



Science Action Plan & Report Science Lead: Joanna 22/23

LTP	Autumn Term 1	Autumn Term 2	Spring 1	Spring 2	Summer 1	Summer 2
Journey 1 Confident Community Engagement						
Central	Following NSS Curriculum – Cross-curricular activities that include science within NSS framework					
Circle						
Victoria						
Journey 2 Community Engagement and Employment Opportunities						
Northern Charlotte	Living things & their Habitats; link to Seasonal changes Linking to local environment, comparing to animals in other habitats	The Human Body & growth; Healthy heart, healthy body	Materials and their Properties Linking to food packaging / recycling & Sustainability	Magnets & Forces	Electricity & Circuits; Climate Change, Energy / Renewable Energy & Sustainability	Plants & Water conservation
Piccadilly Joanna						
Metropol. Mina						
Jubilee	Some students completing OCR Life & Living Skills Horticulture units; linking to science discreetly					
Elizabeth						

Science Journey 3 Further Study and Skilled Work Opportunities						
District Sheena	Electricity & Circuits; linking to: Climate Change, Energy / Renewable Energy & Sustainability	Magnets & Forces	Light & Sound; Linking to the human body	Materials & Their Properties: linking to food packaging and sustainability	Earth & Space; to also touch on rocks topic	Plants & Water conservation
Bakerloo Joanna						
Ham. & City Eliane						
Wat. & City	Some students completing OCR Life & Living Skills Horticulture units; linking to science discreetly					
DLR						

Curriculum Intent	
BEAR Values	
Personalisation	Differentiation
EHCP Outcomes Preparing for Adulthood: Employment Health Community Inclusion Independent Living	3 Journeys: 1. Confident Community Engagement 2. Community Engagement and Employment Opportunities 3. Further Work and Skilled Work Opportunities Pathways Voyages (Non-)Subject-specific knowledge and skills



