



## Beaufort Science Curriculum

**Our Science Curriculum helps our children to develop:**

- ② An understanding of the scientific principles underlying their world.
- ② A capacity to wonder and question.
- ② Curiosity.
- ② A sense of enjoyment and fascination in learning about themselves, others and the world around them.

<https://pstt.org.uk/resources> (Symbols. 'I bet you didn't know')

<https://explorify.wellcome.ac.uk/en/activities>

<https://pstt.org.uk/resources/curriculum-materials/enquiry-skills> (Our enquiry symbols explained further)



# Beaufort Science Curriculum

## Reception

### Inspirational projects/ideas:

Sinking or floating experiments. Small world animal habitats (e.g. rainforests/deserts/polar regions). Marble runs/**water runs**.  
Plants to explore/draw/dissect in Science/investigation area.

Working Scientifically	 Asking questions <small>(Time to be curious)</small>	<p>Decide what they are going to do and share their ideas. Use everyday language to talk about size, weight, capacity, position etc and begin to compare.</p>
	 Making predictions	<p>Explore characteristics of everyday objects.</p>
	 Setting up tests	<p>Begin to solve problems.</p>
	 Observing and measuring	<p>Recognise, create and describe patterns. Discuss similarities and differences.</p>
	 Recording data	<p>Say what they see. Explain why some things happen.</p>
	 Interpreting and communicating results	<p>Talk about changes.</p>



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	<p>Evaluating</p>	<p>Say what they want to do next time.</p>
<p><b>The World</b></p>	<ul style="list-style-type: none"> <li>• Explore the natural world around them.</li> <li>• Describe what they see, hear and feel whilst outside.</li> <li>• Understand the effect of changing seasons on the natural world around them.</li> </ul>	
<p><b>The Natural World</b></p>	<ul style="list-style-type: none"> <li>• Explore the natural world around them, making observations and drawing pictures of animals and plants.</li> <li>• Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.</li> <li>• Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter</li> </ul>	



# Beaufort Science Curriculum

## Year 1

Working scientifically	<p>Asking questions (Time to be curious)</p> 	<p>Ask simple questions. Begin to recognise questions can be answered in different ways.</p>
	<p>Making predictions</p> 	<p>Make simple predictions. Use some simple scientific vocabulary. Use comparative language, e.g. bigger, faster, stronger.</p>
	<p>Setting up tests</p> 	<p>Perform simple tests. Say what happened in my test.</p>
	<p>Observing and measuring</p> 	<p>Observe, using simple equipment safely. Observe changes over time and begin to notice patterns with guidance. Take simple measurements. (e.g. egg timer)</p>
	<p>Recording data</p> 	<p>Gather and record data. Use data to help answer questions. Use their observations and ideas to suggest answers to questions.</p>
	<p>Interpreting and communicating results</p> 	<p>Communicate findings in different ways. Record into a graph/ table provided with help. Say what has been found out and how it has been found out. Say whether the results matched predictions.</p>
	<p>Evaluating</p> 	<p>Begin to say how the method could be done differently next time.</p>



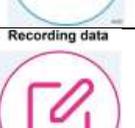
# Beaufort Science Curriculum

<b>Plants</b>	<ul style="list-style-type: none"> <li>• Describe seasonal changes (e.g. that trees lose their leaves)</li> <li>• Identify and investigate the parts of flowering plants (roots, stem, leaves, branches, petals, flowers, seeds).</li> <li>• Explain different types of weather and how these affect us (clothing, activities, food we eat).</li> <li>• Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</li> <li>• Identify and describe the basic structure of a variety of common flowering plants, including trees.</li> </ul>
<b>Animals, including humans</b>	<ul style="list-style-type: none"> <li>• Identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates.</li> <li>• Describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets).</li> <li>• 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> <li>• Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> </ul>
<b>Everyday materials</b>	<ul style="list-style-type: none"> <li>• Identify a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</li> <li>• Compare and group a variety of everyday materials on the basis of their simple physical properties.</li> <li>• Distinguish between an object and the material from which it is made.</li> <li>• Describe and evaluate the simple physical properties of a variety of everyday materials.</li> <li>• Investigate how some objects can change shape by squashing, bending, twisting and stretching.</li> </ul>
<b>Seasonal Changes</b>	<ul style="list-style-type: none"> <li>• Observe changes across the four seasons.</li> <li>• Observe and describe weather associated with the seasons and how day length varies.</li> </ul>



