

# Science Curriculum Map

	Autumn	Spring	Summer
EYFS	<p><b><u>Understanding the World: The Natural World</u></b></p> <p><i>What scientific skills can I use to explore and understand the world around me?</i></p> <ul style="list-style-type: none"> <li>● Using senses to observe and look closely</li> <li>● Looking closely at things and noticing changes</li> <li>● Being curious and starting to ask questions</li> <li>● Investigate natural materials</li> <li>● Use wall displays and books to support investigations and extend knowledge and ways of thinking</li> </ul> <p><i>What is the difference between Autumn, Winter, Spring and Summer?</i></p> <ul style="list-style-type: none"> <li>● Understanding the changes in seasons</li> <li>● How do animals behave in the different seasons?</li> <li>● Discussing observations of the natural world</li> <li>● Discussing the weather daily</li> <li>● Explore through books related to seasons</li> </ul>	<p><b><u>Understanding the World: The Natural World</u></b></p> <p><i>What scientific skills can I use to explore and understand the world around me?</i></p> <ul style="list-style-type: none"> <li>● Finding things that are different and similar</li> <li>● Sorting and matching things</li> <li>● Being curious and starting to ask questions</li> <li>● Explore forces using different materials (man-made and natural)</li> <li>● Investigate differences between materials through cooking, melting and floating and sinking</li> </ul> <p><i>How does the world around us change in Spring?</i></p> <ul style="list-style-type: none"> <li>● Describe and comment on plants and animals that they see outside</li> <li>● Learn about baby animals</li> <li>● Look at plants and seeds that are starting to grow and care for them</li> <li>● Explore change and decay with natural materials</li> <li>● Discuss changes seen in their environment during Spring</li> </ul>	<p><b><u>Understanding the World: The Natural World</u></b></p> <p><i>What scientific skills can I use to explore and understand the world around me?</i></p> <ul style="list-style-type: none"> <li>● Talking about what I have explored and noticed</li> <li>● Making simple records of what I noticed and how things change</li> <li>● Make observational drawings and plans and discuss them</li> <li>● Perform simple tests and make predictions</li> <li>● Think critically about how to carry out an investigation</li> </ul> <p><i>What happened to The Hungry Caterpillar?</i></p> <ul style="list-style-type: none"> <li>● Exploring animal life cycles (Hatching butterflies) The Hungry Caterpillar</li> <li>● Exploring different environments around us e.g. pond, woods, field, farm</li> <li>● Explore insects and minibeasts and show care and respect for them</li> </ul>
<p>The science curriculum for EYFS at Castle Newnham is one part of the ongoing curriculum for Understanding the World (UW). UW also forms the foundations for humanities subjects including history and geography.</p>			

