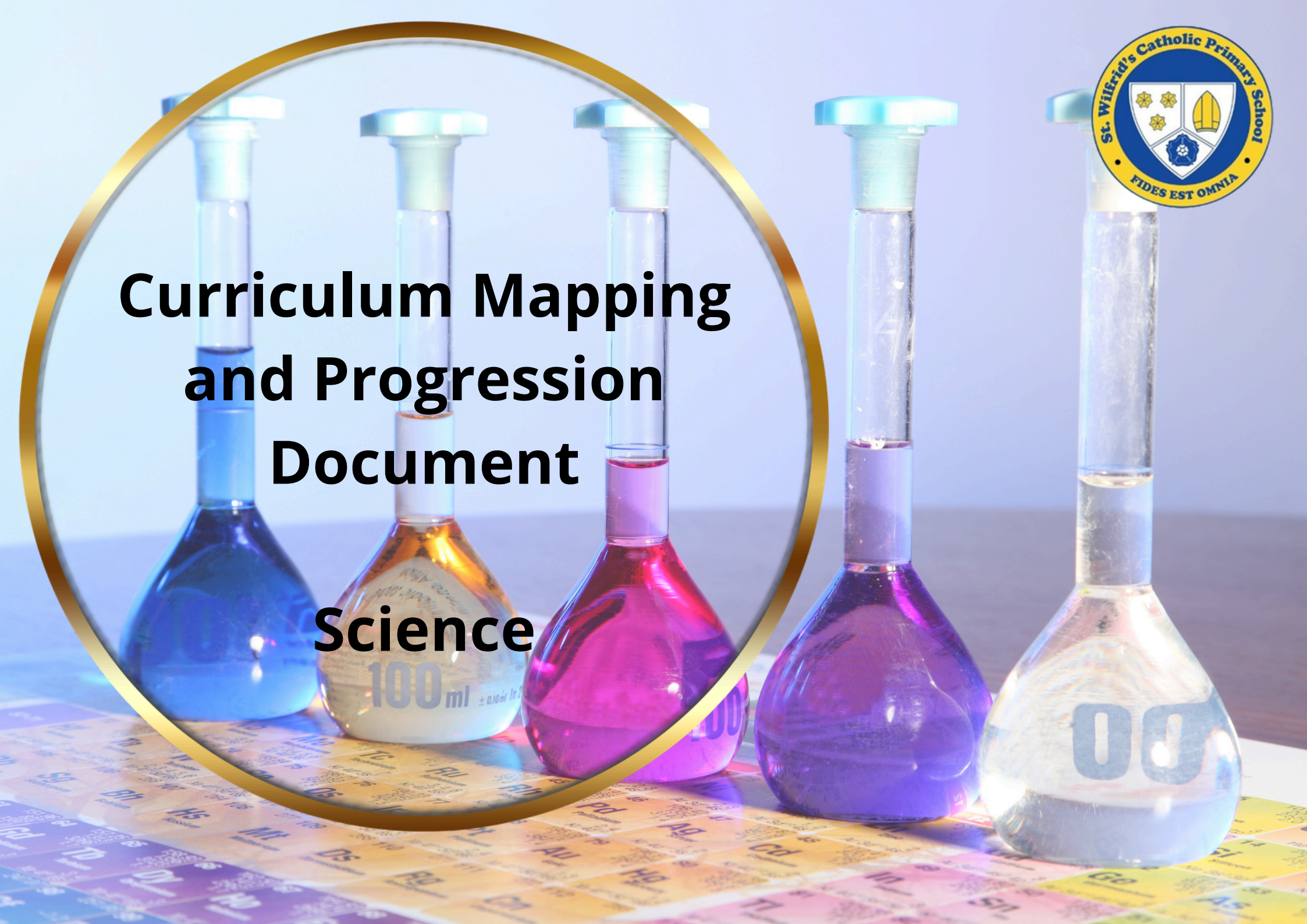


# Curriculum Mapping and Progression Document

## Science

# Vision for Science

Our science curriculum aims to give all children a strong understanding of the world around them whilst acquiring specific skills and knowledge to help them to think scientifically, to gain an understanding of scientific processes and also an understanding of the uses and implications of science, today and for the future.

## Our Science Curriculum Will Enable Pupils to:

- • develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future

# Intent

It is our vision to distil a lifelong love of science within our pupils. Science has changed our lives and is vital to the world's future prosperity. We work hard to provide a rich and varied curriculum to challenge and meet the needs of our children. We believe all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science.

From EYFS up to KS2 our pupils will build up a body of key foundational knowledge and concepts, pupils are encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena.

# Science in the Early Years Foundation Stage

The foundations of our Science curriculum begin in EYFS where our children explore and learn through a balance of pupil initiated investigation and adult led learning. Our EYFS class focuses on high quality interactions and a language rich environment preparing every pupil for transition into Year 1 and the National Curriculum.