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## Year 2

<b>Working scientifically</b>	 <p>Asking questions (Time to be curious)</p>	<p>Ask simple questions. Begin to recognise questions can be answered in different ways.</p>
	 <p>Making predictions</p>	<p>Make simple predictions. Use some simple scientific vocabulary. Use comparative language, e.g. bigger, faster, stronger.</p>
	 <p>Setting up tests</p>	<p>Perform simple tests. Say what happened in my test.</p>
	 <p>Observing and measuring</p>	<p>Observe, using simple equipment safely. Observe changes over time and begin to notice patterns. Take simple measurements.</p>
	 <p>Recording data</p>	<p>Gather and record data. Use data to answer questions. Communicate findings in different ways. Record into a graph/ table provided.</p>
	 <p>Interpreting and communicating results</p>	<p>Say what has been found out and how it has been found out. Say whether the results matched predictions.</p>
	 <p>Evaluating</p>	<p>Begin to say how the method could be done differently next time.</p>



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<b>Plants</b>	<ul style="list-style-type: none"><li>• Observe and describe how seeds and bulbs grow into mature plants (plant life cycle).</li><li>• Find out and describe to see how plants need water, light and a suitable temperature to grow and stay healthy.</li></ul>
<b>Animals, including humans</b>	<ul style="list-style-type: none"><li>• Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</li><li>• Notice that animals, including humans, have offspring which grow into adults.</li><li>• Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li></ul>
<b>Uses of everyday materials</b>	<ul style="list-style-type: none"><li>• 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>• Compare how things move on different surfaces and investigate to find the most appropriate.</li><li>• Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</li></ul>
<b>Living thing and their habitats</b>	<ul style="list-style-type: none"><li>• Explore and compare the differences between things that are living, dead, and things that have never been alive.</li><li>• 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>• Identify and name a variety of plants and animals in their habitats, including microhabitats.</li><li>• 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>

# Beaufort Science Curriculum

## Year 3

<b>Working scientifically</b>	 <small>Asking questions (Time to be curious)</small>	<p>Ask relevant questions.</p> <p>Use different types of scientific enquiry to answer questions.</p>
	 <small>Making predictions</small>	<p>Make predictions.</p> <p>Use relevant scientific vocabulary.</p> <p>Use comparative language (e.g. smaller, larger, weaker) and superlative language (e.g. fastest, strongest, weakest).</p>
	 <small>Setting up tests</small>	<p>Begin to decide which types of enquiry would be best for answering certain questions.</p> <p>Set up simple practical enquiries, comparative and fair tests.</p> <p>Begin to think of one or more variables.</p>
	 <small>Observing and measuring</small>	<p>Make observations, using equipment safely.</p> <p>Look for patterns and relationships.</p> <p>Begin to choose appropriate equipment from a given selection.</p> <p>Take measurements, using standard units (mm/cm, g/kg, secs/mins, °c).</p>
	 <small>Recording data</small>	<p>Gather, record and present data in a variety of ways.</p> <p>Use this data to suggest answers to questions.</p> <p>Communicate findings in different ways, e.g. labelled drawings, bar charts, tables.</p> <p>Report on findings, orally or written.</p>
	 <small>Interpreting and communicating results</small>	<p>Use results to draw simple conclusions and answer scientific questions.</p> <p>Compare findings to initial predictions.</p>
	 <small>Evaluating</small>	<p>Suggest improvements for the method used.</p> <p>Begin to say what has been found out, linking 'cause and effect'.</p>



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<b>Plants</b>	<ul style="list-style-type: none"> <li>• Find out through carrying out a test to see how plants need water, light, room to grow and a suitable temperature to grow and stay healthy and compare how this varies from plant to plant.</li> <li>• Investigate the way in which water is transported within plants.</li> <li>• Identify and describe the functions of different parts of flowering plants (roots, stem, leaves, petals, flowers, stigma/stamen etc.).</li> <li>• Explore the life cycle of flowering plants (including pollination, seed formation and seed dispersal) and explain the importance of each phase.</li> </ul>
<b>Animals (including humans)</b>	<ul style="list-style-type: none"> <li>• Identify that humans and animals need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. Compare this to plants making their own food from sunlight.</li> <li>• Explain why humans and some animals have skeletons and muscles (for support, protection and movement).</li> </ul>
<b>Light</b>	<ul style="list-style-type: none"> <li>• Understand that light is reflected from surfaces and this is how we see.</li> <li>• Understand that light travels in straight lines and apply this to finding patterns in the way that the size of shadows change.</li> <li>• Recognise that they need light in order to see things and that dark is the absence of light.</li> <li>• Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</li> <li>• Recognise that shadows are formed when the light from a light source is blocked by an opaque object.</li> </ul>
<b>Forces and magnets</b>	<ul style="list-style-type: none"> <li>• Investigate why some forces need contact between two objects, but magnetic forces can act at a distance.</li> <li>• Observe how magnets attract or repel each other and attract some materials and not others.</li> <li>• Predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> <li>• Sort and classify objects on the basis of whether they are attracted to magnets or not and identify some magnetic materials.</li> <li>• Compare how things move on different surfaces.</li> <li>• Describe magnets as having two poles.</li> </ul>



# Beaufort Science Curriculum

## Rocks

- Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.
- Describe in simple terms how fossils are formed when things that have lived are trapped within rock.
- Recognise that soils are made from rocks and organic matter.



