
















Copnor Primary School's high-quality science curriculum is planned as a 7-year journey across the Primary School and 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 are taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, our pupils are encouraged to recognize the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They are encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Pupils will learn through using a range of scientific enquiry approaches and will develop these skills throughout their primary education.

<u>Fair/Comparative testing</u>	<u>Research</u>	<u>Observation over time</u>	<u>Pattern seeking</u>	<u>Identifying, grouping and classifying</u>	<u>Problem-solving</u>
					

## Working scientifically when testing

	PLAN		DO		REVIEW	
KS1 close observations	 Asking questions   Making predictions	 Setting up tests	 Observing and measuring	 Recording data	 Interpreting and communicating results	 Evaluating
Lower KS2 develop a systematic approach						
UKS2 develop independence						

By the end of Key Stage 1, our pupils will have experienced and observed phenomena, through looking more closely at the natural and humanly constructed world around them. They are encouraged to be curious and ask questions about what they notice. They are helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information. They begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science is achieved through the use of first-hand practical experiences, but there is also use of appropriate secondary sources, for example, books, photographs and films.

Our pupils are taught to:

- ask simple questions, recognising that they can be answered in different ways
- observe closely, using simple equipment
- perform simple tests

- identify and classify
- use their observations and ideas to suggest answers to questions
- gather and record data to help in answering questions

By the end of Lower Key Stage 2 (Years 3 and 4), our aim is to enable our pupils to broaden their scientific view of the world around them. They do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions. They ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out. Our pupils read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge.

Our pupils are taught to:

- ask relevant questions and using different types of scientific enquiries to answer them
- set up simple practical enquiries, comparative and fair tests
- make systematic and careful observations and, where appropriate, take accurate measurements by using standard units and using a range of equipment, including thermometers and data loggers
- gather, record, classify and present data in a variety of ways to help in answering questions
- record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identify differences, similarities or changes related to simple scientific ideas and processes
- use straightforward scientific evidence to answer questions or to support their findings

By the end of Upper Key Stage 2 (Years 5 and 6) our aim is to enable our pupils to develop a deeper understanding of a wide range of scientific ideas. They do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. They encounter more abstract ideas and begin to recognise



how these ideas help them to understand and predict how the world operates. They also begin to recognise that scientific ideas change and develop over time. They 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 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. Our pupils read, spell and pronounce scientific vocabulary correctly.

Our pupils are taught to:

- plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
  - take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
  - record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
  - use test results to make predictions to set up further comparative and fair tests
  - report and present findings from enquiries, including conclusions, causal relationships and explanations of, and a degree of trust in, results.
- Achieving this in oral and written forms such as displays and other presentations
- identify scientific evidence that has been used to support or refute ideas or arguments

'Greater Depth' is achieved through a focus on **ACE** - tasks enable pupils to **Apply, Connect and Explain (or Explore) & Evaluate**

### **Apply**

Pupils apply skills, knowledge and understanding from their current and previous learning independently and in new contexts.

### **Connect**

Pupils make clear, strong and appropriate links between their skills, knowledge and understanding and the new context.

### **Explain & Evaluate**

Pupils are able to explore and critically evaluate the scientific learning independently combining their knowledge and their skills to create hypotheses and conclusions.

## Working Scientifically

Year 1	Year 2	Year 3
<ul style="list-style-type: none"> <li>• I can ask simple questions and know that they can be answered in different ways.</li> <li>• I know what I am trying to find out.</li> <li>• I can identify and classify.</li> <li>• I use my senses to make observations.</li> <li>• I can observe closely, using simple equipment.</li> <li>• I make some measurements of what I observe.</li> <li>• I can perform simple tests.</li> <li>• I can use observations and ideas to suggest answers to questions.</li> <li>• I can gather and record data to help in answering questions.</li> <li>• I can report what I have found out.</li> <li>• I think of reasons for what I have found out.</li> </ul>	<ul style="list-style-type: none"> <li>• I can ask scientific questions.</li> <li>• I can give ideas about how I might answer these questions and recognise these can be answered in different ways.</li> <li>• I can identify, classify and group using scientific criteria.</li> <li>• I can use senses to make accurate observations.</li> <li>• I can suggest what equipment I use to make observations.</li> <li>• I can make accurate measurements of length, capacity, weight and time.</li> <li>• I can perform simple tests and start to consider if a test is fair.</li> <li>• I can make a prediction.</li> <li>• I can use observations, ideas and scientific knowledge to suggest answers to enquiries.</li> <li>• I can use scientific vocabulary to describe my observations.</li> <li>• I can record my data using pictures, text, tables, charts and labelled diagrams.</li> <li>• I can compare data and observations.</li> <li>• I can report what I have found out and give reasons.</li> <li>• I can say whether what happened was what I expected.</li> </ul>	<ul style="list-style-type: none"> <li>• I can ask relevant scientific questions.</li> <li>• I can set up simple practical enquiries and comparative and fair tests.</li> <li>• I can make accurate measurements using standard units, using a range of equipment, e.g. thermometers and data loggers.</li> <li>• I can gather, record, classify and present data in a variety of ways to help in answering questions.</li> <li>• I can record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.</li> <li>• I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</li> <li>• I can identify differences, similarities or changes related to simple, scientific ideas and processes.</li> <li>• I can use straightforward, scientific evidence to answer questions or to support my findings.</li> <li>• I can use my results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</li> </ul>

Year 4	Year 5	Year 6
<ul style="list-style-type: none"> <li>• I can act on suggestions and put forward my own ideas about how to find the answer to a question.</li> <li>• I can carry out practical enquiries, comparative and fair tests, and explain why it was fair.</li> <li>• I can choose suitable equipment to measure data for experiments involving length, mass, time and temperature and use thermometers and data loggers.</li> <li>• I can record findings using relevant scientific language, drawings, labelled diagrams, bar charts and tables.</li> <li>• I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</li> <li>• I can use straightforward, scientific evidence to answer questions and to support my findings.</li> <li>• I can look for patterns in my data and try to explain them, for examples differences, similarities or changes related to simple scientific ideas of processes.</li> <li>• I can use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests.</li> <li>• I can ask relevant questions and use different types of scientific enquiries to answer them.</li> <li>• I can make systematic and careful observations.</li> </ul>	<ul style="list-style-type: none"> <li>• I can plan enquiries, including recognising and controlling variables where necessary.</li> <li>• I can use appropriate techniques, apparatus and materials during fieldwork and laboratory work.</li> <li>• I can take measurements, using a range of scientific equipment, with increasing accuracy and precision.</li> <li>• I can record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs, and models.</li> <li>• I can report findings from enquiries, including oral and written explanations of results and conclusions.</li> <li>• I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in written form, displays and other presentations.</li> <li>• I can use my data to interpret patterns.</li> <li>• I can use test results to make predictions to set up further comparative and fair tests.</li> <li>• I can consider how changing one variable can alter another and can use -er words to describe this (e.g. the heavier the load, the longer the spring).</li> <li>• I can identify scientific evidence that has been used to support or refute ideas or arguments.</li> </ul>	<ul style="list-style-type: none"> <li>• I can plan enquiries, deciding on the most appropriate approach, and describing how to vary one factor while keeping the others the same.</li> <li>• I can select apparatus and plan to use them effectively and safely.</li> <li>• I can make a series of observations, comparisons or measurements with increasing accuracy and precision, taking repeat readings where appropriate, and can record these systematically.</li> <li>• I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs, and models.</li> <li>• I can use test results to make predictions to set up further comparative and fair tests.</li> <li>• I can report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions.</li> <li>• I can use scientific language and conventions to communicate quantitative and qualitative data.</li> <li>• I can repeat observations and measurements and offer explanation for any differences I encounter.</li> <li>• I can draw conclusions that are consistent with the evidence and relate these to scientific knowledge.</li> <li>• I can use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments.</li> <li>• I can describe and evaluate my own and my peers' scientific ideas related to topics in the national curriculum.</li> </ul>

