



## Progress in Science: Early Years Foundation Stage & Key Stage 1

### **Intent:**

Here at Ashton St. Peter's we believe that a high-quality Science education is fundamental to developing a child's understanding of the world through the key disciplines of biology, chemistry and physics. Scientific advancements are happening every day and are key to the world's future prosperity so it is vital for children to understand essential aspects of the knowledge, methods, processes and uses of science. We provide children with a solid understanding of key foundational knowledge and concepts, immersing them in a vocabulary-rich environment that allows them to build their understanding of the topic being studied as well as the diverse planet we live on. The staff here at Ashton St. Peter's ensure that all children are exposed to high-quality teaching and learning experiences that provide them with opportunities to develop their scientific enquiry and investigative skills through exploring their outdoor environment and locality. Children are encouraged to make predictions and observations, to question what they see and offer possible explanations for events and causes.

Science - Key Stage 1

	Working Scientifically	Biology	Chemistry	Physics
<p>National Curriculum</p> <p>Year 1</p>	<p>During Years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> <li>- asking simple questions and recognising that they can be answered in different ways;</li> <li>- observing closely, using simple equipment;</li> <li>- performing simple tests;</li> <li>- identifying and classifying;</li> <li>- using their observations and ideas to suggest answers to questions;</li> <li>- gathering and recording data to help in answering questions.</li> </ul>	<p><u>Plants - pupils should be taught to:</u></p> <ul style="list-style-type: none"> <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> <p><u>Animals, including humans - pupils should be taught to:</u></p> <ul style="list-style-type: none"> <li>- identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</li> <li>- identify and name a variety of common animals that are carnivores, herbivores and omnivores</li> <li>- describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</li> <li>- identify, name and label the basic parts of the</li> </ul>	<p><u>Everyday materials - pupils should be taught to:</u></p> <ul style="list-style-type: none"> <li>- distinguish between an object and the material from which it is made</li> <li>- identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</li> <li>- describe the simple physical properties of a variety of everyday materials</li> <li>- compare and group together a variety of everyday materials on the basis of their simple physical properties</li> </ul>	<p><u>Seasonal Changes - pupils should be taught to:</u></p> <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>

		human body and say which part of the body is associated with each sense.		
National Curriculum Year 2	<p>During Years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> <li>- asking simple questions and recognising that they can be answered in different ways;</li> <li>- observing closely, using simple equipment;</li> <li>- performing simple tests;</li> <li>- identifying and classifying;</li> <li>- using their observations and ideas to suggest answers to questions;</li> <li>- gathering and recording data to help in answering questions.</li> </ul>	<p><u>Living things and their habitats - pupils should be taught to:</u></p> <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 micro-habitats</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> <p><u>Plants - pupils should be taught to:</u></p> <ul style="list-style-type: none"> <li>- observe and describe how seeds and bulbs grow into mature plants</li> </ul>	<p><u>Uses of everyday materials - pupils should be taught to:</u></p> <ul style="list-style-type: none"> <li>- notice that animals, including humans, have offspring which grow into adults</li> <li>- find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</li> <li>- describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</li> </ul>	

		<ul style="list-style-type: none"> <li>- find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</li> </ul> <p><u>Animals, including humans - pupils should be taught to:</u></p> <ul style="list-style-type: none"> <li>- notice that animals, including humans, have offspring which grow into adults</li> <li>- find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</li> <li>- describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</li> </ul>		
--	--	--	--	--