# Beaufort Science Curriculum

## Year 4

<b>Working scientifically</b>	 <p>Asking questions (Time to be curious)</p>	<p>Ask relevant questions.</p> <p>Use different types of scientific enquiry to answer questions.</p> <p>Begin to decide which types of enquiry would be best for answering certain questions.</p> <p>Begin to use secondary data to answer questions.</p>
	 <p>Making predictions</p>	<p>Make predictions.</p> <p>Use relevant scientific vocabulary.</p> <p>Use comparative language (e.g. smaller, larger, weaker) and superlative language (e.g. fastest, strongest, weakest).</p>
	 <p>Setting up tests</p>	<p>Set up simple tests.</p> <p>Understand and set up 'fair tests'.</p> <p>Begin to think of one or more variables.</p>
	 <p>Observing and measuring</p>	<p>Make observations, using equipment safely.</p> <p>Look for patterns and relationships.</p> <p>Begin to choose appropriate equipment from a given selection.</p> <p>Take measurements, using standard units (mm/cm, g/kg, secs/mins, °c).</p>
	 <p>Recording data</p>	<p>Gather, record and present data in a variety of ways.</p> <p>Use this data to suggest answers to questions.</p> <p>Communicate findings in different ways, e.g. labelled drawings, bar charts, tables.</p> <p>Report on findings, orally or written.</p>
	 <p>Interpreting and communicating results</p>	<p>Use results to draw simple conclusions and answer scientific questions.</p> <p>Compare findings to initial predictions.</p>



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	<p>Evaluating</p>	<p>Suggest improvements for the method used. Begin to say what has been found out, linking 'cause and effect'.</p>
<p><b>Animals, including humans</b></p>	<ul style="list-style-type: none"> <li>• Construct and interpret a variety of food chains, identifying producers, predators and prey.</li> <li>• Describe the simple functions of the basic parts of the digestive system in humans.</li> <li>• Identify the different types of teeth in humans and explain their simple functions.</li> </ul>	
<p><b>States of matter</b></p>	<ul style="list-style-type: none"> <li>• Compare and group materials together, according to whether they are solids, liquids or gases.</li> <li>• 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}\text{C}</math>).</li> <li>• Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</li> </ul>	
<p><b>Sound</b></p>	<ul style="list-style-type: none"> <li>• Identify how sounds are made, associating some of them with something vibrating.</li> <li>• Recognise that vibrations from sounds travel through a medium to the ear.</li> <li>• Find patterns between the pitch of a sound and features of the object that produced it.</li> <li>• Find patterns between the volume of a sound and the strength of the vibrations that produced it.</li> <li>• Recognise that sounds get fainter as the distance from the sound source increases.</li> </ul>	
<p><b>Electricity</b></p>	<ul style="list-style-type: none"> <li>• Identify common appliances that run on electricity.</li> <li>• Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</li> <li>• 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>• Explore how a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</li> <li>• Recognise some common conductors and insulators, and associate metals with being good conductors.</li> </ul>	



# Beaufort Science Curriculum

## Living things and their habitats

- Recognise that living things can be grouped in a variety of ways.
- Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.
- Recognise that environments can change and that this can sometimes pose dangers to living things.



# Beaufort Science Curriculum

## Year 5

<b>Working scientifically</b>	 <p>Asking questions (Time to be curious)</p>	Plan different types of scientific enquiry to answer questions, controlling the variables where necessary. Select the most appropriate scientific enquiry for answering certain questions.
	 <p>Making predictions</p>	Make predictions. Read and pronounce scientific vocabulary correctly. Use scientific vocabulary confidently, both orally and written.
	 <p>Setting up tests</p>	Use test results to set up further comparative tests. Understand and set up 'fair tests'. Explain which variables need to be controlled and why. Suggest improvements to the method used and give reasons.
	 <p>Observing and measuring</p>	Observe closely, using a range of equipment with increasing accuracy. Take repeat readings when appropriate. Make own decisions about which equipment to use, what measurements to take, how often and whether to repeat them. Interpret data and identify patterns and relationships. Take measurements accurately, using standard units (mm/cm, g/kg, secs/mins, °c, m per sec).
	 <p>Recording data</p>	Gather and record data of increasing complexity. Present data/findings in different ways e.g. labelled drawings, bar charts, classification keys, tables, line graphs, displays and presentations. Use findings to answer questions. Decide how best to record and present data.
	 <p>Interpreting and communicating results</p>	Report findings from different types of scientific enquiry, and explain what was found out, orally and written. Draw conclusions based on their data and use scientific knowledge and understanding to explain their findings.