Seasonal Changes		
Year 1 NC Objectives	Year 1 Objective Progression	
<ul style="list-style-type: none"> <li>I can observe changes across the four seasons.</li> <li>I can observe and describe weather associated with the seasons and how day length varies.</li> </ul>	<p>Objective 1 - Can I name the four seasons and describe them?</p> <ul style="list-style-type: none"> <li>Know the names of the four seasons</li> <li>Know when the seasons are.</li> <li>Ask questions to find out which month of the year it is.</li> </ul> <p>Objective 2 - Can I describe signs of Autumn?</p> <ul style="list-style-type: none"> <li>Describe signs of Autumn <ul style="list-style-type: none"> <li>Observe changes around me.</li> <li>Suggest reasons why trees lose their leaves.</li> <li>Suggest reasons for why I see less animals.</li> </ul> </li> </ul> <p>Objective 3 - Can I explain where rain comes from and measure the rainfall?</p> <ul style="list-style-type: none"> <li>Know where rain comes from</li> <li>Measure the rainfall</li> <li>Reflect on why some containers fill up with rain more than others.</li> </ul>	<p>Objective 4 - Can I explain the length of the days in different seasons?</p> <ul style="list-style-type: none"> <li>Know that days get shorter in autumn.</li> <li>Count the hours in a day.</li> <li>Classify daytime and night-time activities.</li> </ul> <p>Objective 5 - Can I measure and record the temperature?</p> <ul style="list-style-type: none"> <li>Use a thermometer</li> <li>Record the temperature</li> <li>Predict the weather</li> </ul> <p>Objective 6 - How can I describe Autumn and give reasons for the changes?</p> <ul style="list-style-type: none"> <li>Describe signs of Autumn</li> <li>Observe changes around me</li> <li>Suggest reasons for the changes in autumn.</li> </ul>

Sound		
Year 4 NC Objectives	Year 4 Objective Progression	
<ul style="list-style-type: none"> <li>• I can identify how sounds are made, associating some of them with something vibrating.</li> <li>• I can recognise that vibrations from sounds travel through a medium to the ear.</li> <li>• I can find patterns between the pitch of a sound and features of the object that produced it.</li> <li>• I can find patterns between the volume of a sound and the strength of the vibrations that produced it.</li> <li>• I can recognise that sounds get fainter as the distance from the sound source increases.</li> </ul>	<p>Objective 1 - Can I explain how I hear?</p> <ul style="list-style-type: none"> <li>• Know that sound is made by vibrations.</li> <li>• Know that sound travels through a medium to the ear.</li> <li>• Explain how we hear.</li> </ul> <p>Objective 2 - Can I explain what sound is?</p> <ul style="list-style-type: none"> <li>• Identify that sounds are made by vibrations.</li> <li>• Know that sounds travel through a medium (solids, liquids and gases) to the ear.</li> <li>• Explain my observations.</li> </ul> <p>Objective 3 - Can I explain what pitch is?</p> <ul style="list-style-type: none"> <li>• Know what pitch is.</li> <li>• Find patterns between the pitch of the sound and the features of the object which made the sound.</li> <li>• Explain why the differences in pitch occur.</li> </ul>	<p>Objective 4 - Can I explain what volume is and make predictions?</p> <ul style="list-style-type: none"> <li>• Know what volume is.</li> <li>• Make predictions</li> </ul> <p>Objective 5 &amp; 6 - Can I carry out an investigation and make accurate measurements? Can I present and analyse my results?</p> <ul style="list-style-type: none"> <li>• Test if a sound gets fainter the further the distance from the source.</li> <li>• Use a data-logger to measure volume.</li> <li>• Record results on a simple table.</li> <li>• Put results into a simple bar chart.</li> <li>• Analyse my results.</li> <li>• Explain why sound gets fainter the further the distance from the source.</li> </ul> <p>Objective 7 - Can I make a musical instrument?</p> <ul style="list-style-type: none"> <li>• Use knowledge of sound to build an instrument.</li> <li>• Change the volume and pitch of my instrument.</li> <li>• Evaluate my instrument.</li> </ul>



## Earth and Space

Year 5 NC Objectives	Year 5 Objective Progression	
<ul style="list-style-type: none"> <li>• I can describe the movement of the Earth and other planets relative to the sun in the solar system.</li> <li>• I can describe the movement of the moon relative to the Earth.</li> <li>• I can describe the sun, Earth and moon as approximately spherical bodies.</li> <li>• I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</li> </ul>	<p>Objective 1 - Can I use scientific evidence to describe our solar system?</p> <ul style="list-style-type: none"> <li>• Explain what the universe, galaxies and solar systems are.</li> <li>• Explain that the Earth, moon and sun are spheres.</li> <li>• Describe a sphere.</li> <li>• Distinguish between heliocentric and geocentric models.</li> <li>• Name different shapes the Earth was thought to be.</li> <li>• Identify scientific evidence that has been used to support and refute ideas.</li> </ul> <p>Objective 2 - Can I state the planets that make our solar system and explain how they move?</p> <ul style="list-style-type: none"> <li>• Name the planets in the solar system.</li> <li>• Explain how the planets orbit the sun.</li> <li>• Place the planets in the solar system in the correct order.</li> <li>• Begin explaining what asteroids and comets are.</li> <li>• Begin to identify the relative distance of the planets to the sun</li> </ul> <p>Objective 3 - Can I describe the features of planets and present this in a report?</p> <ul style="list-style-type: none"> <li>• Describe some features of the planets.</li> <li>• Report and present findings from research.</li> <li>• Present data using tables and graphs</li> <li>• Write conclusions which explains my findings.</li> </ul>	<p>Objective 4 - Can I give explanations as to why the moon looks different throughout the month?</p> <ul style="list-style-type: none"> <li>• Explain the moon orbits the Earth and not the sun.</li> <li>• Explain how the moon moves relative to the Earth.</li> <li>• Identify the different phases of the moon.</li> </ul> <p>Objective 5 - Can I explain why we have day and night?</p> <ul style="list-style-type: none"> <li>• Explain how night and day occurs.</li> <li>• Support the idea that different places on Earth experience night and day at different times.</li> <li>• Use evidence to explain why night and day occur at different times in different places on Earth.</li> </ul> <p>Objective 6 - Cross-curricular options</p> <ul style="list-style-type: none"> <li>• Writing</li> <li>• Art</li> <li>• DT</li> </ul>

## Evolution and Inheritance

Year 6 NC Objectives	Year 6 Objective Progression	
<ul style="list-style-type: none"> <li>• I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</li> <li>• I recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</li> <li>• I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</li> </ul>	<p>Objective 1 - Can I explain what inheritance is?</p> <ul style="list-style-type: none"> <li>• Explain what inheritance is.</li> <li>• Group by inherited traits.</li> <li>• Explain why inheritance can lead to adaptation.</li> </ul> <p>Objective 2 - Can I explain why offspring are not identical to their parents?</p> <ul style="list-style-type: none"> <li>• Explain why offspring are not identical to their parents.</li> <li>• Show how offspring are a combination of characteristics.</li> <li>• Speculate why inheritance can lead to adaptation.</li> </ul> <p>Objective 3 - Can I describe how local animals are able to survive?</p> <ul style="list-style-type: none"> <li>• Identify and explain an organisms adaptations.</li> <li>• Know that living things are adapted to their environments.</li> <li>• Speculate what would happen if the local environment changed.</li> </ul>	<p>Objective 4 - Can I explain how animals are able to survive in extreme environments?</p> <ul style="list-style-type: none"> <li>• Use secondary sources to answer questions and present my findings.</li> <li>• Know how snow animals are adapted to suit their environment.</li> <li>• Explain what would happen if the temperature became hotter in cold environments.</li> </ul> <p>Objective 5 - Can I explain what evolution is and present a biography of an evolutionary scientist?</p> <ul style="list-style-type: none"> <li>• Explain what evolution is.</li> <li>• Present a biography of a scientist.</li> <li>• Explain why the work of a scientist is important for us today.</li> </ul> <p>Objective 6 - Can I explain what fossils tell us?</p> <ul style="list-style-type: none"> <li>• Know that living things have changed over time.</li> <li>• Use scientific evidence to support my ideas.</li> <li>• Suggest characteristics about an animal and its habitat from a fossil.</li> </ul>