Skill	Year R	Year 1	Year 2
Working Scientifically		<p><b><u>Perform simple tests:</u></b></p> <p><b><u>Identify and classify objects:</u></b></p> <p><b><u>Observe closely, using simple equipment:</u></b></p> <ul style="list-style-type: none"> <li>- Know that we can use simple equipment (e.g. a magnifying glass) to make simple observations.</li> </ul> <p><b><u>Ask simple questions and recognise that they can be answered in different ways:</u></b></p> <ul style="list-style-type: none"> <li>- Know that science is about asking questions about the world around us and we can find</li> </ul>	<p><b><u>Perform simple tests:</u></b></p> <p><b><u>Identify and classify objects:</u></b></p> <p><b><u>Observe closely, using simple equipment:</u></b></p> <ul style="list-style-type: none"> <li>- Know that we can use simple equipment (e.g. a magnifying glass, egg timer) to make simple observations.</li> </ul> <p><b><u>Ask simple questions and recognise that they can be answered in different ways:</u></b></p> <ul style="list-style-type: none"> <li>- Know that science is about asking questions about the world around us and we can find</li> </ul>

		<p>answers to these questions by observing the world around us.</p> <p><b><u>Gather and record data to help in answering questions:</u></b></p> <ul style="list-style-type: none"> <li>- Know that we can make simple recordings (e.g. pictures, captions, etc.) to show what we have found.</li> </ul>	<p>answers to these questions by observing the world around us.</p> <ul style="list-style-type: none"> <li>- Know that we can test our questions to see if they are true.</li> </ul> <p><b><u>Gather and record data to help in answering questions:</u></b></p> <ul style="list-style-type: none"> <li>- Know that we can make simple recordings (e.g. pictures, captions, etc.) to show what we have found.</li> </ul>
<p>Biology</p>	<p><b><u>Plants - Children should:</u></b></p> <ul style="list-style-type: none"> <li>- Be able to identify something as a plant.</li> <li>- Be able to name some common plants and identify: a leaf, roots, a stem and a flower.</li> <li>- Know that plants need water to grow.</li> <li>- Be able to identify the seeds in a fruit.</li> <li>- Be able to name some places that plants live (e.g. a garden, forests, etc.)</li> </ul> <p><b><u>Animals, including humans - Children should:</u></b></p> <ul style="list-style-type: none"> <li>- Be able to identify something as an animal.</li> <li>- Be able to identify and locate parts of their body.</li> <li>- Be able to identify and locate parts of animal bodies.</li> <li>- Be able to use their observations to describe humans and other animals.</li> <li>- Be able to identify types of exercise.</li> <li>- Be able to name baby, child, adult and the young of some other animals.</li> </ul> <p><b><u>Living things and their habitats - Children should:</u></b></p> <ul style="list-style-type: none"> <li>- Be able to name some places that animals live.</li> <li>- Be able to name a very limited range of food.</li> </ul>	<p><b><u>Plants - Children should:</u></b></p> <ul style="list-style-type: none"> <li>- Know that plants are different but can be similar in lots of ways.</li> <li>- Know at least one example of a wild and a garden plant.</li> <li>- Know that a flowering plant consists of: roots, a stem, leaves and flowers.</li> <li>- Know that a tree's stem is called a trunk.</li> <li>- Know that evergreen trees maintain their leaves throughout the year and that deciduous trees shed their leaves in the autumn.</li> </ul> <p><b><u>Animals, including humans - Children should:</u></b></p> <ul style="list-style-type: none"> <li>- Know the basic parts of the body and be able to identify them (feet, legs, arms, hands, torso, head, skin, eyes, ear, nose, tongues, etc.)</li> <li>- Know that eyes are related to sight, the nose is related to smell, the ears are related to sound, the tongue is related to taste and the skin is related to touch.</li> <li>- Know at least one example of a fish, an amphibian, a reptile, a bird and a mammal.</li> <li>- Know that fish, amphibians, reptiles, birds and mammals all have an internal skeleton and organs</li> <li>- Know that fish are different because they have gills to breathe underwater and scaly skin</li> </ul>	<p><b><u>Living things and their habitats - Children should:</u></b></p> <ul style="list-style-type: none"> <li>- Know that habitats are made up of living things, things that once lived and things that have never lived.</li> <li>- Know that living things move, grow and consume nutrients and reproduce; dead things used to do these things but no longer do and that things that never lived have never done these things.</li> <li>- Know that the arrows in a food chain show the direction of the energy.</li> <li>- Know that plants absorb energy from the Sun, that this energy is consumed by herbivorous animals, and that carnivorous animals eat other animals for their energy.</li> <li>- Know examples of how animals and plants have adapted to suit their habitat or microhabitat (e.g. polar bears, sharks, cacti, pine trees, woodlice, frogs, etc.)</li> </ul> <p><b><u>Plants - Children should:</u></b></p> <ul style="list-style-type: none"> <li>- Know that all mature plants have grown from a seed or a bulb.</li> <li>- Know that seeds and bulbs need to be buried underground in soil and will grow into mature plants with the right conditions (e.g. water, air, suitable temperature, etc.)</li> <li>- Know that plants have offspring, like animals, that grow into adults.</li> </ul> <p><b><u>Animals, including humans - Children should:</u></b></p>