Key stage 1	<p><b><u>Working Scientifically</u></b>  Throughout year 1 and 2 children will begin to develop their skills to work scientifically.  Skills:</p> <ul style="list-style-type: none"> <li>● A - Asking simple questions and understanding they are answered in different ways.</li> <li>● B - Observing closely and using simple equipment.</li> <li>● C - Performing simple tests.</li> <li>● D - Using ideas and observations to suggest answers to questions.</li> <li>● E - Gathering and recording data to help answer questions.</li> </ul>		
Year 1	<p><i>To be taught throughout the year.</i>  <b><u>Seasonal Changes (1.1)</u></b></p> <ul style="list-style-type: none"> <li>● Know that there are 4 seasons, and when they appear throughout the year.</li> <li>● Know how the length of day and night change with the seasons.</li> <li>● Know that weather includes temperature, wind direction, rain, snow, sun and cloud.</li> <li>● Observe and record weather for one week during each season.</li> </ul> <p>Working Scientifically skills - B, E</p>		
	<p><b><u>Animals, including humans (1.2a)</u></b></p> <ul style="list-style-type: none"> <li>● Know that there are different types of animals.</li> <li>● Know that animals can be grouped according to their diet.</li> </ul> <p><b>Working Scientifically - A, D.</b></p> <p><b><u>Everyday materials (1.2b)</u></b></p> <ul style="list-style-type: none"> <li>● Know what material an object is made of.</li> <li>● Know that materials have different properties, and use language to describe these.</li> </ul> <p><b>Working Scientifically - A, B, C, D, E.</b></p>	<p><b><u>Everyday materials (1.3)</u></b></p> <ul style="list-style-type: none"> <li>● Identify materials in our immediate environment.</li> <li>● Know that objects can sink or float in water.</li> </ul> <p><b>Working Scientifically - A, B, C, D, E.</b></p> <p><b><u>Plants (1.4)</u></b></p> <ul style="list-style-type: none"> <li>● Know that there are different types of plants.</li> <li>● Identify and name a variety of wild and garden plants, and deciduous and evergreen trees.</li> <li>● Name parts of a plant - roots, stem, leaves, bud, flower, petals, trunk, bark, branches.</li> </ul> <p><b>Working Scientifically - A, B, D.</b></p>	<p><b><u>Animals, including humans (1.4)</u></b></p> <ul style="list-style-type: none"> <li>● Know that there are 5 senses, and which organs we use for them.</li> <li>● Name and label parts of the human body - head, neck, stomach, feet, body, chest, legs, knees, feet.</li> <li>● Name and label parts of the face.</li> </ul> <p><b>Working Scientifically - A, D, E.</b>  <b>Builds on 1.2a.</b></p>
Year 2	<p><b><u>Uses of everyday materials (2.1)</u></b></p> <ul style="list-style-type: none"> <li>● Know the names of common materials.</li> <li>● Know that the shape of some materials can be changed.</li> </ul>	<p><b><u>Living things and their habitats (2.2)</u></b></p> <ul style="list-style-type: none"> <li>● Know that a habitat is a natural place where something lives.</li> <li>● Know that objects are either living, dead or have never been</li> </ul>	<p><b><u>Animals, including humans (2.4)</u></b></p> <ul style="list-style-type: none"> <li>● Know the life stages of a human - baby, toddler, child, teenager, adult and elderly.</li> <li>● Know what humans need to stay</li> </ul>

	<ul style="list-style-type: none"> <li>Describe the properties of different materials.</li> <li>Know that materials are suitable for different purposes.</li> <li>Know that the process of recycling is converting waste to something new.</li> </ul> <p><b>Working Scientifically - A, B, C, D, E.</b> <b>Builds on 1.3a and 1.3b.</b></p>	<ul style="list-style-type: none"> <li>alive.</li> <li>Know that a food chain shows how each animal gets its food.</li> </ul> <p><b>Working scientifically - A, D.</b> <b>Builds on 1.2a, 1.2b</b></p> <p><b>Plants (2.3)</b></p> <ul style="list-style-type: none"> <li>Know the lifecycle of a plant.</li> <li>Know what a plant needs in order to grow.</li> <li>Know the effects that different conditions have on plant growth.</li> </ul> <p><b>Working Scientifically - A, B, C, D, E.</b> <b>Builds on 1.4.</b></p>	<ul style="list-style-type: none"> <li>healthy and survive.</li> <li>Know the food groups that make a balanced diet.</li> </ul> <p><b>Working Scientifically - A, D.</b> <b>Builds on 1.2b.</b></p>
Lower key stage 2	<p><b><u>Working Scientifically</u></b> During year 3 and 4 children will build on their skills developed during key stage 1 to work scientifically.</p> <p>Skills:</p> <ul style="list-style-type: none"> <li>A - Asking relevant questions and using different scientific enquiries to answer them.</li> <li>B - Setting up simple practical enquiries, comparative and fair tests.</li> <li>C - Making systematic, and careful observations, including taking measurements using standard units, using a range of equipment.</li> <li>D - Gathering, recording, classifying and presenting data in a variety of ways to help answer questions.</li> <li>E - Recording findings using drawings, labelled diagrams, keys, bar charts and tables.</li> <li>F - Reporting on findings from enquiries using oral, and written explanations.</li> <li>G - Using results to draw simple conclusions, suggest improvements, and raise further questions.</li> <li>H - Identifying similarities and differences related to simple scientific ideas.</li> </ul>		
Year 3	<p><b><u>Rocks (3.1)</u></b></p> <ul style="list-style-type: none"> <li>Know that rock is a natural material.</li> <li>Know how fossils are formed.</li> <li>Know that soils are made up from broken down organic material.</li> <li>Know how rocks can be formed (igneous, metamorphic, sedimentary).</li> <li>Group rocks according to their</li> </ul>	<p><b><u>Forces and magnets (3.3)</u></b></p> <ul style="list-style-type: none"> <li>Know that a force is a push or pull of an object.</li> <li>Know that the texture of a surface affects how an object moves across it.</li> <li>Know that a magnet is something that can attract certain metals towards it.</li> <li>Know that opposite poles of a magnet attract, and the same</li> </ul>	<p><b><u>Plants (3.4)</u></b></p> <ul style="list-style-type: none"> <li>Know what a plant needs to grow.</li> <li>Know the parts of a plant, and their functions.</li> <li>Know the parts of a flower, and discuss their functions.</li> <li>Know the life cycle of a flowering plant.</li> <li>Know how seed dispersal is the process of spreading a plant's</li> </ul>