Light		
Year 3 NC Objectives	Year 3 Objective Progression	
<ul style="list-style-type: none"> <li>I can recognise that we need light in order to see things and that dark is the absence of light.</li> <li>I can notice that light is reflected from surfaces.</li> <li>I can recognise that light from the sun can be dangerous and that there are ways to protect our eyes.</li> <li>I can recognise that shadows are formed when the light from a light source is blocked by an opaque object.</li> <li>I can find patterns in the way the size of shadows change.</li> </ul>	<p>Objective 1 - Can I describe what light is and types of sources?</p> <ul style="list-style-type: none"> <li>Know what light is.</li> <li>Know what a light source is.</li> </ul> <p>Objective 2 - Can I explain how I can see objects?</p> <ul style="list-style-type: none"> <li>Know that dark is the absence of light.</li> <li>Know that when there is more light, objects are easier to see.</li> <li>Know that reflective materials are easier to see in low light.</li> <li>Explain why some materials are more reflective than others.</li> </ul> <p>Objective 3 - Can I perform a comparative test?</p> <ul style="list-style-type: none"> <li>Compare materials as reflectors of light.</li> <li>Sort and group materials into reflectors of light.</li> </ul>	<p>Objective 4 - Can I explain the dangers of UV light from the sun?</p> <ul style="list-style-type: none"> <li>Know that UV rays are invisible.</li> <li>Know that UV rays from the sun can damage my eyes and skin.</li> <li>Know how to protect myself from the sun.</li> <li>Think of the best materials to make sunglasses/protective clothing.</li> </ul> <p>Objective 5 - Can I find patterns in the way shadows change.</p> <ul style="list-style-type: none"> <li>Know how shadows are formed.</li> <li>Know why a shadow looks smaller or larger than the object itself.</li> <li>Know why the shadow's shape is the same as the object itself.</li> </ul>
Year 6 NC Objectives	Year 6 Objective Progression	
<ul style="list-style-type: none"> <li>I can recognise that light appears to travel in straight lines.</li> <li>I can use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.</li> <li>I can explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</li> <li>I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</li> </ul>	<p>Objective 1 - Can I recap what I already know about light? (recap Year 3)</p> <ul style="list-style-type: none"> <li>Find patterns in the way shadows are formed.</li> <li>Know what a light source is.</li> <li>Know the absence of light is dark.</li> <li>Explain how shadows are formed.</li> <li>Predict how the size of a shadow will change depending how close or far away from the light source.</li> </ul> <p>Objective 2 - Can I explain how I am able to see things?</p> <ul style="list-style-type: none"> <li>Know what a light source is.</li> <li>Know what objects reflect light.</li> <li>Know that light travels in a straight line.</li> <li>Explain how I can see things.</li> <li>Compare how light behaves when reflected off different surfaces.</li> <li>Predict what will happen when 2 mirrors are held at different angles.</li> </ul>	<p>Objective 3 - Can I explain how shadows can change?</p> <ul style="list-style-type: none"> <li>Describe how shadows are formed.</li> <li>Know what transparent, translucent and opaque mean.</li> <li>Theorise why shadows of different materials are different.</li> <li>Predict how different materials will form different shadows.</li> </ul> <p>Objective 4 - Can I explain how mirrors affect light travelling?</p> <ul style="list-style-type: none"> <li>Describe the angle of incidence and reflection.</li> <li>Measure the angle of incidence and reflection.</li> <li>Predict what will happen when 2 mirrors are held at different angles.</li> </ul> <p>Objective 5 - Can I create a light maze?</p> <ul style="list-style-type: none"> <li>Understand that although light travels in a straight line, it can be reflected to travel in a different direction.</li> <li>Consider the angle at which a mirror needs to be at to reflect light.</li> </ul>

## Forces and Magnets

Year 3 NC Objectives	Year 3 Objective Progression	
<ul style="list-style-type: none"> <li>• I can compare how things move on different surfaces.</li> <li>• I can notice that some forces need contact between two objects, but magnetic forces can act at a distance.</li> <li>• I can observe how magnets attract or repel each other and attract some materials and not others.</li> <li>• I can compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials.</li> <li>• I can describe magnets as having two poles.</li> <li>• I can predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> </ul>	<p>Objective 1 - Can I explain the effect forces have?</p> <ul style="list-style-type: none"> <li>• Understand the effects of a force.</li> <li>• Know that forces are a push, pull or combination of both.</li> <li>• See that some forces require contact but magnetic force does not.</li> <li>• Explain the effect of forces acting in different activities.</li> </ul> <p>Objective 2 - Can I carry out a fair investigation to test the effect of friction?</p> <ul style="list-style-type: none"> <li>• Set up a simple fair test.</li> <li>• Use equipment to measure results.</li> <li>• Record my results in a table.</li> <li>• Explain what variable we are changing and why.</li> </ul> <p>Objective 3 - Can I present my data on friction and make conclusions?</p> <ul style="list-style-type: none"> <li>• Draw a bar chart.</li> <li>• Compare how the car moves on different surfaces.</li> <li>• Know what friction is.</li> <li>• Explain why the car moves differently on different surfaces.</li> </ul>	<ul style="list-style-type: none"> <li>• Apply what I have learnt to real life situation.</li> </ul> <p>Objective 4 - Can I explain what a magnet is and predict whether it will attract or repel?</p> <ul style="list-style-type: none"> <li>• Know a magnet has a south and north pole.</li> <li>• Know that magnets can attract and repel.</li> <li>• Know that magnetic force can act at a distance.</li> <li>• Predict is a magnet will attract or repel.</li> </ul> <p>Objective 5 - Can I sort materials using a magnet?</p> <ul style="list-style-type: none"> <li>• Use a magnet to find magnetic and non-magnetic materials.</li> <li>• Group materials.</li> <li>• Predict whether a material will be magnetic or non-magnetic.</li> </ul> <p>Objective 6 - Can I make a toy or game?</p> <ul style="list-style-type: none"> <li>• Use my knowledge of forces and magnets to make a game or toy.</li> <li>• Explain what the forces are doing.</li> <li>• Evaluate my design and improve it.</li> </ul>
Year 5 NC Objectives	Year 5 Objective Progression	

