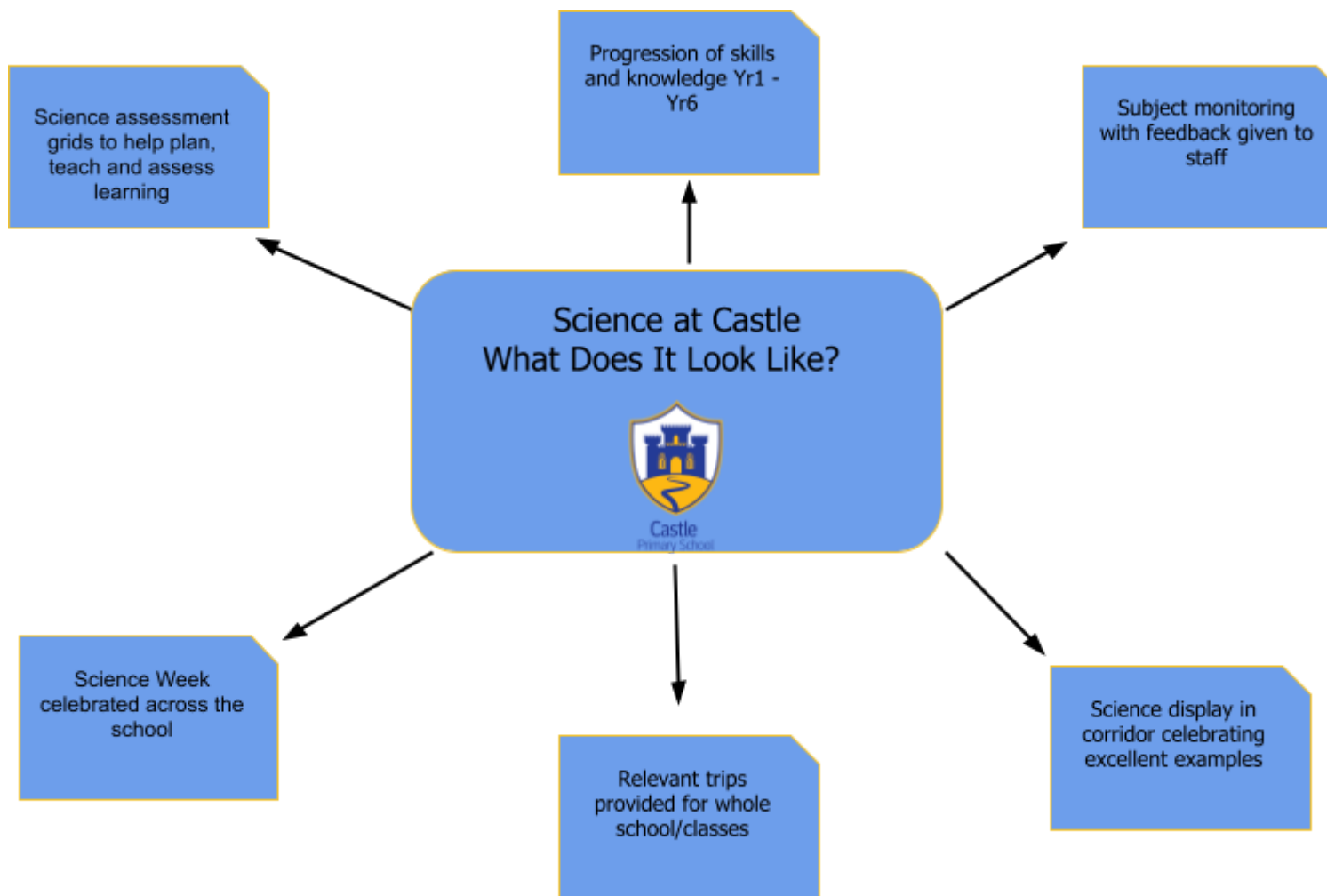


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<p>Purpose of study (from the National Curriculum)</p>	<p>A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.</p>
<p>Aims</p>	<p>The national curriculum for science aims to ensure that all pupils: develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics / 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 / are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future</p>
<p>In KS1:</p>	<p>asking simple questions and recognising that they can be answered in different ways / observing closely, using simple equipment / performing simple tests / identifying and classifying / using their observations and ideas to suggest answers to questions / gathering and recording data to help in answering questions</p>
<p>In Lower KS2:</p>	<p>asking relevant questions and using different types of scientific enquiries to answer them / setting up simple practical enquiries, comparative and fair tests / making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers / gathering, recording, classifying and presenting data in a variety of ways to help in answering questions / recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables / reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions / using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions / identifying differences, similarities or changes related to simple scientific ideas and processes / using straightforward scientific evidence to answer questions or to support their findings.</p>



