.</li> <li>✓ Pupils can identify the parts of a Bunsen burner.</li> <li>✓ Pupils can describe the difference between the safety flame and the roaring flame on a Bunsen burner.</li> <li>✓ Pupils can describe how to use a Bunsen burner safely.</li> </ul>	
19/09/2022	<b>Introduction to Science (6 lessons)</b> <ul style="list-style-type: none"> <li>✓ Pupils can identify independent, dependent and control variable in an investigation.</li> <li>✓ Pupils can write a hypothesis for an experiment.</li> <li>✓ Pupils can write a scientific method.</li> <li>✓ Pupils can collect data in a results table, and calculate a mean.</li> <li>✓ Pupils can select the best way to present data.</li> <li>✓ Pupils can plot a line graph.</li> <li>✓ Pupils can draw conclusions from data.</li> </ul>	
26/09/2022	<b>Matter 1 (14 lessons)</b> <ul style="list-style-type: none"> <li>✓ Recognise solids, liquids and gases from simple particle model diagrams</li> <li>✓ Describe the movement of particles in a solid as closely spaced and vibrating</li> <li>✓ Describe the movement of particles in a liquid as in random motion but in contact</li> <li>✓ Describe the movement of particles in a gas as n random motion and widely spaced</li> <li>✓ Define gas pressure as being caused by collisions of particles with the walls of a container.</li> </ul>	
03/10/2022	<b>Matter 1 (14 lessons)</b> <ul style="list-style-type: none"> <li>✓ Describe how an input of energy causes particles to move more, leading to a change in state.</li> <li>✓ Identify the change of state from a solid to a liquid as melting.</li> <li>✓ Identify the change of state from a liquid to a gas as evaporation.</li> <li>✓ Identify the change of state from a gas to a liquid as condensation</li> <li>✓ Identify the change of state from a liquid to a solid as freezing.</li> </ul>	

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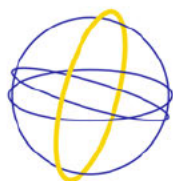
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10/10/2022	<p><b>Matter 1 (14 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ Identify that some substances turn straight from a solid into a gas in a process called sublimation.</li> <li>✓ Define melting point and boiling point as the temperature at which a solid turns into a liquid, and a liquid turns into a gas.</li> <li>✓ Use melting point and boiling point data to predict the state of matter a substance will be at a specific temperature.</li> <li>✓ Explain unfamiliar observations about gas pressure in terms of particles.</li> </ul>	
17/10/2022	<p><b>Matter 1 (14 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ Explain the properties of solids, liquids and gases based on the arrangement and movement of their particles.</li> <li>✓ Explain changes in states in terms of changes to the energy of particles.</li> <li>✓ Draw before and after diagrams of particles to explain observations about changes of state, gas pressure and diffusion.</li> </ul>	
October Half Term		
31/10/2022		AR1
7/11/2022		AR1
14/11/2022	Buffer	
21/11/2022	<p><b>Cells 1 (10 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ State that cell diagrams are examples of scientific models.</li> <li>✓ Identify on an image of a non-specialist animal cell the nucleus, cytoplasm and membrane.</li> <li>✓ Identify red blood cells, sperm cells and muscle cells as examples of specialised animal cells.</li> <li>✓ Identify the nucleus, chloroplast, vacuole, cell wall, cell membrane and cytoplasm in a plant cell.</li> <li>✓ Identify the differences and similarities of animal and plant cells, where nucleus, cell membrane and cytoplasm</li> </ul>	
28/11/2022	<p><b>Cells 1 (10 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ Identify the separate parts of a light microscope, limited to objective lens, eye piece, focus wheel, stage and light source.</li> <li>✓ Describe how to resolve focus by using the focus wheel.</li> <li>✓ Describe how to set up a light microscope from the lowest magnification to the greatest.</li> <li>✓ Describe the field of view as the "total image we see through the eyepiece".</li> <li>✓ Place cells, tissues, organs, organ systems and organisms in order of magnitude.</li> </ul>	

