



Science Curriculum Overview

Silverdale St John's CE Primary School



YEAR A	Autumn - How Does It Work?	Spring - Watery Worlds	Summer - The Great Outdoors
Curlews Year R/1/2	Everyday materials	Animals	Plants
Bitterns Year 3/4	Materials Magnets	Living things and their habitats	Plants
Harriers Year 5/6	Materials and Electricity	All living things and their habitats	Plants
YEAR B	Autumn - Happy, Healthy Me!	Spring - Time Travel	Summer - Here, There & Everywhere
Curlews Year R/1/2	The human body	Light	Materials
Bitterns Year 3/4	Animals including humans	Light	Rocks
Harriers Year 5/6	Animals including humans Sound	Light Earth and Space	Changes of states of matter Forces

Science - Year A

2023/2024 2025/2026	Autumn How - Does It Work?	Spring - Watery Worlds	Summer - The Great Outdoors
Curlews Year R/1/2	<u>Everyday materials</u>	<u>Animals</u>	<u>Plants</u>
NC Links	distinguish between an object and the material from which it is made identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock describe the simple physical properties of a variety of everyday materials compare and group together a variety of everyday materials on the basis of their simple physical properties observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies.	identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals identify and name a variety of common animals that are carnivores, herbivores and omnivores describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, and including pets) observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies.	identify and name a variety of common wild and garden plants, including deciduous and evergreen trees identify and describe the basic structure of a variety of common flowering plants, including trees. observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies.
Topic outcomes	Discuss, identify, label and record the materials they spot in the classroom Distinguish between an object and the material from which it is made Sort the objects according to properties (what material is this made of? What is its useful property?) Consider the questions: What would the classroom be like if the tables were made of jelly? Or the chairs were chocolate? Why are certain materials used to make these items? Pupils should explore and experiment with a wide variety of materials. Seasonal changes (suggested ideas): Think about what we already know about weather and look at how weather forecasters tell us what weather to expect. Make forecasts about the weather at school, using weather symbols and notes made 'on location' in the playground.	Children observe and identify animals in the world around them. With a support resource, they sort and classify them into simple groups. Children make careful observations of animals in the same group and can use simple features to compare living things (animals). Children can use simple secondary sources to find answers to help them sort and classify animals according to what they eat. Children use simple sorting diagrams to sort and classify objects (animals) into simple groups of their choice and are beginning to explain why they have sorted them this way. Pupils should use their local environment throughout the year to explore and answer questions about animals in their habitat. Seasonal changes (suggested ideas): Look at weather in the playground, at the rain falling and what it sounds like. Design a weather station to help collect data about the weather at school. Make a rainfall gauge and record the results.	Children can make careful observations, sometimes using equipment to help them, of seeds and plants. They can explore the world around them, leading them to ask some simple scientific questions about how and why things happen. Children can make close observations of plants. Children can observe the natural world around them. They can identify, classify and sort plants from their observations. They begin to explain their choices using simple scientific language. Children can identify similarities and differences between plants and begin to sort them according to a given criteria. Pupils should use the local environment throughout the year to explore and answer questions about plants growing in their habitat. Plant flowers and vegetables and observe their growth. Seasonal changes (suggested ideas): Go outside and have fun with shadows. Make them jump, chase each other and play shadow tag. Draw round them to see if they change during the day.
Bitterns Year 3/4	<u>Materials Magnets</u>	<u>Living things and their habitats</u>	<u>Plants</u>
NC Links	compare how some things move on different surfaces notice that some forces need contact between two objects but magnetic forces can act at a distance observe how magnets attract or repel each other and attract some materials and not others 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 describe magnets as having two poles predict whether two magnets will attract or repel each other, depending on which poles are facing.	explore and compare the differences between things that are living, dead, and things that have never been alive. 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 identify and name a variety of animals in their habitats, including micro-habitats 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.	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 plants, and how they depend on each other identify and name a variety of plants in their habitats, including micro-habitats observe and describe how seeds and bulbs grow into mature plants find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers 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