	<p>properties, or formation.</p> <p><b>Working Scientifically - A, B, C, D, E, F, G, H.</b>  <b>Builds on 1.3a, 1.3b and 2.1.</b></p> <p><b>Light (3.2)</b></p> <ul style="list-style-type: none"> <li>● Know what a light source is.</li> <li>● Know that light allows us to see, and darkness is the absence of light.</li> <li>● Know how light can be reflected or absorbed by different surfaces.</li> <li>● Know that materials can be opaque, translucent or transparent.</li> </ul> <p><b>Working Scientifically - A, B, D, E, F, G, H.</b>  <b>Builds on 2.1.</b></p>	<p>pole repels.</p> <ul style="list-style-type: none"> <li>● Know gravity is a natural force.</li> </ul> <p><b>Working Scientifically - A, B, C, D, E, F, G, H.</b>  <b>Builds on 1.3a, 1.3b and 2.1.</b></p>	<p>seeds.</p> <p><b>Working Scientifically - A, B, C, D, E, F, G, H.</b>  <b>Builds on 1.4 and 2.3.</b></p> <p><b>Animals, including humans (3.5)</b></p> <ul style="list-style-type: none"> <li>● Know that living things need nutrition in order to grow.</li> <li>● Know the different food groups, and what they provide of living things.</li> <li>● Know the names of some bones in the skeleton and their function.</li> <li>● Know the different types of skeleton - endoskeleton, exoskeleton and hydrostatic skeleton.</li> </ul> <p><b>Working Scientifically - A, B, C, E, F, G.</b>  <b>Builds on 1.2a, 1.2b and 2.2.</b></p>
<p>Year 4</p>	<p><b>States of matter (4.1)</b></p> <ul style="list-style-type: none"> <li>● Know the three states - solid, liquid and gas.</li> <li>● Know how to change a material from one state to another.</li> <li>● Know the water cycle.</li> </ul> <p><b>Working Scientifically - A, B, C, D, E, F, G, H.</b>  <b>Builds on 1.3a, 1.3b and 2a.</b></p> <p><b>Sound (4.2)</b></p> <ul style="list-style-type: none"> <li>● Know the sound is made up from vibrations.</li> <li>● Know that a sound wave is made up from vibrations travelling from a sound source to the ear.</li> <li>● Know the volume refers to how loud or quiet a sound is.</li> </ul> <p><b>Working Scientifically - A, B, C, D, E, F, G,</b></p>	<p><b>Animals, including humans (4.3)</b></p> <ul style="list-style-type: none"> <li>● Know that the digestive system is made up from parts of our body to break down food into fuel and waste.</li> <li>● Know that teeth cut, slice, rip, tear and chew.</li> <li>● Know the names and functions of the teeth.</li> <li>● Know that a food chain shows predators, prey and producers.</li> <li>● Know that animals can be carnivores, herbivores or omnivores.</li> </ul> <p><b>Working Scientifically - A, B, C, E, F, G.</b></p> <p><b>Living things and their habitats (4.4a)</b></p> <ul style="list-style-type: none"> <li>● Know that a habitat is a natural home or environment in which something lives.</li> </ul>	<p><b>Living things and their habitats (4.4b)</b></p> <ul style="list-style-type: none"> <li>● Know that classification keys can be used to identify and name living things.</li> <li>● Know that vertebrates have a spine and invertebrates do not.</li> <li>● Know that fish, amphibians, reptiles, birds and mammals can be grouped as vertebrates.</li> <li>● Know that snails, slugs, worms, spiders and insects can be grouped as invertebrates.</li> <li>● Know and name cold blooded and warm blooded animals.</li> </ul> <p><b>Working Scientifically - A, B, E, F, G, H.</b>  <b>Builds on 1.2a, 1.2b, 2.2, 2.4 and 3.5.</b></p> <p><b>Electricity (4.5)</b></p> <ul style="list-style-type: none"> <li>● Know that electricity is the flow of an electric current through a</li> </ul>