<ul style="list-style-type: none"> <li>• I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</li> <li>• I can identify the effects of air resistance, water resistance and friction that act between moving surfaces.</li> <li>• I can recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.</li> </ul>	<p>Objective 1 - Can I explain why I stay on the ground?</p> <ul style="list-style-type: none"> <li>• Know what forces are.</li> <li>• Know what gravity is.</li> <li>• Explain the difference between weight and mass.</li> </ul> <p>Objective 2 - Can I explain why I do not always fall over when moving?</p> <ul style="list-style-type: none"> <li>• Explain what friction is.</li> <li>• Describe which surface create the most friction.</li> <li>• Explain why friction is important.</li> </ul> <p>Objective 3 - Air resistance (helicopter) - Can I use my investigation results to explain why some objects fall to the ground slower than others?</p> <ul style="list-style-type: none"> <li>• Set up a fair test.</li> <li>• Record results in a table.</li> <li>• Represent my results in a graph and interpret them.</li> </ul>	<p>Objective 4 - Water Resistance</p> <ul style="list-style-type: none"> <li>• Explain what water resistance is.</li> <li>• Explain how different liquids produce different amounts of resistance.</li> <li>• Make a prediction based on my previous knowledge.</li> </ul> <p>Objective 5 &amp; 6 - Can I show how have machines made our lives easier? (Pulleys, levers and gears)</p> <ul style="list-style-type: none"> <li>• Know what gears, levers and pulleys are and how they work.</li> <li>• Draw the forces acting on different machines.</li> <li>• Explain how some everyday objects work.</li> </ul>
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Electricity		
Year 4 NC Objectives	Year 4 Objective Progression	
<ul style="list-style-type: none"> <li>• I can identify common appliances that run on electricity.</li> <li>• I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</li> <li>• I can identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.</li> <li>• I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</li> <li>• I can recognise some common conductors and insulators, and associate metals with being good conductors.</li> </ul>	<p>Objective 1 - Can I explain what electricity is?</p> <ul style="list-style-type: none"> <li>• Identify common appliances that run on electricity.</li> <li>• Know that electricity is the flow of electrons.</li> <li>• Know that electricity exists naturally.</li> <li>• Explain how a battery pushes the electrons around a circuit.</li> </ul> <p>Objective 2 - Can I draw and construct a simple circuit?</p> <ul style="list-style-type: none"> <li>• Make a simple circuit with a lamp.</li> <li>• Draw the circuit (pictures)</li> <li>• Explain why the simple series circuit works.</li> <li>• Explain what an open and closed circuit is.</li> </ul> <p>Objective 3 - Can I explain how a switch can light up a lamp?</p> <ul style="list-style-type: none"> <li>• Recognise a bulb turns on and off with a switch.</li> <li>• Explain the uses of switches and how they work.</li> </ul>	<p>Objective 4 - Can I name and explain insulators and conductors of electricity?</p> <ul style="list-style-type: none"> <li>• Know what a conductor is.</li> <li>• Know what an insulator is.</li> <li>• Explain what will happen in a circuit when using different materials.</li> <li>• Explain when we would use conductors and insulators.</li> </ul> <p>Objective 5 - Can I make a robot?</p> <ul style="list-style-type: none"> <li>• Use electrical components to make a robot.</li> <li>• Understand how to make a series circuit.</li> <li>• Explain why my robot may not work.</li> </ul> <p>Objective 6 - Can I make suggestions to improve my robot?</p> <ul style="list-style-type: none"> <li>• Show younger children how to use my robot.</li> <li>• Explain how to be safe around electricity.</li> <li>• Evaluate my robot and suggest improvements.</li> </ul>
Year 6 NC Objectives	Year 6 Objective Progression	

<ul style="list-style-type: none"> <li>• I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</li> <li>• I can compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.</li> <li>• I can use recognise symbols when representing a simple circuit in a diagram.</li> </ul>	<p>Objective 1 - Can I create a simple circuit, representing components using standard symbols?</p> <ul style="list-style-type: none"> <li>• Describe the function of electrical components.</li> <li>• Create a simple circuit, including the use of a switch.</li> <li>• Draw a circuit using standard symbols.</li> <li>• Explain why the circuit I created works.</li> </ul> <p>Objective 2 - Can I explain what electricity is?</p> <ul style="list-style-type: none"> <li>• I know what atoms are made up of.</li> <li>• I know how electrons behave in an atom.</li> <li>• I know how electrons react to each other and why.</li> <li>• I can explain what electricity is.</li> </ul> <p>Objective 3 - Can I explain how a cell works and what happens when I increase the voltage in a circuit?</p> <ul style="list-style-type: none"> <li>• I understand what voltage is.</li> <li>• I can take measurements using data loggers with accuracy and precision.</li> <li>• I know to take repeat readings to ensure accuracy.</li> <li>• I can record data using a table.</li> <li>• I know how a cell works and the effect it has on electrons.</li> </ul>	<p>Objective 4 - Can I plan an investigation and predict what happens when I add more components to a series circuit?</p> <ul style="list-style-type: none"> <li>• I can make a prediction</li> <li>• I know what a variable is and which needs to be changed to ensure a fair investigation.</li> <li>• I can draw a simple circuit using standard symbols.</li> <li>• I can explain my prediction using my understanding of voltage and electricity.</li> </ul> <p>Objective 5 - Can I carry out my investigation and interpret my results when I add more components to a series circuit?</p> <ul style="list-style-type: none"> <li>• I can set up and carry out a fair investigation.</li> <li>• I can record data using a table.</li> <li>• I can report findings from enquiries.</li> <li>• I can draw conclusions that are consistent with the evidence.</li> </ul> <p>Objective 6 - Can I make a switch?</p> <ul style="list-style-type: none"> <li>• I can explain what a switch does,</li> <li>• I know which materials are conductors of electricity and which are insulators.</li> <li>• I can make a switch.</li> <li>• I can use my knowledge of electrical components and circuits to solve problems.</li> </ul>
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Plants		
Year 1 NC Objectives	Year 1 Objective Progression	
<ul style="list-style-type: none"> <li>I can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</li> <li>I can identify and describe the basic structure of a variety of common flowering plants, including trees.</li> </ul>	<p>Objective 1 - Can I identify and name the parts of a plant?</p> <ul style="list-style-type: none"> <li>Identify and name the stem, roots, leaves and flowers.</li> <li>Plant some seeds.</li> <li>Explain that all plants have the same structures but they look different.</li> </ul> <p>Objective 2 - Can I plant seeds and explain how it would grow?</p> <ul style="list-style-type: none"> <li>Plant seeds.</li> <li>Look after my plant.</li> <li>Explain what happens as my plant grows.</li> </ul> <p>Objective 3 - Can I identify and name different plants and trees?</p> <ul style="list-style-type: none"> <li>Identify and name different plants and trees by looking at the different parts.</li> <li>Identify different parts of the plants even if they look different.</li> </ul>	<p>Objective 4 - Can I explain how plants are different based on their features?</p> <ul style="list-style-type: none"> <li>Describe different leaves.</li> <li>Compare and group different leaves/seeds and bulbs.</li> <li>Name common plants and trees by looking at their parts.</li> <li>Guess what the parts of the plant do.</li> </ul> <p>Objective 5 - Can I explain what a plant needs to grow?</p> <ul style="list-style-type: none"> <li>Plant seeds.</li> <li>Record my observations.</li> <li>Explain what a plant needs to grow.</li> </ul> <p>Objective 6 - Are plants useful? FOOD?</p>
Year 2 NC Objectives	Year 2 Objective Progression	
<ul style="list-style-type: none"> <li>I can observe and describe how seeds and bulbs grow into mature plants.</li> <li>I can find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</li> </ul>	<p>Objective 1 - Can I explain how a seed germinates?</p> <ul style="list-style-type: none"> <li>Know how to plant a seed.</li> <li>Know what a seed needs to germinate.</li> <li>Explain what happens when a seed germinates and why.</li> </ul> <p>Objective 2 - Can I describe what plants need to grow and stay healthy?</p> <ul style="list-style-type: none"> <li>Know what plants need.</li> <li>Look after my plant.</li> <li>Explain why plants need water and sunlight.</li> </ul> <p>Objective 3 - Can I explain how some plants can grow without seeds?</p> <ul style="list-style-type: none"> <li>Know what a bulb is.</li> <li>Know what a tuber is.</li> <li>Explain how bulbs store food and grow a new plant.</li> </ul>	<p>Objective 4 - Can I identify different plants and explain the conditions they need to grow?</p> <ul style="list-style-type: none"> <li>Name common plants around the school.</li> <li>Identify a plant by the shape of different parts.</li> <li>Understand that plants need different conditions to grow.</li> </ul> <p>Objective 5 - Can I draw and label the life cycle of a plant?</p> <ul style="list-style-type: none"> <li>Know that seeds grow into seedlings, seedlings into plants.</li> <li>Draw and label the life cycle of a plant.</li> <li>Explain what seed dispersal is.</li> </ul> <p>Objective 6 - Can I explain why plants are important?</p> <ul style="list-style-type: none"> <li>Understand that plants are used to make different things, including food and clothing.</li> <li>Identify objects that are made from plants.</li> <li>Explain why plants are important to us.</li> </ul>