		<ul style="list-style-type: none"> <li>- Know that amphibians are different in that they begin their lives with gills but then develop lungs and breathe on land</li> <li>- Know that reptiles are different in that they breathe air <b>and</b> have scaly skin.</li> <li>- Know that birds are different to other animals in that they have feathers and wings.</li> <li>- Know that mammals are different to other animals in that they have fur/hair <b>and</b> they feed milk to their young.</li> <li>- Know that a carnivore only eats other animals, know that a herbivore only eats plants and an omnivore eats both other animals and plants.</li> <li>- Know at least one example of a carnivore, a herbivore and an omnivore.</li> <li>- Know examples of nocturnal animals and describe how these animals differ from familiar animals they might see in the daytime.</li> </ul>	<ul style="list-style-type: none"> <li>- Know that animals, including humans, need food, water, and air to survive.</li> <li>- Know that animals, including humans, have offspring that grow into adults.</li> <li>- Know the basic food groups and examples of food from each (fruit and vegetables, carbohydrates, protein, dairy, fat and sugary foods).</li> <li>- Know that fats and sugary foods should be eaten in small amounts.</li> <li>- Know that half of our diet should be made up of carbohydrates and fruit and vegetables.</li> <li>- Know that regular exercise is an important part of staying healthy.</li> <li>- Know that keeping clean (e.g. washing our bodies and brushing our teeth) is an important part of staying healthy.</li> </ul>
Chemistry	<p><b><u>Everyday materials - Children should:</u></b></p> <ul style="list-style-type: none"> <li>- Be able to make observations of common objects.</li> <li>- Be able to make simple observations of materials.</li> <li>- Be able to arrange materials into groups (e.g. soft materials, hard materials, etc.)</li> <li>- Be able to identify when changes occur (e.g. when food is cooked).</li> </ul>	<p><b><u>Everyday materials - Children should:</u></b></p> <ul style="list-style-type: none"> <li>- Know simple materials (e.g. wood, plastic, metal, water, glass, rock and brick) and be able to recognise these materials and identify places where they might be used.</li> <li>- Know that the majority of objects are made from more than one material.</li> <li>- Know that words such as: hard, soft, rough, smooth, shiny, dull, light, heavy, can be used to describe the properties of different materials.</li> <li>- Know that matter (stuff) is made from tiny building blocks.</li> </ul>	<p><b><u>Uses of everyday materials - Children should:</u></b></p> <ul style="list-style-type: none"> <li>- Know that some materials have useful properties such as being: waterproof, strong, flexible, hard, soft, etc.</li> <li>- Suggest reasons why some materials are better suited to making particular objects.</li> <li>- Know that when two objects move against each other there is friction and sometimes this friction is smaller or larger.</li> <li>- Know that by applying a force to an object, its shape can be changed.</li> </ul>
Physics	<p><b><u>Light and Sound - Children should:</u></b></p> <ul style="list-style-type: none"> <li>- Know that it is dangerous to look at the sun.</li> <li>- Be able to relate their sense of sight to their eyes.</li> <li>- Be able to relate their sense of hearing to their ears.</li> </ul>	<p><b><u>Seasonal Changes - Children should:</u></b></p> <ul style="list-style-type: none"> <li>- Know that the weather changes throughout the year and is colder in the winter and hotter in the summer.</li> <li>- Know that days are longer in the summer and shorter in the winter.</li> </ul>	