<p style="text-align: center;">Intent (contributing to SDP)</p>	<p style="text-align: center;">Implementation (how this action plan supports the SDP)</p>	<p style="text-align: center;">Impact (on students' progress)</p>
<p>Journey 1 Confident Community Engagement</p>		
<p>The Scientific area of learning is concerned with increasing pupils' knowledge and understanding of our world, and with developing skills associated with Science as a process of enquiry. Within Journey 1, students are provided opportunities to build their scientific knowledge by means of learning through play. It will develop the natural curiosity of the child or young adult, encourage respect for living organisms and the physical environment and provide opportunities for observing and engaging in simple scientific processes in the world around them.</p> <p>At Oaktree School, in conjunction with the aims of our bespoke NSS framework, the teaching of science offers opportunities for children to:</p> <ul style="list-style-type: none"> • Develop and early understanding of scientific concepts in the world around them. • To develop understanding of the nature, processes and methods of Science through different types of science enquiries that help them to answer scientific questions about the world around them. • To be equipped with the scientific knowledge required to understand the uses and implications of Science, today and for the future. 	<p>In Journey 1, Science will be taught within the NSS cross-curricular framework and will be taught in planned and arranged topic blocks by the class teacher. To enable the achievement of a greater depth of engagement using a holistic approach.</p> <p>Through our planning, we involve problem solving opportunities that allow children to find out for themselves. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills via developing their sense of enquiry of the world around them to increase their engagement of their surroundings. This curiosity is celebrated within the classroom. Planning involves teachers creating engaging lessons, often involving high-quality resources to aid understanding of key knowledge. Teachers to provide opportunities for students to develop their curiosity, their sense of enquiry and their engagement and understanding of the world around them, and assess children regularly to identify those children with gaps in learning, so that all children can make progress. We build upon the learning and skill development of the previous years. As the children's knowledge and understanding increases, and they become more proficient in selecting, using equipment and they become increasingly confident in their growing ability to come to conclusions based on real life experiences.</p>	<p>The successful approach at Oaktree School results in a fun, engaging, high-quality science education, that provides children with the foundations for understanding the world. Our engagement with the local environment ensures that children learn through varied and first hand experiences of the world around them. So much of science lends itself to outdoor learning and so we provide children with opportunities to experience this. Through hands on 'practical' experiences within the science lessons, children have the opportunity to build their understanding that science has changed our lives and that it is vital to the world's future prosperity. Pupil voice is used to further develop the Science curriculum, through questioning of pupil's views and attitudes to Science to support the children's enjoyment of science and to motivate learners.</p>
<p>Journey 2 Community Engagement and Employment Opportunities</p>		
<p>At Oaktree School, in conjunction with the aims of our bespoke Science Curriculum Ladder with the 'I can...' statements and the science based elements of the OCR Life & Living Skills Pathways framework, the teaching of science offers opportunities for children to:</p> <p>develop scientific knowledge and conceptual understanding through the specific disciplines of Biology, Chemistry and Physics which are broken down in the strands within the Curriculum ladder;</p> <p>develop understanding of the nature, processes and methods of Science through different types of science enquiries that help them to answer scientific questions about the world around them;</p> <p>be equipped with the scientific knowledge required to understand the uses and implications of Science, today and for the future.</p> <p>develop the essential scientific enquiry skills to deepen their scientific knowledge.</p> <p>Use a range of methods to communicate their scientific information and present it in a systematic, scientific manner supporting the communication needs of the student.</p>	<p>In Journey 2, Science will be taught via the Curriculum Ladder framework of 'I Can' statements and will be taught in planned and arranged topic blocks by the class teacher. This is a strategy to enable the achievement of a greater depth of knowledge.</p> <p>Through our planning, we involve problem solving opportunities that allow children to find out for themselves. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom. Planning involves teachers creating engaging lessons, often involving high-quality resources to aid understanding of conceptual knowledge. Teachers use precise questioning in class to test conceptual knowledge and skills, and assess children regularly to identify those children with gaps in learning, so that all children keep up.</p> <p>We build upon the learning and skill development of the previous years. As the children's knowledge and understanding increases, and they become more proficient in selecting, using scientific equipment, collating and interpreting results, they become increasingly confident</p>	<p>The successful approach at Oaktree School results in a fun, engaging, high-quality science education, that provides children with the foundations for understanding the world. Our engagement with the local environment ensures that children learn through varied and first hand experiences of the world around them. So much of science lends itself to outdoor learning and so we provide children with opportunities to experience this. Through hands on 'practical' experiences within the science lessons, children have the opportunity to build their understanding that science has changed our lives and that it is vital to the world's future prosperity. Pupil voice is used to further develop the Science curriculum, through questioning of pupil's views and attitudes to Science to support the children's enjoyment of science and to motivate learners.</p>

<p>Develop a respect for the materials and equipment they handle with regard to their own safety and the safety of others. Develop an enthusiasm and enjoyment of scientific learning and discovery. Develop their independence and life and living skills in readiness for their journey into adulthood.</p> <p>Oaktree's bespoke Science Curriculum Ladder (I can... statements) and the OCR Life & Living Skills framework, will provide a structure and skill development for the science curriculum being taught throughout the school, which is now linked, where possible to the theme topics to provide a creative scheme of work, which reflects a balanced programme of study where progress can be easily assessed and measure through the progression of the 'Steps'.</p> <p>Children have weekly lessons in Science throughout Key Stage 2, 3 & 4, using various programmes of study and resources. Additional opportunities are provided in Science, such as the utilising the school grounds and linking the curriculum to horticulture and animal care with the use of the animals at Oaktree School.</p>	<p>in their growing ability to come to conclusions based on real evidence. Working Scientifically skills are embedded into lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics. Teachers demonstrate how to use scientific equipment, and the various Working Scientifically skills in order to embed scientific understanding. Teachers find opportunities to develop children's understanding of their surroundings by accessing outdoor learning and workshops with experts.</p>	
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Journey 3 | Further Study and Skilled Work Opportunities