Year 3 NC Objectives	Year 3 Objective Progression	
<ul style="list-style-type: none"> <li>• I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.</li> <li>• I can explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.</li> <li>• I can investigate the way in which water is transported within plants.</li> <li>• I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</li> </ul>	<p>Objective 1 - Can I identify and describe the functions of the parts of a flowering plant?</p> <ul style="list-style-type: none"> <li>• Can record my observations.</li> <li>• Know the basic parts of a plant.</li> <li>• Name some common plants.</li> <li>• Know some of the functions of the parts of a plant.</li> </ul> <p>Objective 2 - Can I explore the requirements of plants for life and growth and how they vary from plant to plant?</p> <ul style="list-style-type: none"> <li>• Know what a plant needs for life and growth,</li> <li>• Know what the functions of the parts of a plant are.</li> <li>• Know which conditions a plant needs to survive.</li> <li>• Explain why plants differ.</li> </ul> <p>Objective 3 - Can I investigate the way in which water is transported within plants?</p> <ul style="list-style-type: none"> <li>• Investigate how water is transported in a plant.</li> <li>• Explain in simple terms what happens.</li> <li>• Make predictions.</li> </ul>	<p>Objective 4 - Can I explain what pollination is?</p> <ul style="list-style-type: none"> <li>• Name the parts of a flower.</li> <li>• Understand what pollination is.</li> <li>• Understand the role of insects, birds and wind in the process.</li> <li>• Sort flowers according to how they are pollinated.</li> </ul> <p>Objective 5 - Can I explain how seeds are formed and dispersed?</p> <ul style="list-style-type: none"> <li>• Know that seeds are formed when the male and female parts fuse.</li> <li>• Know that some plants form berries and fruits which contain seeds.</li> <li>• Know that seed dispersal is important for the survival of a species.</li> </ul>



Living Things and Their Habitats		
Year 2 NC Objectives	Year 2 Objective Progression	
<ul style="list-style-type: none"> <li>I can explore and compare the differences between things that are living, dead, and things that have never been alive.</li> <li>I can identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.</li> <li>I can identify and name a variety of plants and animals in their habitats, including micro-habitats.</li> <li>I can describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.</li> </ul>	<p>Objective 1 - Can I show what I already know about living things and their habitats?</p> <p>Objective 2 - Can I describe and explain how I know something is alive?</p> <ul style="list-style-type: none"> <li>Describe the criteria of living things.</li> <li>Explain why something is living, dead or has never been alive.</li> <li>Compare the differences of things that are living, dead and those that have never been alive.</li> </ul> <p>Objective 3 - Can I identify and name a variety of plants?</p> <ul style="list-style-type: none"> <li>Name a variety of plants in their habitats.</li> <li>Name a variety of animals in their habitats</li> <li>Name the aspects of micro-habitats</li> </ul>	<p>Objective 4 - Can I explain how living things are suited to their habitats?</p> <ul style="list-style-type: none"> <li>Make observations and identify a range of habitats.</li> <li>Describe a range of habitats.</li> <li>Explain how a habitat provides the basic needs of different kinds of animals and plants.</li> </ul> <p>Objective 5 - How do living things depend on each other for their basic needs?</p> <ul style="list-style-type: none"> <li>Compare a range of habitats.</li> <li>Begin to understand how living things depend on each other.</li> </ul> <p>Objective 6 - Can I understand and draw a simple food chain?</p> <ul style="list-style-type: none"> <li>Describe how animals obtain their food from plants and other animals.</li> <li>Identify and name different sources of food.</li> <li>Describe a simple food chain.</li> </ul>
Year 4	Year 4 Objective Progression	
<ul style="list-style-type: none"> <li>I can recognise that living things can be grouped in a variety of ways.</li> <li>I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</li> <li>I can recognise that environments can change and that this can sometimes pose dangers to living things.</li> <li>I can construct and interpret a variety of food chains, identifying producers, predators and prey (FROM ANIMALS, INCLUDING HUMANS)</li> </ul>	<p>Objective 1 - Can I show what I already know about living things?</p> <ul style="list-style-type: none"> <li>Name common plants and animals.</li> <li>Name local habitats</li> <li>Add detail about living things I have found.</li> </ul> <p>Objective 2 - Can I explain why we group living things?</p> <ul style="list-style-type: none"> <li>Explain why we group living things.</li> </ul> <p>Objective 3 - Can I recognise that living things can be grouped in different ways?</p> <ul style="list-style-type: none"> <li>Create a simple classification key.</li> <li>Know living things are grouped in different ways.</li> <li>Know the characteristics of the main groups of animals</li> </ul> <p>Objective 4 - Can I classifying plants based on their features?</p> <ul style="list-style-type: none"> <li>Use identification guide to identify plants</li> <li>Name common plants and trees</li> <li>Compare and contrast different plants and use this information to create a key.</li> </ul>	<p>Objective 5 - Can I understand and create food chains?</p> <ul style="list-style-type: none"> <li>Know that living things can be classified as producers, predators or prey according to their place in the food chain.</li> <li>Know that a food chain always starts with a producer.</li> <li>Know that energy moves upwards in a food chain.</li> <li>Explain what might happen if one living thing was removed from a food chain.</li> </ul> <p>Objective 6 - Can I recognise that environments can change and the effect it can have on living things?</p> <ul style="list-style-type: none"> <li>Describe environments</li> <li>Compare environments and the living things in each type.</li> <li>Consider how a living thing would live in a contrasting environment.</li> </ul>

