



CURRICULUM MAP (Long term plan)

SUBJECT : Science

YEAR GROUP 6

	Cycle 1 Autumn	Cycle 2 Spring	Cycle 3 Summer
Substantive knowledge – Essential knowledge & conceptual understanding of the National Curriculum	Light Evolution	Animals including humans - the heart and circulatory system Electricity	Living things and their habitats- Classification KS3 Transition Unit
Disciplinary knowledge - what skills are practiced?	<ul style="list-style-type: none"> ● Recognises scientific questions that do not yet have definitive answers. Recognises scientific questions that do not yet have definitive answers. ● Communicates findings in written form, across a range of genre, and uses multi-media and other forms of presentation ● Uses scientific evidence to answer questions or support findings. ● Identifies scientific evidence that has been used to support or refute ideas or argument ● Repeats sets of observations or measurements, where appropriate, selecting suitable ranges and intervals, to give sufficient depth of evidence 	<ul style="list-style-type: none"> ● Selects methods to use to solve problems or answer questions, including a full range of enquiry methods, which are planned in detail. ● Explains why particular pieces of equipment or information sources will provide better quality evidence ● Draws valid conclusions that utilise more than one piece of supporting evidence ● Provides explanations for differences repeated observations or measurements, identifying reasons for any anomalies noticed. ● Creates questions for scientific enquiry. ● Can plan familiar enquiry types in detail ● Selects the most appropriate equipment to use in a range of contexts and enquiries. 	<ul style="list-style-type: none"> ● Decides on the most appropriate formats to present sets of scientific data, such as using line graphs for continuous variables. ● Evaluates the effectiveness of their working methods, making practical suggestions for improving them. ● Draws valid conclusions that utilise more than one piece of supporting evidence ● Creates questions for scientific enquiry. ● Can plan familiar enquiry types in detail ● Selects the most appropriate equipment to use in a range of contexts and enquiries. ● Records data and results of increasing complexity using scientific diagrams, classification keys, tables, bar and line graphs and models. ● Communicates findings in written form, displays and uses other forms of presentation.

	<ul style="list-style-type: none"> Decides on the most appropriate formats to present sets of scientific data, such as using line graphs for continuous variables. 	<ul style="list-style-type: none"> Records data and results of increasing complexity using scientific diagrams, classification keys, tables, bar and line graphs and models. Communicates findings in written form, displays and uses other forms of presentation. 	<ul style="list-style-type: none"> Uses scientific language to communicate increasingly detailed analysis with some support Can compare relationships being investigated. Uses simple models to help describe scientific ideas Makes generalisations about what that evidence seems to indicate. Uses test results to set up further comparative tests. Suggests how an enquiry might be improved. Identifies scientific evidence that has been used to support or refute ideas or argument
<p>Key questions (What is the learning about?)</p>	<p>Light How can we reduce damage caused by UV light? What is a light source? Can you explain how light travels? Can I investigate how light travels? Can I demonstrate reflection using a periscope? Can I demonstrate how light changes direction? Can you use a prism to show the light spectrum? Can I investigate how shadows change?</p> <p>Evolution Can I discuss inherited and acquired characteristics? Can I understand the concept of inheritance?</p>	<p>Animals including humans - the heart and circulatory system Am I able to identify and name the main parts of the human circulatory system? Can I describe the functions of the heart? Can I explain the function of blood? Can I identify the components of blood with the use of a model? Can I plan an investigation as to how heart rates change with exercise? Can I explain how water is transported and controlled within the body? Can I describe how diet and exercise can impact human bodies? Can I understand the impact of smoking and drugs?</p>	<p>Living things and their habitats- Classification Can I explain what classification is? Can I design a classification key? Can I classify living organisms using a classification key? Can I explore Carl Linnaeus' classification system? Can I classify plants according to their characteristics? Can I research and classify plants? Can I identify microorganisms? Can I plan and carry out an investigation into mould?</p>

	<p>Can I explain how plants and animals have adapted to their environment?</p> <p>Can I recognise that living things have changed over time?</p> <p>Can I use Darwin's findings to show how adaptation led to evolution?</p> <p>What is the importance of fossils?</p>	<p>Electricity</p> <p>Can I create a circuit using symbols?</p> <p>Can I design and build a working circuit?</p> <p>Can I explore voltages?</p> <p>Can I plan and conduct an investigation about electricity with one variable?</p> <p>Can I research renewable energy and its benefits?</p>	
Assessment	<p>Y6 LIGHT-ANSWERS.pdf</p> <p>Y6 EVOLUTION-AND-INHERITANCE-COLOUR.pdf</p>	<p>Y6 ELECTRICITY-COLOUR.pdf</p> <p>Y6 ANIMALS-INCLUDING-HUMANS-COLOUR.pdf</p>	<p>Y6 LIVING-THINGS-AND-THEIR-HABITATS-COLOUR.pdf</p>
Literacy (L), Numeracy (N), Oracy (O) opportunities	<p>Literacy Using the book Moth, the children will explore the evolution of the peppered moth. They will then recreate a story board- pulling out the key scientific events that happened. They will then create a poem using literary techniques and scientific facts that they have learned.</p> <p>Maths skills use symbols for units, presenting data graphically</p>	<p>Literacy</p> <p>The children will read the book, "Blackout" and discuss how life would be without electricity. Allowing them to discuss emotive language and literacy skills. They will then write a diary using the given scenario and literacy techniques. link.</p> <p>The children will complete an explanation test- "How does the Heart work?" as a Best Write.</p> <p>Maths Skills data analysis, use symbols for units, presenting data graphically</p> <p>Maths unit of Statistics will be covered in the Spring term</p>	<p>Literacy</p> <p>Reading of Monkey Puzzle- finding links between creatures and their characteristics in a fun, creative way. Stressing a love of books and that picture books can use science.</p> <p>Maths Skills</p> <p>Data presentation and analysis, presenting data graphically</p>
Cross Curricular Opportunities	<p>DT -periscope design</p> <p>Art - recreation of March of Progress</p>	<p>Citizenship, PE</p> <p>Geography- renewable and non-renewable energy sources</p>	<p>Geography- habitats</p> <p>Maths and science are tightly linked together. Almost every scientific investigation is likely to require one or</p>