Topic outcomes	Compare the suitability of materials for a purpose by conducting an investigation, for example: which material is the best for an umbrella? Explore and manipulate a range of materials for bending, stretching, twisting. Can they change shape? Pupils should identify and discuss the uses of different everyday materials. Provide opportunities for children to investigate friction, for example: how well can a vehicle move on different surfaces Identify the type of force required to carry out an action, investigate pushes and pulls Explain that magnets produce an invisible pulling force Identify magnetic materials Identify different types of magnet Investigate the strength of different magnets Identify when magnets will repel or attract based on their poles.	Explain some of the life processes. Ask questions to decide if a thing is living, dead or has never been alive. Identify some plants and animals in global habitats. Draw a map of a local habitat. Sort objects into categories and give reasons for their choices. Identify and name minibeasts in microhabitats. Gather and record information. Suggest how an animal is able to survive in their habitat. Answer questions about habitats they have researched. Explain why the animals in a habitat need the plants. Draw a simple food chain.	Explore local habitats and identify what types of plants live there: go on a plant hunt Consider what makes a habitat a good place for a particular plant to live including micro-habitats. Suggest what they think a plant needs to grow and stay healthy. Dissect and observe a seed, explaining which parts will grow into a plant and which part is its food. Order the life cycle of a plant and begin to explain what happens at each stage. Explain that plants need water, light and a suitable temperature to grow and stay healthy. Explain what happens if a plant does not get everything it needs. Find out and describe how different plants need different amounts of water and light and different temperatures to grow and stay healthy. Explain the functions of the different parts of plants. Set up an investigation and make predictions. Make observations and conclusions. Identify different parts of a flower. Identify and describe the stages of the life cycle of flowering plants. Explore seed dispersal within plants, find examples of this in local habitats
Harriers Year 5/6	<u>Materials and Electricity</u>	<u>All living things and their habitats</u>	<u>Plants</u>
NC Links	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 give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic identify common appliances that run on electricity construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers 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 recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit recognise some common conductors and insulators, and associate metals with being good conductors. associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit 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 use recognised symbols when representing a simple circuit in a diagram.	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. construct and interpret a variety of food chains, identifying producers, predators and prey describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird describe the life process of reproduction in some animals describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms and animals give reasons for classifying animals based on specific characteristics. recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents identify how animals are adapted to suit their environment in different ways and that adaptation may lead to evolution.	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. describe the life process of reproduction in some plants describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including plants give reasons for classifying plants based on specific characteristics. recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents identify how plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.
Topic outcomes	Follow instructions to test a material's properties. Explain the uses of thermal and electrical conductors and insulators. Order materials according to their electrical conductivity. Children can define what an electrical appliance is and identify those that are mains- or battery powered. Children can identify different circuit components and explain what they do. Children can build series circuits, identifying and explaining whether they are complete or incomplete. Children can explain what electrical conductors and insulators are and give several examples of these. Children can identify several different switches and explain how switches work in a circuit. Children can apply their knowledge of electricity to different situations Investigate the brightness of bulbs, loudness of buzzers when the battery power is increased and record findings draw circuit diagrams using the correct symbols and label the voltage correctly	Generate criteria to use to sort animals. Sort animals into a Venn diagram. Sort animals into a Carroll diagram. Use questions to sort animals using a key. Use a key to identify invertebrates by looking at their characteristics. Use the characteristics of animals to sort them using a classification key. Show the characteristics of animals in a table. Create a classification key. Identify dangers to wildlife in the local and wider environment. Identify the stages in the process of sexual reproduction. Order the stages of the life cycles of mammals, birds, insects and amphibians. Give reasons for the classification of animals, using examples as a guide. Classify living things using the Linnaean system. Match groups of animals to their characteristics. Classify creatures based on their characteristics. Design a creature that has a specific set of characteristics, using prompts. Describe the characteristics of different organisms, including microorganisms.	Generate criteria to use to sort living things. Sort plants into a Venn diagram. Sort plants things into a Carroll diagram. Use questions to sort plants using a key. Use a key to identify plants by looking at their characteristics. Use the characteristics of plants to sort them using a classification key Show the characteristics of plants in a table Create a classification key. Identify dangers to wildlife in the local and wider environment. Identify parts of a flower. Give one difference between sexual and asexual reproduction. Describe ways plants can be pollinated. Identify plants that reproduce asexually. Describe ways to grow new plants other than from seed. Classify plants in different ways giving reasons Use secondary sources to find out about plants adaptation in different habitats