Year 5	Year 5 Objective Progression	
<ul style="list-style-type: none"> <li>I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</li> <li>I can describe the life process of reproduction in some plants and animals.</li> </ul>	<p>Objective 1 - Can I explain and compare the life cycles of mammals and birds?</p> <ul style="list-style-type: none"> <li>Classify animals by their common features.</li> <li>Explain life cycle of birds.</li> <li>Explain life cycle of mammals.</li> <li>Compare and contrast animal life cycles.</li> </ul> <p>Objective 2 - Can I describe metamorphosis in insects and amphibians?</p> <ul style="list-style-type: none"> <li>Know that some animals go through metamorphosis.</li> <li>Know the life cycle of an insect.</li> <li>Know the life cycle of an amphibian.</li> <li>Compare and contrast animal life cycles.</li> <li>Propose reasons for the differences in life cycles.</li> <li>Propose reasons for metamorphosis.</li> </ul> <p>Objective 3 - Can I name the reproductive parts of a plant and explain how they interact?</p> <ul style="list-style-type: none"> <li>Know what sexual reproduction is.</li> <li>Know what stage of its life cycle a plant is at.</li> <li>Observe closely.</li> <li>Reflect on why a plant produces seed in autumn.</li> </ul>	<p>Objective 4 - Can I compare reproduction in flowering and non-flowering plants?</p> <ul style="list-style-type: none"> <li>Explain sexual reproduction in ferns and conifers.</li> <li>Compare reproduction in flowering and non-flowering plants.</li> <li>Suggest which parts of the plant will reproduce.</li> </ul> <p>Objective 5 - Can I explain how some plants are able to reproduce alone?</p> <ul style="list-style-type: none"> <li>Describe asexual reproduction.</li> <li>Predict what will happen in my investigation.</li> <li>Plan and conduct a scientific investigation.</li> </ul> <p>Objective 6 - Can I present my findings on the life cycles of animals or plants?</p> <ul style="list-style-type: none"> <li>Present my findings about the life cycles of two animals or two plants.</li> <li>Compare the life cycles of two species.</li> <li>Suggest reasons for differences based on my knowledge of behaviour, habitat, classification, characteristics of the organisms.</li> </ul>
Year 6	Year 6 Objective Progression	
<ul style="list-style-type: none"> <li>I can describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals.</li> <li>I can give reasons for classifying plants and animals based on specific characteristics.</li> </ul>	<p>Objective 1 - Can I explain how classification has changed over time?</p> <ul style="list-style-type: none"> <li>Sort and group items based on their features.</li> <li>Explain what classification is.</li> <li>Give reasons for classifying living things based on features.</li> <li>Describe Carl Linnaeus and explain his development of the classification system.</li> <li>Describe how living things are classified at each level of the Linnaean system.</li> </ul> <p>Objective 2 - Can I classify animals based on characteristics from the animal kingdom?</p> <ul style="list-style-type: none"> <li>Match groups of animals to their characteristics.</li> <li>Place animals into given groups based on their characteristics.</li> <li>Give reasons for classification of animals into a given group.</li> <li>Design a creature that has a specific set of characteristics.</li> </ul>	<p>Objective 4 - Can I explain what makes micro-organisms grow?</p> <ul style="list-style-type: none"> <li>Explain what a micro-organism is.</li> <li>Name types of micro-organisms.</li> <li>Give examples of what makes micro-organisms grow.</li> <li>Compare different micro-organisms based on features.</li> <li>Describe useful and harmful effects of different micro-organisms.</li> </ul> <p>Objective 5 - Can I use questions and justify the way I have classified?</p> <ul style="list-style-type: none"> <li>Compare how I have sorted different items based on their features.</li> <li>Give reasons to justify how my classification has changed now that I have more information.</li> </ul> <p>Objective 6 - Can I classify based on observable features?</p> <ul style="list-style-type: none"> <li>Identify different physical characteristics of leaves OR animals.</li> </ul>

	<ul style="list-style-type: none"> <li>• Explain how my creature will be classified based on the characteristics they have.</li> </ul> <p>Objective 3 - Can I classify plants based on their habitat and characteristics?</p> <ul style="list-style-type: none"> <li>• Describe characteristics of different plants.</li> <li>• Classify plants into given groups based on characteristics.</li> <li>• Explain the reason for classifying plants into given groups.</li> <li>• Identify how the habitat of a plant might affect its classification.</li> </ul>	<ul style="list-style-type: none"> <li>• Use physical features of identify the type of tree OR animal.</li> <li>• Create a detailed classification key (flow chart).</li> <li>• Justify my questions I used in my classification key.</li> <li>• Adjust my classification key based on feedback.</li> </ul>
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Materials		
Year 1 NC Objectives	Year 1 Objective Progression	
<ul style="list-style-type: none"> <li>I can distinguish between an object and the material from which it is made.</li> <li>I can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</li> <li>I can compare and group together a variety of everyday materials on the basis of their simple physical properties.</li> </ul>	<p>Objective 1 - Can I explain the differences between an object and a material?</p> <ul style="list-style-type: none"> <li>Name different materials.</li> <li>Know what an object is.</li> <li>Explain differences between an object and a material.</li> </ul> <p>Objective 2 - Can I describe different materials?</p> <ul style="list-style-type: none"> <li>Describe the properties of a material.</li> <li>Compare different materials.</li> <li>Explain why a material is used to make an object.</li> </ul> <p>Objective 3 - Can I group materials by their properties and vice-versa?</p> <ul style="list-style-type: none"> <li>Group materials by their properties.</li> <li>Group objects by their materials.</li> <li>Compare materials by their properties.</li> </ul>	<p>Objective 4 &amp; 5 - Can I perform simple tests to find the best materials for their purpose?</p> <ul style="list-style-type: none"> <li>Perform a simple test.</li> <li>Record my results.</li> <li>Find out which is the best material for _____.</li> <li>Think about how to test materials for different parts of _____.</li> </ul> <p>Objective 6 - What other materials are good for _____?</p> <ul style="list-style-type: none"> <li>Describe the properties of a material.</li> <li>Suggest materials to make _____.</li> <li>Explain what would happen if you used the wrong materials.</li> </ul>
Year 2 NC Objectives	Year 2 Objective Progression	
<ul style="list-style-type: none"> <li>I can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</li> <li>I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</li> </ul>	<p>Objective 1 - Can I explain why certain objects are made of certain materials?</p> <ul style="list-style-type: none"> <li>Describe a material using its properties.</li> <li>Explain why a material has a certain use.</li> <li>Explain why an object may be made from different materials.</li> </ul> <p>Objective 2 - Can I explain the suitability of a material?</p> <ul style="list-style-type: none"> <li>Describe the properties of a material.</li> <li>Compare different materials.</li> <li>Explain why a material is used to make an object.</li> </ul> <p>Objective 3 - Can I describe how some materials can change their shape and explain why we would want to do this?</p> <ul style="list-style-type: none"> <li>Describe properties of materials.</li> <li>Explain why we may want to change the shape of some objects.</li> <li>Describe how we can change the shape of solid objects.</li> </ul>	<p>Objective 4 - Can I plan and carry out investigation to test the best material for ****?</p> <ul style="list-style-type: none"> <li>Perform a simple test.</li> <li>Record my results.</li> <li>Consider how to test materials for different part of the house.</li> </ul> <p>Objective 5 - Can I suggest other materials which would suit some objects?</p> <ul style="list-style-type: none"> <li>Suggest the best material for ***?</li> <li>Name properties of this material.</li> <li>Suggest materials to make other parts of ***?</li> </ul>