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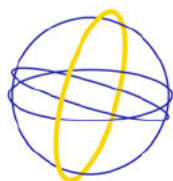
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5/12/2022	<p><b>Cells 1 (10 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ Identify respiratory and digestive systems as examples of organ systems.</li> <li>✓ Identify major bones in the human skeleton on a diagram.</li> <li>✓ Identify ball and socket and hinge joints in the human body.</li> <li>✓ Describe why ball and socket joints can be problematic to repair.</li> </ul>	
12/12/2022	<p><b>Forces and Space 1 (11 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ State the unit of measure for force.</li> <li>✓ Identify the main forces acting on a stationary object</li> <li>✓ Represent forces in familiar context using FBD</li> <li>✓ Represent forces in unfamiliar context using FBD</li> <li>✓ State the units of measure for weight and mass</li> <li>✓ Describe how weight and mass are different</li> <li>✓ Explain the effect of gravity on weight</li> <li>✓ Recall the units of measure for mass and weight</li> <li>✓ Determine the weight of an object using the formula <math>w = m \times g</math></li> <li>✓ Compare your weight of different planets</li> </ul>	
Christmas Break		
02/01/2023	<p><b>Forces and Space 1 (11 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ Recall the equation that links weight, mass and GSF</li> <li>✓ Suggest a relationship between the force of gravity and distance from the body</li> <li>✓ Explain what is meant by the Event Horizon.</li> <li>✓ List the different types of bodies that compose our solar system</li> <li>✓ Order the planets from the sun</li> <li>✓ Describe the relationship between a solar system, galaxy and universe</li> <li>✓ Recall the order of planets</li> <li>✓ Compare different methods used to observe our solar system and beyond</li> <li>✓ Suggest why deep space travel is so challenging.</li> </ul>	
9/01/2023	<p><b>Forces and Space 1 (11 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ Recall the bodies that make up our solar system</li> <li>✓ Describe the relationship between the earth and the moon,</li> <li>✓ Identify the phases of the moon</li> <li>✓ Evaluate the impact of the space race on global relationships</li> <li>✓ Recall the phases of the moon</li> <li>✓ Describe the relationship between the earth and the sun</li> <li>✓ Explain why we get different seasons</li> <li>✓ State what is meant by a model</li> <li>✓ Use a model to represent the relative distance of planets from the sun</li> <li>✓ Design and evaluate a model</li> <li>✓ State what is meant by a light year</li> <li>✓ Describe why we use light years</li> <li>✓ Determine the time it would take to travel to distant objects from light year data,</li> </ul>	
16/01/2023	<p><b>Reactions 1 (8 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ Describe the relationship between pH of a solution and the strength of an acid.</li> <li>✓ Recall that pH is measured on a scale.</li> <li>✓ State the pH ranges of strong acids, weak acid, neutral solution, weak alkali and strong alkalis.</li> <li>✓ Identify the products when an acid reacts with an alkali.</li> <li>✓ Name this type of reaction.</li> <li>✓ Predict the products from an unknown reaction of this type.</li> <li>✓ Define the terms "corrosive" and "irritant".</li> </ul>	