Science - Year B

2022/2023 2024/2025	Autumn - Happy, Healthy Me!	Spring - Time Travel	Summer - Here, There and Everywhere
Curlews Year R/1	<u>The human body</u>	<u>Light and seasonal change</u>	<u>Materials</u>
NC Links	<p>identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.</p> <p>observe changes across the four seasons</p> <p>observe and describe weather associated with the seasons and how day length varies.</p>	<p>observe and name a variety of sources of light, including electric lights, flames and the Sun</p> <p>associate shadows with a light source being blocked by something.</p> <p>observe changes across the four seasons</p> <p>observe and describe weather associated with the seasons and how day length varies.</p>	<p>identify and compare the uses of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard</p> <p>Find out how the shapes of solid objects made from some materials can be changed by bending twisting and stretching</p> <p>observe changes across the four seasons</p> <p>observe and describe weather associated with the seasons and how day length varies.</p>
Topic outcomes	<p>Children can name and locate parts of the human body and begin to make suggestions about what some parts of the body do. Children can name the five senses and the part of the body they are related to. Children can explain how they use each of their senses.</p> <p>Seasonal changes (suggested ideas):</p> <p>Go outside and observe the weather, drawing what you see and describing what you hear and feel. Then go back inside to create a seasons collage for the classroom.</p>	<p>Children will explore, name and sort a range of light sources according to their properties. Children will investigate shadows Create shadow puppets</p> <p>Seasonal changes (suggested ideas):</p> <p>Look at the wind in the playground and wonder if there is a link between wind direction and rainfall. Does the wind change direction during the day? Make a wind-sock to measure the direction of the wind in the playground.</p>	<p>Identify and discuss the uses of everyday materials</p> <p>Know that some materials can be used for more than one thing</p> <p>Think of creative uses for everyday materials</p> <p>Find out about people who have developed new materials eg John Dunlop, Charles Macintosh or John McAdam</p> <p>Seasonal changes (suggested ideas):</p> <p>Measure the temperature inside the classroom and outside and wonder how different that would be in different seasons. Make a thermometer box to house a thermometer and use it outside in the playground.</p>
Bitterns Year 2/3	<u>Animals including humans</u>	<u>Light</u>	<u>Rocks</u>
NC Links	<p>notice that animals, including humans, have offspring which grow into adults find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</p> <p>describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p> <p>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. identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	<p>recognise that they need light in order to see things and that dark is the absence of light</p> <p>notice that light is reflected from surfaces recognise that light from the sun can be dangerous and that there are ways to protect their eyes recognise that shadows are formed when the light from a light source is blocked by a solid object. find patterns in the way that the size of shadows change.</p>	<p>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.</p>
Topic outcomes	<p>Children can identify and match several animal offspring and their adult forms. They can describe the main characteristics of the offspring found in different animal groups. describe the main stages of at least two different animal life cycles. can identify several ways that humans grow and develop through each life cycle stage. can name the three basic needs of all animals to survive. They can describe the specific needs of a given animal. Children can identify several foods according to the basic food groups and can talk about the importance of a balanced diet. They can explain how to be hygienic and why this is important.</p> <p>Children can talk about what animals and humans need to stay healthy, showing an understanding of the food groups and the nutrients humans need for a healthy diet. Children can talk about how and why different animals require a different balance of nutrients and can gather and understand a range of information from food labels. Children can name, describe then start to discuss the features and advantages and disadvantages of different types of skeleton. Children can name the main parts of the human skeleton. Children can give a simple explanation of how muscles work.</p>	<p>that dark is the absence of light Set up an investigation and make predictions</p> <p>Understand how surfaces reflect light Recognise that a mirror appears to reverse an image Identify some parts of the eye Understand how the Sun can damage parts of the eye Identify opaque, translucent and transparent objects Experiment with light sources and shadows, find out how the distance from the light source affects the size of the shadow</p>	<p>Children will be able to give examples of natural and human-made rocks They will be able to group rocks by their properties and identify simple similarities and differences Children will be able to explain the difference between a bone and a fossil They will be able to explain, using simple scientific language, how soil is formed. To make links with geography, pupils should explore different kinds of rocks and soils, including those in the local environment: Trowbarrow quarry local visit</p>