Year 3 (Rocks) NC Objectives	Year 3 Objective Progression	
<ul style="list-style-type: none"> <li>I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</li> <li>I can describe in simple terms how fossils are formed when things that have lived are trapped within rock.</li> <li>I can recognise that soils are made from rocks and organic matter.</li> </ul>	<p>Objective 1 - Can I describe soil and name its different components?</p> <ul style="list-style-type: none"> <li>Know that soil is made from rocks and organic matter.</li> <li>Identify the different components of soil.</li> <li>Compare soil from different places.</li> </ul> <p>Objective 2 - How can we identify rocks?</p> <ul style="list-style-type: none"> <li>Classify rocks depending on their properties.</li> <li>Name some different rocks.</li> <li>Explain why some rocks have different properties.</li> </ul> <p>Objective 3 - Can I plan how to test the properties of rocks?</p> <ul style="list-style-type: none"> <li>Identify different properties of rocks.</li> <li>Set up simple practical enquiries and comparative and fair tests.</li> <li>Record my results in a simple table.</li> <li>Explain why some rocks have different properties.</li> </ul>	<p>Objective 4 - Can I describe how different rocks are formed?</p> <ul style="list-style-type: none"> <li>Explain what igneous, metamorphic and sedimentary mean.</li> <li>Explain the rocks cycle and its processes.</li> </ul> <p>Objective 5 - Can I explain how fossils are formed?</p> <ul style="list-style-type: none"> <li>Explain in basic terms how fossils are formed.</li> <li>Explain why fossils are useful.</li> </ul> <p>Objective 6 - Can I explain what fossils have told us?</p> <ul style="list-style-type: none"> <li>Report on findings from secondary resources.</li> </ul>
Year 4 (States of Matter) NC Objectives	Year 4 Objective Progression	
<ul style="list-style-type: none"> <li>I can compare and group materials together, according to whether they are solids, liquids or gases.</li> <li>I can observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (<math>^{\circ}C</math>).</li> <li>I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</li> </ul>	<p>Objective 1 - Can I explain what a solid is and give examples?</p> <ul style="list-style-type: none"> <li>Know the characteristics of a solid.</li> <li>Explain how particles of a solid behave.</li> <li>Compare and contrast different solids.</li> </ul> <p>Objective 2 - Can I explain what a liquid is and give examples?</p> <ul style="list-style-type: none"> <li>Know the properties of a liquid.</li> <li>Explain how the particles in a liquid behave.</li> <li>Know what a non-Newtonian liquid is.</li> <li>Explain the difference between a liquid and a solid.</li> </ul> <p>Objective 3 - Can I explain what a gas is and give examples?</p> <ul style="list-style-type: none"> <li>Know the properties of a gas.</li> <li>Explain how the particles in a gas behave.</li> <li>Observe and describe what happens to different materials when they are cooled.</li> </ul>	<p>Objective 4 - Can I explain how materials change their state?</p> <ul style="list-style-type: none"> <li>Know the process of condensations.</li> <li>Know the process of evaporation.</li> <li>Know the process of freezing/solidification.</li> <li>Explain what happens to the particles of a material as it changes state.</li> <li>Make close observations.</li> </ul> <p>Objective 5 - Can I explain where water comes from?</p> <ul style="list-style-type: none"> <li>Know what the water cycle is.</li> <li>Know what the processes in the water cycle are.</li> <li>Explain the effect of increased temperature on evaporation.</li> <li>Apply my knowledge of how materials change state to explain the water cycle.</li> </ul> <p>Objective 6 - Can I plan a fair investigation?</p> <ul style="list-style-type: none"> <li>Set up a fair test.</li> <li>Analyse the set-up of my experiment.</li> </ul>

Year 5 NC Objectives	Year 5 Objective Progression	
<ul style="list-style-type: none"> <li>• I can compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.</li> <li>• I know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</li> <li>• I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</li> <li>• I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</li> <li>• I can demonstrate that dissolving, mixing and changes of state are reversible changes.</li> <li>• I can explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.</li> </ul>	<p>Objective 1 - Can I describe the properties of different materials?</p> <ul style="list-style-type: none"> <li>• Identify different materials.</li> <li>• Explain properties of different materials.</li> <li>• Test the properties of different materials.</li> <li>• Compare and contrast different materials.</li> <li>• Propose reasons for the differences in states of matter.</li> </ul> <p>Objective 2 - Can I investigate and explain why some solids seem to disappear in liquid?</p> <ul style="list-style-type: none"> <li>• Identify materials that are soluble and insoluble in water.</li> <li>• Explain and investigate process of dissolving.</li> <li>• Suggest why materials dissolve in certain conditions.</li> </ul> <p>Objective 3 - How can I separate different materials?</p> <ul style="list-style-type: none"> <li>• Follow a process for separating materials (sieving, filtering &amp; evaporating).</li> <li>• Explain the process used to separate mixtures (sieving and filtering) and solution (evaporating).</li> <li>• Identify and explain the most suitable processes to separate different mixtures and solutions.</li> </ul>	<p>Objective 4 - Can I test and explain some of the changes in materials that are irreversible?</p> <ul style="list-style-type: none"> <li>• Identify irreversible changes.</li> <li>• Explain irreversible changes.</li> <li>• Predict the new material made from an irreversible reaction.</li> </ul> <p>Objective 5 - Can I explain why some materials are selected for a light bulb?</p> <ul style="list-style-type: none"> <li>• Identify thermal and electrical conductors and insulators.</li> <li>• Explain the use of thermal and electrical conductors and insulators.</li> <li>• Order materials according to their electrical conductivity.</li> <li>• Propose reasons for thermal and electrical conductors and insulators.</li> <li>• Reflect on why different materials work better as conductors and insulators.</li> <li>• Compare the benefits of using different materials as conductors and insulators.</li> </ul> <p>Objective 6 -</p>

Animals Including Humans		
Year 1 NC Objectives	Year 1 Objective Progression	
<ul style="list-style-type: none"> <li>I can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</li> <li>I can identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> <li>I can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).</li> <li>I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</li> </ul>	<p>Objective 1 - Can I explain how the different parts of my body work?</p> <ul style="list-style-type: none"> <li>Name body parts.</li> <li>Name the 5 senses.</li> <li>Explain which body parts are for each sense.</li> </ul> <p>Objective 2 - Can I explain what my senses do?</p> <ul style="list-style-type: none"> <li>Know what my sense do.</li> <li>Explain why they are important.</li> <li>Explain when we use more than one sense at a time.</li> <li>Explain why we use more than one sense at a time.</li> </ul> <p>Objective 3 - Can I scientifically group animals?</p> <ul style="list-style-type: none"> <li>Describe features of mammals, fish, birds, amphibians and reptiles.</li> <li>Group animals into mammals, reptiles, fish amphibians and birds.</li> <li>Name some common animals.</li> </ul>	<p>Objective 4 - Can I group animals based on what they eat?</p> <ul style="list-style-type: none"> <li>Know what a herbivore, omnivore and carnivore are.</li> <li>Group animals by what they eat.</li> <li>Talk about why animals eat what they do.</li> </ul> <p>Objective 5 - Can I compare different animals based on how they look and move?</p> <ul style="list-style-type: none"> <li>Compare the structure of different animals.</li> <li>Know how animals move.</li> <li>Explain why animals have different structures.</li> <li>Explain what animals use different parts of their bodies for.</li> </ul> <p>Objective 6 - Can I make my own animal?</p> <ul style="list-style-type: none"> <li>Know which animal group it belongs to.</li> <li>Describe what it eats and where it lives.</li> <li>Describe features it has to help it move.</li> <li>Describe where it lives.</li> </ul>
Year 2 NC Objectives	Year 2 Objective Progression	
<ul style="list-style-type: none"> <li>I can understand that animals, including humans, have offspring which grow into adults.</li> <li>I can find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</li> <li>I can describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul>	<p>Objective 1 - Can I show what I already know about animals? (assessment)</p> <ul style="list-style-type: none"> <li>Classify animals into groups.</li> <li>Explain basic needs of animals including humans.</li> <li>Explain why animals are indifferent in groups.</li> </ul> <p>Objective 2 - Can I describe what animals need to survive and explain reasons?</p> <ul style="list-style-type: none"> <li>List what animals need to survive.</li> <li>Explain why animals need certain things to survive.</li> </ul> <p>Objective 3 - Can I compare and contrast how different animals grow and have offspring?</p> <ul style="list-style-type: none"> <li>Match babies to adult animals.</li> <li>Describe animals when they are babies.</li> <li>Compare and contrast how different animals grow.</li> <li>Classify animals by how they grow.</li> </ul>	<p>Objective 4 - Can I explain how I can eat a healthy diet?</p> <ul style="list-style-type: none"> <li>Know that there are different good groups.</li> <li>Name different food groups.</li> <li>Classify foods into 5 food groups.</li> <li>Explain why we need to each different foods.</li> </ul> <p>Objective 5 - Can I describe how exercise affects our bodies?</p> <ul style="list-style-type: none"> <li>Know the affects exercise has on our bodies.</li> <li>Explain why exercise can keep our bodies healthy.</li> </ul> <p>Objective 6 - Can I suggest ways to keep hygienic and why it is important?</p>