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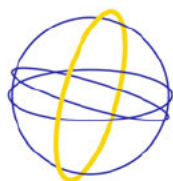
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	<ul style="list-style-type: none"> <li>✓ Identify that acids and alkalis can be corrosive or irritant.</li> <li>✓ Describe how to safely handle acids and alkalis in a laboratory</li> </ul>	
23/01/2023	<p><b>Reactions 1 (8 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ Recognise that some acids can be described as strong, but others can be described as weak.</li> <li>✓ Categorise acids as being strong or weak from a description.</li> <li>✓ Explain the strength of an acid by referring to dissociation.</li> <li>✓ Define concentration, by referring to particles and volume.</li> <li>✓ Describe how concentration and strength are different.</li> <li>✓ Use ideas about strength and concentration to assess risk of everyday uses of acids and alkalis.</li> <li>✓ Describe how to measure the pH of a solution.</li> <li>✓ Identify the best indicator to distinguish between solutions of different pH.</li> <li>✓ Use data and observations to determine the pH of a solution and explain what this shows.</li> </ul>	
30/01/2023		AR2
6/02/2023		AR2
13/02/2023	<p><b>Reactions 1 (8 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ Describe how neutralisation reaction are used in a range of situations.</li> <li>✓ Describe a method for how to make a neutral solution from an acid and an alkali.</li> <li>✓ Given the name of an acid and an alkali, work out the name of the salt produced when they react.</li> </ul>	
February Half Term		
27/02/2023	<p><b>Health and Reproduction 1 (9 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ State the main nutrient groups</li> <li>✓ Give examples of each nutrient group</li> <li>✓ State the function of each nutrient group</li> <li>✓ State what is meant by a balanced diet</li> <li>✓ Compare the diets of different demographics</li> <li>✓ Interpret data on dietary requirements</li> <li>✓ State what is meant by a calorie</li> <li>✓ Compare the energy in food</li> <li>✓ Explain how your results could be made more reliable</li> </ul>	
6/03/2023	<p><b>Health and Reproduction 1 (9 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ Name common vitamins and minerals and state their use in the body</li> <li>✓ Give examples of deficiency diseases</li> <li>✓ State what is meant by the traffic light system</li> <li>✓ Compare different methods used to present nutritional information</li> <li>✓ Explain what is meant by Bias</li> <li>✓ Label the main structures of the male reproductive system</li> <li>✓ Describe their function</li> </ul>	

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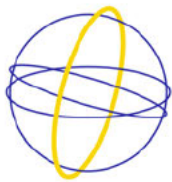
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13/03/2023	<p><b>Health and Reproduction 1 (9 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ Label the main structures of the female reproductive organ</li> <li>✓ Describe their function</li> <li>✓ State what is meant by gestation period</li> <li>✓ Describe how different structure support the development of a foetus</li> <li>✓ Compare and contrast the gestation periods for different organisms</li> <li>✓ Identify the reproductive organs of a plant</li> <li>✓ Describe how plants reproduce sexually</li> <li>✓ Explain the role of pollinators in commercial plant reproduction</li> <li>✓ Recall the different parts of a plants reproductive system</li> <li>✓ Describe the different adaptation plants have for dispersing seeds</li> <li>✓ Compare the structures of wind and insects pollinated plants</li> </ul>	
20/03/2023	<p><b>Energy 1 (7 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ State the 8 stores of energy</li> <li>✓ Describe situations where energy stores decrease</li> <li>✓ Explain what is meant by the conservation of energy</li> <li>✓ Recall the 8 stores of energy</li> <li>✓ State the units of measure for energy</li> <li>✓ Describe energy as useful, wasted or dissipated</li> <li>✓ Calculate changes in energy</li> <li>✓ state what is meant by KJ</li> <li>✓ Convert between J and KJ</li> <li>✓ Define the term calorie</li> <li>✓ Compare the different ways food labels present information calories</li> <li>✓ Recall the meaning of useful, wasted and dissipated</li> <li>✓ Compare the energy in food (investigation)</li> <li>✓ Select the most appropriate way to present data</li> </ul>	
27/03/2023	<p><b>Energy 1 (7 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ Recall the meaning of calorie</li> <li>✓ Describe the link between energy and mass (in relation to body weight)</li> <li>✓ State what is meant by evidence</li> <li>✓ Suggest the link between bias, evidence, and social media. In respect of weight loss programs.</li> <li>✓ State the meaning of "domestic use"</li> <li>✓ Name the 3 fossil fuels</li> <li>✓ Identify the different components of a FF power station</li> <li>✓ Describe the function of each component</li> <li>✓ Describe the changes in energy stores in a fossil fuel power station</li> <li>✓ Identity energy resources as renewable or non-renewable</li> <li>✓ Compare the impact of renewable and non-renewable source of energy</li> </ul>	
Easter	✓	
17/04/2023	Buffer	
24/04/23	<p><b>Waves 1 (13 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ Recall the units of measure for energy</li> <li>✓ Recall the 4 energy pathways</li> <li>✓ Recall the changes that take place in energy stores when a devise is used</li> <li>✓ Define the term wave</li> <li>✓ State what is meant by a mechanical wave</li> <li>✓ Describe the interaction of sound waves with different medium (reflection, absorbing, echoes)</li> <li>✓ Explain why sound waves travels faster in solids.</li> </ul>	