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<p>In Upper KS2</p>	<p>The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time. They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information. Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.</p>				
<p>Year Group</p>	<p>What key concepts do we want children to know and remember in this subject?</p>	<p>What key skills do we want children to discover in order to become Scientists?</p>	<p>What cultural capital do we intend children to learn about and experience in this subject? <i>'The best that has been thought and said... to engender an appreciation for human creativity and achievement.'</i></p>	<p>How do we build the key learning values of resilience, independence and empathy through science?</p>	<p>What Tier 3 vocabulary will children learn?</p>
<p>Year 1</p>	<p>Organise objects or materials into groups</p> <p>Name the main parts of plants and trees</p> <p>Name the main parts of the body, including those related to the 5 senses</p> <p>Distinguish between an object and the material from which it is made</p> <p>Describe the simple physical properties of a variety of everyday materials</p>	<p>Asking Questions: ask simple questions and recognise that they can be answered in different ways</p> <p>Measure and Record: observe closely, using simple equipment. Perform simple tests. Gather and record data to help answer questions.</p> <p>Conclude: identify and classify. Use observations and ideas to suggest answers to questions.</p> <p>Evaluate:</p>	<p>Know scientists exist and challenge preconceptions of their appearance.</p>		<p>Plants Materials and their properties Health and growth Teeth and eating Keeping healthy</p>



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	Describe how the weather varies with the season				
Year Group	What key concepts do we want children to know and remember in this subject?	What key skills do we want children to discover in order to become Scientists?	What cultural capital do we intend children to learn about and experience in this subject? <i>'The best that has been thought and said... to engender an appreciation for human creativity and achievement.'</i>	How do we build the key learning values of resilience, independence and empathy through science?	What Tier 3 vocabulary will children learn?
Year 2	<p>Describe how some plants and animals are suited to different habitats</p> <p>Describe how animals obtain food by eating plants or other animals</p> <p>Describe the basic needs for plant growth (light, water, appropriate temperature)</p> <p>Describe the basic needs of humans and other animals (water, food, air)</p> <p>Describe different uses of materials according to their properties</p>	<p>Asking Questions: ask more relevant questions and understand that they can be answered in different ways with evidence.</p> <p>Measure and Record: observe closely, using more complex equipment. Perform a larger range of tests. Gather and record data to help answer questions.</p> <p>Conclude: identify and classify. Use observations and ideas to suggest answers to questions.</p> <p>Evaluate: Recognise what went well and what could be improved. Use basic results to make conclusions.</p>	<p>Know the names of famous scientists and why they are famous.</p>		<p>Plants</p> <p>Materials and their properties</p> <p>Health and growth</p> <p>Teeth and eating healthy</p> <p>Keeping healthy</p> <p>Living things and their habitats</p>



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Year Group	What key concepts do we want children to know and remember in this subject?	What key skills do we want children to discover in order to become Scientists?	What cultural capital do we intend children to learn about and experience in this subject? <i>'The best that has been thought and said... to engender an appreciation for human creativity and achievement.'</i>	How do we build the key learning values of resilience, independence and empathy through science?	What Tier 3 vocabulary will children learn?
Year 3	<p>Describe the main requirements for plant growth (air, light, water, nutrients, room to grow)</p> <p>Explain the main stages of plant reproduction (pollination, fertilisation, seed dispersal)</p> <p>Explain some functions of skeletons and muscles in animals</p> <p>Identify the three main rock types and describe their properties</p> <p>Notice that light is reflected from surfaces</p> <p>Find patterns in the way that the sizes of shadows change.</p>	<p>Asking Questions: ask relevant questions and use different types of scientific enquiries to answer them. Set up simple practical enquiries, comparative and fair tests.</p> <p>Measure and Record: make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Record findings using simple scientific language drawings, labelled diagrams, keys, bar charts and tables. Gather, record, classify and present data in a variety of ways to help in answering questions.</p> <p>Conclude: identify differences, similarities, or changes related to simple scientific ideas and processes. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Use</p>	<p>Know the names of famous scientists, their areas of expertise and what impact they had on the world.</p>		<p>Plants Materials and their properties Health and growth Teeth and eating Keeping healthy Living things and their habitats Light Sound Magnets and springs Rocks and soils Teeth and eating</p>



Together We're Stronger at...