<p>Science will be taught discreetly via 'Pathways' and the OCR Life & Living Skills Horticulture framework, will provide a structure and skill development for the science curriculum being taught throughout the school, linked, where possible to the theme topics to provide a creative scheme of work, which reflects a balanced programme of study where progress can be easily assessed and measured through the OCR assessment process.</p> <p>We endeavour to ensure that the Science curriculum we provide will give children the confidence and motivation to continue to further develop their skills into the next stage of their education and life experiences as well as their journey into adulthood.</p>	<p>In Journey 3, Science will be taught via cross curricular teaching within 'Pathways' and the OCR Life & Living Skills framework (specifically within the Horticulture Pathway) and will build on the skills and subject knowledge that the students have achieved through their accumulative experiences within Journey 2. Some students will also be provided opportunities to complete work experience to apply their skills within a real-life context to cement their understanding of scientific concepts and be able to carry out the skills they have acquired throughout their time at Oaktree and apply them in the real world in the wider community outside of Oaktree School.</p>	<p>The successful approach at Oaktree School results in a fun, engaging, high-quality science education, that provides children with the foundations for understanding the world. Our engagement with the local environment ensures that children learn through varied and first hand experiences of the world around them. So much of science lends itself to outdoor learning and so we provide children with opportunities to experience this. Through hands on 'practical' experiences within the science lessons, children have the opportunity to build their understanding that science has changed our lives and that it is vital to the world's future prosperity. Pupil voice is used to further develop the Science curriculum, through questioning of pupil's views and attitudes to Science to support the children's enjoyment of science and to motivate learners.</p>
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<p>Teacher Appraisal - My Post Holder target</p>

Autumn Term – moderation notes (students' work, EFL)

Autumn Term – progress with intent of action plan

Autumn Term – notes on student progress

Spring Term – moderation notes (students' work, EFL)

Spring Term – progress with intent of action plan

Spring Term – notes on student progress



Summer Term – moderation notes (students' work, EFL)

Summer Term – progress with intent of action plan

Summer Term – notes on student progress

Cross-Curricular links, SMSC, FBV

SEE TABLE AT THE END OF THIS DOCUMENT FOR CROSS CURRICULAR LINKS FOR EACH SCIENCE TOPIC WHERE APPLICABLE.

Scientific Topic	Cross-curricular links
Plants	<p>Art – Recreating plants and the key features, either through sketching or modelling</p> <p>Geography – Physical geography including biomes and vegetation belts, locating plants by their countries or regions</p> <p>English – Writing an information text about plants and flowers</p> <p>Maths – Measuring height of plants (runner beans / sunflowers) to record growth using rulers (m/cm/mm). Recording growth rate on graphs. Measuring yield of crop of potatoes by weight using weighing scales (g/Kg)</p>

	<p>Data handling – counting number of daffodil flowers growth by each class and recording results appropriately and comparing data.</p> <p>Food Tech – Farm to fork.</p>
Animals, including humans	<p>Music – Recall sounds with increasing aural memory</p> <p>Maths – Percentages/ fractions for nutrition, data handling</p> <p>PSHE – SRE – Reproduction, changes through age phases</p> <p>History – Stone Age to Iron Age, Ancient Greece, change in medicine and medical understanding</p> <p>P.E – Fitness tests, use of muscles, heart rate/ pulse and how this is affected by exercise</p>
Rocks	<p>Geography – Physical geography, location of particular rock formations</p>
Light	<p>Maths – Data and statistics, reflection</p> <p>History – How our understanding has changed, how we use light has changed over the years</p> <p>Art – Recreating images of light through sketching or modelling, spectrums of colour</p> <p>Geography – Time zones</p>
Forces and magnets	<p>Design Technology – Pulleys and gears, weight-bearing structures, how to stiffen and strengthen complex structures</p> <p>Maths – Data handling, Measurements, Percentages/ fractions of change</p> <p>Geography – Poles of the earth, physical geography</p>