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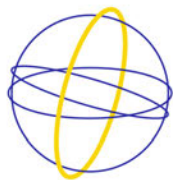
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	<ul style="list-style-type: none"> <li>✓ recall the term "wave"</li> <li>✓ identify sound as either transverse or longitudinal</li> <li>✓ describe how the human ear works</li> <li>✓ Compare the Auditory ranges of different animals.</li> <li>✓ Identify the pitch and volume of a sound wave from a trace</li> <li>✓ Describe the relationship between frequency and pitch</li> <li>✓ And between amplitude and volume</li> <li>✓ Determine frequency from a trace</li> <li>✓ Compare the different uses of Ultra sound technology</li> </ul>	
1/05/2023	<p><b>Waves 1 (13 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ Recall the meaning of a mechanical wave</li> <li>✓ Compare the behaviour of transverse and longitudinal waves</li> <li>✓ Compare the properties of mechanical waves and light waves</li> <li>✓ Explain why light, not sound can reach us from deep space</li> <li>✓ Order the colours of light by frequency</li> </ul>	
8/05/2023	<ul style="list-style-type: none"> <li>✓ Label the incident, reflected and normal line on a ray diagram for reflection</li> <li>✓ Determine the angle of reflection using a protractor</li> <li>✓ Compare diffuse scattering with specular reflection</li> <li>✓ Describe how a mirror works</li> </ul>	
15/05/23	<ul style="list-style-type: none"> <li>✓ Describe the effect of prisms on white light</li> <li>✓ Explain why rainbows occur</li> <li>✓ Label the incident, reflected and normal line on a ray diagram for refraction</li> <li>✓ Determine the angle of refraction using a protractor</li> <li>✓ Compare the refraction of light for different materials, and account for any differences.</li> </ul>	
22/05/23		AR3
May Half Term	<p><b>Waves 1 (13</b></p> <ul style="list-style-type: none"> <li>✓</li> </ul>	
05/06/2023		AR3
12/06/2023	Buffer	
19/06/2023	<ul style="list-style-type: none"> <li>✓ Identify lens as convex or concave</li> <li>✓ Identify rays as converging or diverging</li> </ul>	
26/06/2023	<ul style="list-style-type: none"> <li>✓ Use a ray model to explain how a convex lens works</li> <li>✓ Label the main structures of an animal eye</li> </ul>	

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3/07/2023	<ul style="list-style-type: none"> <li>✓ Describe the function of each component</li> <li>✓ Explain how the lens works</li> <li>✓ Explain how a mirror works</li> </ul>	
10/07/2023	<p><b>Ecology 1 (7 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ Recall MRS GREN</li> <li>✓ state what is meant by a population, community and ecosystem</li> <li>✓ Compare different types of ecosystems</li> <li>✓ State what is meant by a sample</li> <li>✓ Use random sampling to estimate population size</li> <li>✓ State what is meant by a producer and consumer</li> <li>✓ State what is passed on in a food chain (what do the arrows represent?)</li> <li>✓ Construct food chains with 4 trophic levels</li> <li>✓ Construct a food web from food chains</li> <li>✓ Interpret food webs</li> <li>✓ Explain the effect of interdependence on a food web</li> </ul>	
17/07/2023	<p><b>Ecology 1 (7 lessons)</b></p> <ul style="list-style-type: none"> <li>✓ Draw pyramids of number</li> <li>✓ Interpret pyramids of number</li> <li>✓ describe predator prey relationships</li> <li>✓ name some factors that will affect a Predator prey relationship</li> <li>✓ explain the effect of predator/prey relationship State what an adaptation is</li> <li>✓ Describe how animals may be adapted for hot climates</li> <li>✓ Explain how animals are adapted for cold climates</li> </ul>	
24/07/2023		

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