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	Group materials according to their magnetic properties	straightforward scientific evidence to answer questions or to support their findings. Evaluate: Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.			
Year Group	What key concepts do we want children to know and remember in this subject?	What key skills do we want children to discover in order to become Scientists?	What cultural capital do we intend children to learn about and experience in this subject? <i>'The best that has been thought and said... to engender an appreciation for human creativity and achievement.'</i>	How do we build the key learning values of resilience, independence and empathy through science?	What Tier 3 vocabulary will children learn?
Year 4	Use a classification key to identify plants or animals Describe the simple functions of the basic parts of the digestive system in humans Construct and interpret a variety of food chains, identifying producers, predators and prey. Compare and group materials together as solids, liquids or gases Explain the main stages of the water cycle	Asking Questions: ask relevant questions and use different types of scientific enquiries to answer them. Set up more complex practical enquiries, comparative and fair tests. Measure and Record: make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a wider range of equipment, including thermometers and data loggers. Record findings using more complex scientific language drawings, labelled diagrams, keys, bar charts and tables. Gather, record, classify and present data in a variety of ways to help in answering questions.	Recall key dates, names and fields of expertise for the world's most famous scientists.		Plants Forces and movement Materials and their properties Health and growth Light Sound Electricity Variation Living things and their habitats Magnets and springs Rocks and soils Teeth and eating States of matter



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	<p>Recognise that vibrations from sound travel through a medium to the ear</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts</p>	<p>Conclude: identify differences, similarities, or changes related to more complex scientific ideas and processes. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Use scientific evidence to answer questions or to support their findings.</p> <p>Evaluate: Use results to draw more detailed conclusions, make predictions for new values, suggest improvements and raise further questions.</p>			<p>Earth and space Keeping healthy Life cycles Microorganisms</p>
Year Group	What key concepts do we want children to know and remember in this subject?	What key skills do we want children to discover in order to become Scientists?	What cultural capital do we intend children to learn about and experience in this subject? <i>'The best that has been thought and said... to engender an appreciation for human creativity and achievement.'</i>	How do we build the key learning values of resilience, independence and empathy through science?	What Tier 3 vocabulary will children learn?
Year 5	<p>Describe the life process of reproduction in some plants and animals.</p> <p>Explain how mixtures can be separated through filtering, sieving and evaporating</p> <p>Explain that some irreversible changes form new materials</p> <p>Describe the movement of the Earth, and other planets, relative to the Sun</p>	<p>Asking Questions: Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>Measure and Record: Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where necessary. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p>	Be able to discuss the world's most famous scientists and their impact on the modern day.		<p>Plants Forces and movement Materials and their properties Health and growth Light Sound Electricity Variation Living things and their habitats Thermal</p>



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	<p>Explain day and night on earth, and the apparent movement of the Sun</p> <p>Explain that gravity causes unsupported objects to fall towards the Earth</p> <p>Identify effects of air resistance, water resistance and friction between moving surfaces</p>	<p>Conclude: Identify scientific evidence that has been used to support or refute ideas or arguments. Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.</p> <p>Evaluate: Use test results to make predictions to set up further comparative and fair tests.</p>			<p>insulators and conductor Magnets and springs Rocks and soils Teeth and eating States of matter Earth and space Interdependence and adaptation Keeping healthy Life cycles Microorganisms</p>
Year Group	What key concepts do we want children to know and remember in this subject?	What key skills do we want children to discover in order to become Scientists?	What cultural capital do we intend children to learn about and experience in this subject? <i>'The best that has been thought and said... to engender an appreciation for human creativity and achievement.'</i>	How do we build the key learning values of resilience, independence and empathy through science?	What Tier 3 vocabulary will children learn?
Year 6	<p>Classify some plants, animals or microorganisms, explaining the choices made</p> <p>Explain the main parts and functions of the human circulatory system</p> <p>Recognise that living things produce offspring, not usually identical to their parents</p>	<p>Asking Questions: Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>Measure and Record: Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where necessary. Record data and results of increasing complexity using scientific</p>	<p>Know a range of scientists, their impact on the modern world and how their research has impacted on daily life.</p>		<p>Plants Forces and movement Materials and their properties Health and growth Light Sound Electricity Variation</p>



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	<p>Identify how adaptation of plants and animals over time may lead to evolution.</p> <p>Explain that we see things which either give out or reflect light</p> <p>Explain how the number of voltage of cells affects bulbs, buzzers or motors in a circuit</p> <p>Use recognised symbols when representing a simple circuit in a diagram.</p>	<p>diagrams and labels, classification keys, tables, scatter graphs, pie charts, bar and line graphs.</p> <p>Conclude: Identify scientific evidence that has been used to support or refute ideas or arguments. Confidently report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.</p> <p>Evaluate: Use test results to make predictions to set up further comparative and fair tests.</p>			<p>Living things and their habitats Thermal insulators and conductor Magnets and springs Rocks and soils Teeth and eating States of matter Earth and space Interdependence and adaptation Keeping healthy Life cycles Microorganisms</p>
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