# Beaufort Science Curriculum

	<p>Separate opinion from fact.          Use test results to set up further tests.          Use the correct scientific vocabulary when describing theories and processes.          Use scientific evidence to support or refute ideas or arguments.</p>
<p><b>Biology</b></p>	<ul style="list-style-type: none"> <li>• Sequence and explain the life process of reproduction in some plants and animals.</li> <li>• Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</li> <li>• Describe the changes as humans develop to old age.</li> </ul>
<p><b>Properties and changes of materials</b></p>	<ul style="list-style-type: none"> <li>• Compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, transparency, response to magnets and conductivity (electrical and thermal).</li> <li>• Understand that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</li> <li>• Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</li> <li>• Demonstrate that dissolving, mixing and changes of state are reversible changes.</li> <li>• 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> <li>• Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</li> </ul>
<p><b>Astronomy</b></p>	<ul style="list-style-type: none"> <li>• Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</li> <li>• Describe the movement of the Moon relative to the Earth.</li> <li>• Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</li> <li>• Describe the Sun, Earth and Moon as approximately spherical bodies.</li> </ul>
<p><b>Forces</b></p>	<ul style="list-style-type: none"> <li>• Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</li> <li>• Identify the effects of air resistance, water resistance and friction that act between moving surfaces.</li> <li>• Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</li> </ul>



# Beaufort Science Curriculum

## Year 6

<b>Working scientifically</b>	 <p>Asking questions (Time to be curious)</p>	<p>Plan different types of scientific enquiry to answer questions, controlling the variables where necessary.</p> <p>Select the most appropriate scientific enquiry for answering certain questions.</p>
	 <p>Making predictions</p>	<p>Make predictions.</p> <p>Read and pronounce scientific vocabulary correctly.</p> <p>Use scientific vocabulary confidently, both orally and written.</p>
	 <p>Setting up tests</p>	<p>Use test results to set up further comparative tests.</p> <p>Understand and set up 'fair tests'.</p> <p>Explain which variables need to be controlled and why.</p> <p>Suggest improvements to the method used and give reasons.</p>
	 <p>Observing and measuring</p>	<p>Observe closely, using a range of equipment with increasing accuracy.</p> <p>Make own decisions about which equipment to use, what measurements to take, how often and whether to repeat them.</p> <p>Take measurements accurately, using standard units (mm/cm, g/kg, secs/mins, °c, m per sec).</p>
	 <p>Recording data</p>	<p>Gather and record data of increasing complexity.</p> <p>Present data/findings in different ways e.g. labelled drawings, bar charts, classification keys, tables, line graphs.</p> <p>Use findings to answer questions.</p> <p>Decide how best to record and present data.</p>
	 <p>Interpreting and communicating results</p>	<p>Report findings from different types of scientific enquiry, and explain what was found out, orally and written.</p> <p>Interpret data and identify patterns and relationships.</p> <p>Draw conclusions based on their data and use scientific knowledge and understanding to explain their findings.</p>



# Beaufort Science Curriculum

	<p>Evaluating</p>	<p>Use the correct scientific vocabulary when describing theories and processes.          Use scientific evidence to support or refute ideas or arguments.          Separate opinion from fact.          Use test results to set up further tests.</p>
<b>Biology</b>	<ul style="list-style-type: none"> <li>• 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>• Give reasons for classifying plants and animals based on specific characteristics.</li> <li>• Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</li> <li>• Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</li> <li>• Describe the ways in which nutrients and water are transported within animals, including humans.</li> </ul>	
<b>Evolution and inheritance</b>	<ul style="list-style-type: none"> <li>• 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>• Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</li> <li>• Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</li> </ul>	
<b>Light</b>	<ul style="list-style-type: none"> <li>• Recognise that light appears to travel in straight lines.</li> <li>• 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>• 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>• 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>	
<b>Electricity</b>	<ul style="list-style-type: none"> <li>• Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of batteries used in the circuit.</li> <li>• Use recognised symbols when representing a simple circuit in a diagram.</li> </ul>	



# Beaufort Science Curriculum

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|  | <ul style="list-style-type: none"><li>• 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></ul> |
|--|---|