Harriers Year 5/6	<u>Animals including humans</u> <u>Sound</u>	<u>Light</u> <u>Earth and Space</u>	<u>Changes of states of matter</u> <u>Forces</u>
NC Links	<p>identify how sounds are made, associating some of them with something vibrating</p> <p>recognise that vibrations from sounds travel through a medium to the ear find patterns between the pitch of a sound and features of the object that produced it find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>recognise that sounds get fainter as the distance from the sound source increases.</p> <p>describe the simple functions of the basic parts of the digestive system in humans</p> <p>identify the different types of teeth in humans and their simple functions</p> <p>describe the changes as humans develop to old age</p> <p>identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function describe the ways in which nutrients and water are transported within animals, including humans.</p>	<p>describe the movement of the Earth, and other planets, relative to the Sun in the solar system describe the movement of the Moon relative to the Earth describe the Sun, Earth and Moon as approximately spherical bodies use the idea of the Earth's rotation to explain day and night.</p> <p>recognise that light appears to travel in straight lines 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 explain that we see things because the light that travels from light sources to our eyes or from light sources to objects and then to our eyes use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>	<p>compare and group materials together, according to whether they are solids, liquids or gases</p> <p>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 (°C)</p> <p>identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p> <p>know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating demonstrate that dissolving, mixing and changes of state are reversible changes</p>
Topic outcomes	<p>Explain how sound sources vibrate to make sounds. Explain how vibrations change when the loudness of a sound changes. Explain how sounds travel to reach our ears. Describe the pitch of a sound. Describe patterns between the pitch of a sound and the features of the object that made the sound. Explain how sound travels through a string telephone. Identify the best material for absorbing sound. Create a musical instrument that can play high, low, loud and quiet sounds.</p> <p>Name parts of the human digestive system and explain how food travels through our bodies Identify and name types of human teeth and explain their functions</p> <p>Order, name and describe the stages of human growth and development</p> <p>Explore how the circulatory system works and be able to identify the role blood has within this. Accurately dramatise the processes of the circulatory system Examine the impact of a healthy or unhealthy diet on the human body Examine the impact of exercise and lifestyle choices on the human body Create a TV advert that explores the impact of diet, exercise and lifestyle on the human body Explain how nutrients and water are transported around the body</p>	<p>Describe the Sun, Earth and Moon as spherical. Name the planets in the solar system independently. Explain that day and night is due to rotation of the Earth. Support the idea that different places on Earth experience night and day at different times with evidence. Explain how the Moon moves relative to the Earth. Wonderdrome visit with Chris Mason</p> <p>Explain how light travels to enable us to see. Understand that all objects reflect light. Identify the angles of incidence and reflection. Understand refraction as light bending or changing direction. Explain how a prism allows us to see the visible spectrum. Understand that colours are a result of light reflecting off an object. Explain Isaac Newton's experiments about light and colour. Understand how shadows change size. Understand that shadows are the same shape as the object that casts them. Extend pupil's experience by looking at a range of phenomena such as rainbows, colours on soap bubbles, objects looking bent in water and coloured filters.</p>	<p>Describe the properties of solids, liquids and gases. Explain that melting and freezing are opposite processes that change the state of a material. Identify the melting and freezing point of several different materials. Explain that heating causes evaporation and cooling causes condensation. Explain that evaporation and condensation are opposite processes that change the state of a material. Explain that the higher the temperature, the quicker water evaporates. Explain what happens to water at the different stages of the water cycle.</p> <p>Explain and investigate dissolving. Explain the processes used to separate mixtures. Explain irreversible changes. Identify and explain the different forces acting on objects Explain how to increase the effects of air resistance Identify streamlined shapes Explain how friction is used in brake pads Investigate the effects of friction Explain how different mechanisms work Design their own mechanism to achieve a given purpose</p>