Year 3 NC Objectives	Year 3 Objective Progression	
<ul style="list-style-type: none"> <li>I can identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.</li> <li>I can identify that humans and some other animals have skeletons and muscles for support, protection and movement.</li> </ul>	<p>Objective 1 - Can I explain how my teacher is able to stand up?</p> <ul style="list-style-type: none"> <li>Know we have skeletons.</li> <li>Name some bones.</li> <li>Explain the function of some bones.</li> </ul> <p>Objective 2 - Can I explain how my teacher is able to move?</p> <ul style="list-style-type: none"> <li>Name some muscles.</li> <li>Know the function of muscles.</li> <li>Explain how muscles move bones.</li> </ul> <p>Objective 3 - Can I compare a human's skeleton to another mammal's?</p> <ul style="list-style-type: none"> <li>Know some animals have muscles and skeletons for support, movement and protection.</li> <li>Draw a skeleton.</li> <li>Explain why an animal's skeleton is different from mine.</li> </ul>	<p>Objective 4 - Can I explain the effects on my teacher if they were to eat sweets all day?</p> <ul style="list-style-type: none"> <li>Know that animals cannot make their own food and get nutrition from food they eat.</li> <li>Name different nutrients.</li> <li>Know that different foods contain more than one nutrient.</li> <li>Explain why it is important to get the right amount of nutrients.</li> </ul> <p>Objective 5 - Can I explain how my teacher can keep healthy and fit?</p> <ul style="list-style-type: none"> <li>Describe the amount of nutrients in a meal.</li> <li>Identify a healthy, balanced meal.</li> <li>Compare and contrast the nutritional value of different meals.</li> </ul> <p>Objective 6 - Can I use results to draw conclusions based on diet?</p> <ul style="list-style-type: none"> <li>Analyse results of a healthy and unhealthy diet.</li> <li>Draw conclusions based on someone's diet.</li> <li>Raise further questions regarding someone's diet.</li> <li></li> </ul>
Year 4 NC Objectives	Year 4 Objective Progression	



<ul style="list-style-type: none"> <li>• I can describe the simple functions of the basic parts of the digestive system in humans.</li> <li>• I can identify the different types of teeth in humans and their simple functions.</li> <li>• I can construct and interpret a variety of food chains, identifying producers, predators and prey (LIVING THINGS)</li> </ul>	<p>Objective 1 - Identify the different teeth</p> <ul style="list-style-type: none"> <li>• Identify different types of teeth.</li> <li>• Explain the functions of different types of teeth.</li> </ul> <p>Objective 2 - Identify the different teeth</p> <ul style="list-style-type: none"> <li>• Explain the function of teeth in relation to animals' diet.</li> </ul> <p>Objective 3 - Name the basic parts of the digestive system</p> <ul style="list-style-type: none"> <li>• Name parts.</li> </ul>	<p>Objective 4 - describe functions of the basic parts of the digestive system.</p> <ul style="list-style-type: none"> <li>• Explain functions of the parts of the digestive system</li> </ul> <p>Objective 5 &amp; 6- Make a model of the digestive system?</p> <ul style="list-style-type: none"> <li>• Describe the functions of the different parts.</li> <li>• Create a model of the digestive system.</li> </ul> <p>Food Chains completed in Living Things</p>
<p><b>Year 5 NC Objectives</b></p>	<p><b>Year 5 Objective Progression</b></p>	
<ul style="list-style-type: none"> <li>• I can describe the changes as humans develop to old age.</li> </ul>	<p>Objective 1 - Can I describe the stages of human development?</p> <ul style="list-style-type: none"> <li>• Name the 6 stages of human development.</li> <li>• Order the stages of human development.</li> <li>• Compare the life cycle of a human to a frog.</li> <li>• Create a timeline of the stages of human development.</li> <li>• Explain the changes that occur during the different stages of human development.</li> </ul> <p>Objective 2 - Can I describe and compare the gestational periods of different animals?</p> <ul style="list-style-type: none"> <li>• Explain what gestation period is.</li> <li>• Explain gestation period of humans.</li> <li>• Compare gestation period of humans to other animals.</li> <li>• Use bar graphs to compare gestation periods of different animals.</li> <li>• Give reasons for differences in gestation periods of different animals.</li> <li>• Analyse data on a bar chart to identify patterns and ask further questions.</li> </ul>	<p>Objective 3 - Can I describe the milestones that babies achieve?</p> <ul style="list-style-type: none"> <li>• Identify different milestones that babies go through.</li> <li>• Place different milestones in age brackets.</li> <li>• Demonstrate an understanding of how babies grow in height and weight.</li> <li>• Identify a correlation between height at a certain age and adult height.</li> </ul> <p>Objective 4 - Can I explain how we change during puberty?</p> <ul style="list-style-type: none"> <li>• Give reasons why changes occur during puberty.</li> <li>• Identify and physical and emotional changes that take place during puberty.</li> <li>• Analyse the similarities and differences between how boys and girls experience puberty.</li> </ul> <p>Objective 5 - Can I describe the changes that will happen when humans get older?</p> <ul style="list-style-type: none"> <li>• Explain the changes that take place in old ages.</li> </ul> <p>Objective 6 - Can I make comparisons between humans and other animals?</p> <ul style="list-style-type: none"> <li>• Compare the life changes of humans and other animals.</li> <li>• Report findings in oral form.</li> <li>• Analyse and report findings in written explanation.</li> </ul>

Year 6 NC Objectives	Year 6 Objective Progression	
<ul style="list-style-type: none"> <li>I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</li> <li>I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function (PSHE).</li> <li>I can describe the ways in which nutrients and water are transported within animals, including humans.</li> </ul>	<p>Objective 1 - Can I describe what blood is and explain their function?</p> <ul style="list-style-type: none"> <li>describe the function of blood and its different components.</li> <li>understand that there are three different blood vessels and how they work</li> </ul> <p>Objective 2 - Can I explain how the circulatory system works?</p> <ul style="list-style-type: none"> <li>Identify the main parts of the circulatory systems.</li> <li>Explain the main functions of the heart, lungs and blood vessels in the circulatory system.</li> <li>Explain the specific function of the heart, lungs and blood vessels in the circulatory system.</li> <li>Create and explain a detailed model of how the circulatory system functions.</li> </ul> <p>Objective 3 - Can I explain how the blood circulates through the heart and to the lungs and body?</p> <ul style="list-style-type: none"> <li>Explain the function of the heart</li> <li>Know the name of the four chambers of the heart.</li> <li>Explain how blood circulates through the heart.</li> </ul> <p>Objective 4 - Can I explain how nutrients and water are transported in the body?</p> <ul style="list-style-type: none"> <li>State how the digestive system breaks down food.</li> <li>Identify and explain processes which break down food into nutrients.</li> <li>Understand the process of how water and nutrients are transported in the body.</li> <li>identify and explain the process of waste expulsion.</li> </ul>	<p>Objective 5 - Can I carry out a simple investigation to find out how exercise affects heart rate?</p> <ul style="list-style-type: none"> <li>Set up a simple enquiry.</li> <li>Take accurate measurements of pulse rate.</li> <li>Take repeat reading for accuracy.</li> <li>Record results accurately.</li> <li>Write a report including a conclusion on my investigation.</li> <li>Report the degree of trust I have in my results.</li> </ul> <p>Objective 6 - Can I make comparisons between my results to scientific research?</p> <ul style="list-style-type: none"> <li>Compare and explain results to that of scientific research.</li> <li>Evaluate how results differ or are similar to that of the research.</li> <li>Explain the importance of equipment in data collection.</li> </ul> <p>Objective 7 - What impact does a healthy lifestyle have?</p> <ul style="list-style-type: none"> <li>PSHE - smoking and exercise</li> </ul> <p>Objective 8 - What impact do drugs and alcohol have on the body?</p> <ul style="list-style-type: none"> <li>PSHE</li> </ul>