	<p><b>H.</b></p>	<ul style="list-style-type: none"> <li>● Know that environments can change with the seasons.</li> <li>● Know that we can group plants as flowering and non-flowering.</li> <li>● Know that humans can have both a positive and negative impact on the environment.</li> </ul> <p><b>Working Scientifically - A, B, E, F, G, H.</b> <b>Builds on 1.2a, 1,2b, 2.2 and 2.4.</b></p>	<p>material.</p> <ul style="list-style-type: none"> <li>● Know that generate is to make or produce something.</li> <li>● Know that renewable energy sources will not run out.</li> <li>● Know that non-renewable energy sources will eventually run out.</li> <li>● Know that electricity flows through the components of a circuit.</li> <li>● Know that the components of a circuit can include a switch, wires, lightbulbs, buzzers and an energy source.</li> </ul> <p><b>Working Scientifically - A, B, C, D, E, F, G.</b></p>
Upper key stage 2	<p><b><u>Working Scientifically</u></b> During year 3 and 4 children will build on their skills developed during key stage 1 to work scientifically. Skills:</p> <ul style="list-style-type: none"> <li>● A - Planning different types of scientific enquiries to answer questions, including recognising and controlling variables.</li> <li>● B - Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, and taking repeat measurements where appropriate.</li> <li>● C - Recording data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</li> <li>● D - Using test results to make predictions to set up further, comparative tests.</li> <li>● E - Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results.</li> <li>● F - Identifying scientific evidence that has been used to support or refute ideas and arguments.</li> </ul>		
Year 5	<p><b><u>Earth and space (5.1)</u></b></p> <ul style="list-style-type: none"> <li>● Know that the Solar System is made up of the Sun, planets, moons and smaller objects.</li> <li>● Know that a planet is a large, roughly spherical object that orbits a star.</li> <li>● Know that a star is a giant ball of gas held together by its own gravity.</li> <li>● Know that the sun is a big star.</li> <li>● Know that the moon is a natural</li> </ul>	<p><b><u>Forces (5.2)</u></b></p> <ul style="list-style-type: none"> <li>● Know that there is less gravity on the moon that there is on earth.</li> <li>● Know that weight is the measure of the force of gravity on an object.</li> <li>● Know that mass is the measure of the amount of matter inside an object.</li> <li>● Know that balanced forces work in opposite directions on an object in equal size.</li> </ul>	<p><b><u>Properties and changes of materials (5.4)</u></b></p> <ul style="list-style-type: none"> <li>● Know that properties have different uses depending on their states of matter.</li> <li>● Know that properties include hardness, transparency, electrical and thermal conductivity and attraction to magnets.</li> <li>● Know that a mixture is a combination of two or more substances.</li> <li>● Know that some changes are</li> </ul>