		<ul style="list-style-type: none"> <li>- Observe how the seasons and weather affect the world around us (e.g. deciduous trees lose their leaves in the winter).</li> <li>- Know which type of weather we are most likely to see in which season (e.g. we are most likely to have frost and snow in the winter).</li> </ul>	
--	--	--	--

Vocabulary - Key Stage 1

	Year 1	Year 2
Working Scientifically		
Biology	<p><b><u>Plants:</u></b> plant, leaf, stem, root, branch, flower, bud, weed, similar, different, petals, names of garden and wild plants that can be found at school or in the local area, evergreen, deciduous.</p> <p><b><u>Animals, including humans:</u></b> head, neck, arms, elbows, hands, legs, knees, foot, feet, face, ears, eyes, nose, tongue, hair, mouth, teeth, tall, taller, short, shorter, big, bigger, small, smaller, taste, sweet, salty, sour, bitter, sharp, tingly, fizzy, milky, louder, softer, quiet, high, low, touch, feel, rub, rough, smooth, bumpy, smell, scent, legs, wings, fins, tail, fish, gills, webbed feet, scaly, claws, teeth, tongue, vertebrates, bill, beak, feather, long, thin, round, fat, fluffy, firm, jump, hop, leap, climb, swing, swim, prowl, slither, carnivore, herbivore, omnivore, food, healthy, meat, plant, nocturnal, day, night.</p>	<p><b><u>Living things and their habitats:</u></b> Revision from Yr 1 - plant, animal, herbivore, carnivore, omnivore.</p> <p>habitat, alive, living, once-lived, dead, never-lived, decay, soil, air, water, direction, source of food, microhabitat.</p> <p><b><u>Plants:</u></b> Revision from Yr 1 - plant, leaf, stem, root, branch, flower, bud, weed, similar, different, petals, names of garden and wild plants that can be found at school or in the local area, evergreen, deciduous.</p> <p>seed, grow, <b>observation, describe, identify</b>, bulb, soil, surface, underground, germination, shoot, height, tallest, shortest, wilting, healthy, unhealthy, mature, bury, <b>prediction, conclusion</b>, radicle.</p> <p><b><u>Animals, including humans:</u></b> Revision from Yr 1: food, healthy, milk, meat</p> <p>baby, need, want, living, alive, essential, water, drink, eat, breathe, shelter, warmth, survival, child, toddler, change, differences, move, care, learn, life cycle, stages, pregnancy, birth, teenager, adult, parent, elderly, independent, dependent, <b>sort, classify</b>, fruits, vegetables, carbohydrates,</p>

		protein, dairy, fat, sugar, diet, fish, exercise, hot, sweaty, tired, muscles, aching.
Chemistry	<p><b><u>Everyday materials:</u></b>  material, wood, plastic, metal, writing, wrapping, drawing, fabric, glass, water, brick, rock, hard, soft, rough, smooth, thin, bumpy, shiny, dull, light, heavy, harder, lighter, rougher, stretch, stiff, bend, press, twist, squash, waterproof, absorbent.</p>	<p><b><u>Uses of everyday materials:</u></b>  Revision from Yr 1 - smooth, rough, soft, squash, hard, bend, stiff, shiny, dull, thin, bumpy, wood, metal, plastic, glass, rock, brick, paper, twist.</p> <p>warm, cold, flat, thick, pointed, flexible, see-through, breaks, hardwearing, wear, opaque, transparent, property, invent, create, <b>table, column, sort, Venn diagram</b>, elastic, <b>measure, record, bar chart</b>.</p>
Physics	<p><b><u>Seasonal Changes:</u></b>  season, autumn, winter, spring, summer, temperature, hot, cold, frosty, wet, dry, sunny, cloudy, windy, rainy, stormy, icy, breeze, hat, gloves, scarf, coat.</p>	