<p>Living Things and their Habitats</p>	<p>English – Information texts, biographical writing about famous scientists, creating questions</p> <p>Maths – Data handling including using different diagrams to sort information and classifying / grouping animals.</p> <p>History – How what we know has changed over history, how scientists have built up on previous work</p> <p>Geography – Human and physical geography, Biomes, Tropics and Equator, locating living species, comparing physical features of habitats in local area to habitats in other areas across the world.</p> <p>PSHE – SRE - Reproduction</p>
<p>States of Matter</p>	<p>Maths – Measuring changes in temperatures</p> <p>Geography – The water cycle</p> <p>Food Tech – Food and change in state through temperature - how ingredients change can state (solid/liquid/gas) via the processes of cooking, freezing, melting, evaporating – & identifying reversible / irreversible changes.</p>
<p>Sound</p>	<p>Music - Recall sounds with increasing aural memory, Use the inter-related dimensions of music</p>
<p>Electricity</p>	<p>History - How what we know has changed over history, how scientists have built up on previous work</p> <p>Design Technology – Creating an electrical circuit game such as a buzz wire game, designs using particular materials as insulators or conductors</p> <p>English – Information texts, biographical writing about famous scientists</p> <p>Geography – Weather patterns</p> <p>PSHE – Keeping safe</p>

Properties of Materials	<p>Maths - Data handling, Measurements, Percentages/ fractions of change</p> <p>Design Technology – Food technology, textiles and design ideas, structures and materials used</p>
Earth and Space	<p>Art - Recreating images of Earth or space and the key features, either through sketching or modelling</p> <p>Geography – Time zones, Equator and tropics, hemispheres, seasons</p> <p>Maths – Time including calendars</p> <p>History – Ancient Greece, Romans, Ancient Maya</p>
Evolution and Inheritance	<p>Geography – Mapping Darwin's journey</p> <p>Computer Science – Using software to create cross-bred animals</p> <p>English – Information text about a species of animal, newspaper report, diary entry for Darwin or Mary Anning</p> <p>Art – Recreating images of the finches with their different beaks</p> <p>History – How the human species has changed</p>
Working scientifically	<p>Maths – Data handling and statistics, Measurements, Percentages and fractional changes, decimals, calculating, problem solving,</p> <p>English – Writing reports, creating questions</p> <p>P.E – How the body works including changes during exercise</p> <p>PSHE – Keeping safe</p>

Art – observational drawings to record findings

<p>SOCIAL Respect the code of conduct based on BEAR values.</p> <p>Work successfully and co-operatively, as a member of a group or team when completing group work in science lessons.</p> <p>Agree and disagree yet resolve conflicts maturely and appropriately. Promoting racial, religious and other forms of equality. Exercise the notion of independence and responsibility in an increasingly complex society. Fostering a sense of community, with common, inclusive values.</p>	<p>MORAL Respect the code of conduct based on BEAR values. Understand human feelings and emotions, needs, interests and feelings, as their own. Develop moral concepts and values: Be honest, loyal, respectful, learn and live with ethos, good manners, mutual respect. Encourage pupils to recognise right and wrong. Think through the consequences of their own and others' actions. Learn to experience other people's views and review their own. Explore the ethics of rapid scientific development and for the students to develop a sense of enquiry about how this impacts on our lives in relation to medical advances, sustainability, climate change and if these advances / changes to our lives are positive or negative.</p>	<p>SPIRITUAL Opportunity to explore values and beliefs (science versus religion).</p> <p>and explore how our growing understanding of the world around us through scientific developments are relevant to them and how this impacts on our spiritual understanding of the world. Exploring the way developments in science impact or have impacted on peoples' lives.</p>	<p>CULTURAL Understand how advances in science has impacted on cultures within Britain and throughout the world. How has this impacted on different cultures and if these changes are positive or negative. Promote knowledge and use of cultural imagery and language. Develop the ability to reflect on important questions of meaning and identity. Promoting racial, religious and other forms of equality. Explore cultural events and diversity by being inclusive with a diverse range of scientific developments and exploring more diverse historical scientific developments from various cultures.</p>
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