	<p>satellite.</p> <ul style="list-style-type: none"> <li>Know that at various times a month the moon appears to be in different phases.</li> </ul> <p><b>Working Scientifically - E, F.</b> <b>Builds on 3.3</b></p>	<ul style="list-style-type: none"> <li>Know that an unbalanced object will move in the direction of the greater force.</li> <li>Know that forces include gravity, air resistance, driving/ pushing force, water resistance and a reaction force.</li> </ul> <p><b>Working Scientifically - A, B, C, D, E, F.</b> <b>Builds on 3.3.</b></p> <p><b><u>Living things and their habitats (5.3)</u></b></p> <ul style="list-style-type: none"> <li>Know that as part of a life cycle animals and plants reproduce.</li> <li>Know the difference between asexual and sexual reproduction.</li> <li>Know that most plants contain male and female sex cells.</li> <li>Know that humans contain either the male or female sex cells.</li> <li>Know that mammals use sexual reproduction to produce their offspring.</li> </ul> <p><b>Working Scientifically - E, F.</b> <b>Builds on 1.2a, 1,2b, 2.2, 2.4, 4.4a and 4.4b.</b></p>	<p>reversible and some are irreversible.</p> <p><b>Working Scientifically - A, B, C, D, E, F.</b> <b>Builds on 2.1 and 4.1.</b></p> <p><b><u>Animals, including humans (5.5)</u></b></p> <ul style="list-style-type: none"> <li>Know that there are 8 stages of human development - fertilisation, prenatal, infancy, childhood, adolescence, early adulthood, middle adulthood and late adulthood.</li> <li>Know that gestation is the period of development before birth.</li> <li>Know that to reproduce means to produce young.</li> <li>Know that menstruation is when the female body discharges the lining of the uterus, approximately every 28 days.</li> <li>Know that life expectancy is the average length of time a living thing is expected to live.</li> </ul> <p><b>Working Scientifically - E, F.</b> <b>Builds on 1.2a, 1.2b, 2.2, 3.5 and 4.3.</b></p>
Year 6	<p><b><u>Evolution and inheritance (6.1)</u></b></p> <ul style="list-style-type: none"> <li>Know that offspring is the young produced by a living thing.</li> <li>Know that natural selection is the process where organisms that are better adapted to their environment tend to survive and produce more offspring.</li> <li>Know that characteristics and traits are the distinguishing</li> </ul>	<p><b><u>Animals, including humans (6.3)</u></b></p> <ul style="list-style-type: none"> <li>Know that the circulatory system is a system which includes the heart, veins, arteries and blood transporting substances around the body.</li> <li>Know that gas exchange is the process by which oxygen enters the bloodstream from the lungs and the lungs receive carbon</li> </ul>	<p><b><u>Light (6.4)</u></b></p> <ul style="list-style-type: none"> <li>Know that light is a form of energy that travels in waves from a light source.</li> <li>Know that light waves travel in straight lines that are often called rays or beams of light.</li> <li>Know that refraction is when light bends as it passes from one medium to another (e.g. from air to water).</li> </ul>

features or qualities that are specific to a species.

- Know that inheritance is when characteristics are passed onto offspring from their parents.
- Know that an adaptation is a trait/characteristic changing to increase a living thing's chances of surviving and reproducing.
- Know that evolution is adaptation over a very long period of time and numerous generations.

**Working Scientifically - E, F.**  
**Builds on 4.3 and 5.5.**

**Electricity (6.2)**

- Know that a circuit is the path that an electrical current flows round.
- Know that current is the flow of electrons measured in amps.
- Know that electrons are small particles that flow around a circuit.
- Know that a cell is a single unit device that stores energy as a chemical unit until it is needed.

**Working Scientifically - A, B, C, D, E.**  
**Builds on 4.5.**

dioxide from the blood to breathe out.

- Know that the kidneys are organs which filter blood and make urine from waste and excess water.
- Know that the liver is an organ which processes waste from the blood and produces bile.
- Know that a drug is a substance containing chemicals that have an effect on the body when they enter the body.
- Know that alcohol is a drug produced from grains, fruits or vegetables when they are put through a process called fermentation.
- Know that smoking is when substance (tobacco) is burned and the resulting smoke breathed in to be tasted and absorbed into the bloodstream.
- Know that drugs, alcohol and smoking have negative effects on the body.

**Working Scientifically - E, F.**  
**Builds on 1.2a, 1.2b, 2.2, 3.5, 4.3 and 5.5.**

- Know that Isaac Newton shone a light through a transparent prism, separating out light into the colour of the rainbow.
- Know the colours merge together to make visible light.

**Working Scientifically - A, B, C, D, E.**  
**Builds on 3.2.**

**Living things and their habitats (6.5)**

- Know that classifying means grouping items according to certain characteristics.
- Know that plants can make their own food and animals cannot.
- Know that a taxonomist is a biologist who classifies and names organisms in an ordered system.
- Know that Carl Linnaeus created a system (Linnaean system) to classify living things so that they were classified in the same way in 1735.
- Know that the seven classification levels are:
- Kingdom, Phylum, Class, Order, Family, Genus and Species.
- Know that a microorganism is a microscopic (tiny) organism (individual animal, plant or single celled life).

**Working Scientifically - E, F.**  
**Builds on 1.2a, 1.2b, 2.2, 2.4, 4.4a, 4.4b and 5.4.**