	History - The Industrial revolution		more of the mathematical skills of classifying, counting, measuring, calculating, estimating, and recording in tables or graphs. Statistics are used extensively in Science. Most charts and graphs used in science are initially taught in maths lessons.
SMSC / Character/Careers (C) (<p>SMSC -pair & group working, working safely in a science laboratory.</p> <p>Character</p> <p>Integrity : during practical work</p> <p>Resilience: using equations & data handling</p> <p>Confidence: participation during classroom discussions</p>	<p>SMSC -pair & group working, working safely in a science laboratory.</p> <p>Character</p> <p>Integrity : during practical work</p> <p>Resilience: using equations & data handling</p> <p>Confidence: participation during classroom discussions</p>	<p>SMSC -pair & group working, working safely in a science laboratory.</p> <p>Character</p> <p>Integrity : during practical work</p> <p>Resilience: using equations & data handling</p> <p>Confidence: participation during classroom discussions</p>
Super Curriculum	Geobus workshop - fossils	Heart dissection - ability to see the object they have been discussing.	Outdoor classification
Careers	<p>HT 1 Microscopist-Prof.-Robert-Pal.pdf</p> <p>HT 2 Palaeontologist - Dr Emma Nicholls.pdf</p>	<p>HT1 Battery-Researcher-Nicole-Melzack-v3.pdf</p> <p>HT2 Prof-Molecular-Cellular-Biology-Kehinde-Ross.pdf</p> <p>Immunologist - Ntombizodwa Makuyana.pdf</p>	<p>HT1 Copy of Biogeochemist - Brianna Green.pdf</p> <p>HT2 Marine biologist - Dawood Qureshi.pdf</p>
Equality and Diversity Gender Disability Religion Race Sexuality	<p>Diverse representation within text/ videos/website links shared.</p> <p>Display shows a variety scientists of different genders and from different ethnicity</p> <p>Palaeontologist - Dr Emma Nicholls.pdf</p>	<p>Diverse representation within text/ videos/website links shared.</p> <p>Display shows a variety scientists of different genders and from different ethnicity</p> <p>Prof-Molecular-Cellular-Biology-Kehinde-Ross.pdf</p>	<p>Diverse representation within text/ videos/website links shared.</p> <p>Display shows a variety scientists of different genders and from different ethnicity</p> <p>Marine biologist - Dawood Qureshi.pdf</p>
Local Community Links			Field work outside
British Values Democracy	Democracy		

<p>The rule of Law</p>	<p>There are opportunities to debate issues where students can share their opinions and listen to the views of others. For example, the generation of electricity, the placement of quarries, the use of drugs, genetic modification, selective breeding and climate change.</p> <p>Acceptance and engagement with fundamental British values of democracy • Electricity – link to British technology firms and advancement made in knowledge based on British scientists’ discoveries e.g. Faraday. Building electrical circuits requires teamwork, resilience and show respect to others.</p> <p>Contribute positively to life in Modern Britain</p> <ul style="list-style-type: none"> • Discussion about microbes, e.g. Coronavirus and how we can limit the spread and help suppress the effects. • The science department have celebrated the influence and contribution to science by female scientists which is deployed on our corridors. • The cost of non-renewable energy and the range of renewable energy sources available and in development <p>The Rule of Law</p> <p>Laws protect everyone and no-one is above the law. We should understand the need for rules to make a happy, safe and secure environment and know the consequences when rules are not followed.</p> <p>What does this look like in science?</p>
<p>Individual Liberty</p>	<ul style="list-style-type: none"> • Students follow laboratory rules for the safety of all. • Students learn about the need for speed limits and seat belts. • There are opportunities to discuss laws relating to science, such as stem cells, genetic modification and DNA databases, maintaining biodiversity, use of energy sources, fishing and farming. <p>Individual Liberty</p> <p>We have a freedom of choice and a right to respectfully express our views and beliefs. We can act as we choose within the law. The rights of ourselves and the others around us are protected.</p> <p>What does this look like in science?</p>
<p>Mutual Respect and Tolerance of others</p>	<ul style="list-style-type: none"> • There are opportunities for students to work independently and make choices in a safe environment when carrying out investigations. • There are opportunities to debate issues where students can share their opinions and listen to the views of others. For example, the generation of electricity, the use of drugs, genetic modification and selective breeding. <p>Mutual Respect and Tolerance</p> <p>There is equality and fairness for all, regardless of background or religious beliefs. We understand that we do not all share the same beliefs and values. We respect the values, ideas and beliefs of others and do not impose our own onto them.</p> <p>What does this look like in science?</p> <ul style="list-style-type: none"> • Students work together practically in groups which encourages teamwork and respect for others. • There are opportunities to learn about scientific discoveries by a diverse range of people from our culture and other cultures. • Students learn about the continual evolution of scientific ideas which occurs through the acceptance that different people have different ideas about a concept. • There are opportunities to consider conflict between religious beliefs and scientific understanding with respect and acceptance of people’s values.