| EYFS | Development Matters<br>3&4 Years will learn to: | Development Matters<br>Children in Reception will learn to: | Statutory Framework Early Learning Goals |
|---|---|---|---|
| **Understanding the world** | Use all their senses in hands-on exploration of natural materials.<br>Explore collections of materials with similar and/or different properties.<br>Begin to make sense of their own life-story and family's history.<br>Explore how things work.<br>Plant seeds and care for growing plants.<br>Understand the key features of the life cycle of a plant and an animal.<br>Begin to understand the need to respect and care for the natural environment and all living things.<br>Explore and talk about different forces they can feel.<br>Talk about the differences between materials and changes they notice. | Explore the natural world around them.<br>Describe what they see, hear and feel whilst outside.<br>Recognise some environments that are different to the one in which they live. Understand the effect of changing seasons on the natural world around them. | The Natural World<br>Explore the natural world around them, making observations and drawing pictures of animals and plants.<br>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.<br>Understand some imp+ortant processes and changes in the natural world around them, including the seasons and changing states of matter. |
| **Communication and Language** | Understand 'why' questions, like: "Why do you think the caterpillar got so fat?" | Learn new vocabulary.<br>Ask questions to find out more and to check what has been said to them<br>Use talk to work out problems and organise thinking and activities.<br>Explain how things work and why they might happen.<br>Use new vocabulary in different contexts | Make comments about what they have heard and ask questions to clarify their understanding. |

# Science in the Early Years Foundation Stage

| EYFS | Development Matters<br>3&4 Years will learn to: | Development Matters<br>Children in Reception will learn to: | Statutory Framework<br>Early Learning Goals |
|---|---|---|---|
| **PSED** | Make healthy choices about food, drink, activity and toothbrushing. | Know and talk about the different factors that support their overall health and wellbeing: regular physical activity, healthy eating, toothbrushing, sensible amounts of 'screen time', having a good sleep routine, being a safe pedestrian | PSED - Managing Self<br>Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. |
| **Topics** | **Autumn**<br>**All about me**<br>The human body: Facial features, body parts, the senses Seasons of the year; Autumn. Deciduous and evergreen trees. Observing leaves using magnifying glasses, leaves changing colour.<br>**Transport**<br>Forces: push, pull, twist Air transport Water transport Seasons of the year: Winter. Animal hibernation, why do some animals hibernate? How do other animals survive winter? Transport in the winter; snow ploughs, gritting roads, snow tyres. | **Spring**<br>**Space**<br>Our planet Earth, land and sea, plants and animals, weather, gravity. The moon, the sun, the planets in our solar system, space travel, astronauts. Seasons of the year: Spring. The first signs of spring; snowdrops, cherry blossom, buds and flowers, birds nesting, bees, lighter evenings.<br>**Growing and Changing**<br>How people change as they grow, how animals change as they grow. Life cycles of a butterfly and/or frog. Identify and draw the following animals and their babies.<br>Plants; how they grow from seeds and bulbs. What plants need to grow. Identify parts of plants including roots, stem and leaves. Identify trees and plants growing locally on the school grounds or in local parks. Draw pictures of local plants. | **Summer**<br>**Kings and Queens**<br>Seasons of the Year: Summer. Signs of summer; flowers, warmer days, light evenings, butterflies, bees, birds. Design a garden for the Queen; what could we grow? What would we include? Sketch some ideas and write about the design.<br>**Stories from the past**<br>Seasons of the Year: Summer. How we stay safe in the sun; sunscreen, hats, sunglasses. Safety around water. Changing state of matter; Why do our ice lollies melt? |

# Key Stage 1 Science and the National Curriculum

| Year Group | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
|---|---|---|---|---|---|---|
| **Year 1 National Curriculum Coverage** | • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense (NC Yr1) | • identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals<br>• identify and name a variety of common animals that are carnivores, herbivores and omnivores<br>• describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) (NC Yr1) | • observe changes across the 4 seasons<br>• observe and describe weather associated with the seasons and how day length varies (NC Yr1) | | • identify and name a variety of common wild and garden plants, including deciduous and evergreen trees<br>• identify and describe the basic structure of a variety of common flowering plants, including trees | • distinguish between an object and the material from which it is made<br>• identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock<br>• describe the simple physical properties of a variety of everyday materials<br>• compare and group together a variety of everyday materials on the basis of their simple physical properties |
| **Year 1 Topic and lesson sequence** | **The Human Body**<br>1. Introduction to Our Body and Our Senses<br>2. Eyes and Sight<br>3. Ears and Hearing 4. Touch, taste and smell<br>5. Understanding Sensory Impairment | **Animals and their Needs**<br>1. Amazing Animals (Introduction to Animals)<br>2. Grouping animals: Fish, amphibians, reptiles, birds and mammals<br>3. Grouping animals: carnivores, herbivores and omnivores<br>4. Animals as pets<br>5. Describing animals | **Seasons and Weather**<br>1. The four seasons<br>2. Tools to record the weather<br>3. Using a graph to show information about the weather<br>4. Clouds and what they tell us: cirrus, cumulus and stratus<br>5. Weather forecasting<br>6. Dangerous weather around the world | | **Plants**<br>1. What plants need<br>2. Parts of plants<br>3. Seeds<br>4. Deciduous and evergreen plants<br>5. Plants we eat | **Materials**<br>1. Everyday Materials<br>2. Properties of Materials<br>3. Uses of Materials<br>4. Magnets<br>5. Investigation |

# Key Stage 1 Science and the National Curriculum

| Year Group | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
|---|---|---|---|---|---|---|
| **Year 2 National Curriculum Coverage** | • notice that animals, including humans, have offspring which grow into adults<br>• find out about and describe the basic needs of animals, including humans, for survival (water, food and air)<br>• describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. | • differences between living, dead and never been alive<br>• 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<br>• identify and name a variety of plants and animals in their habitats, including microhabitats (NC Yr2) | • Children should be taught to:  Observe and describe how seeds and bulbs grow to mature plants  Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy | | identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching | |
| **Year 2 Topic and lesson sequence** | **The Human Body**<br>1. Animals, including humans, survival and offspring<br>2. The Skeletal System, The Muscular System and Exercise<br>3. The Digestive system and Healthy Eating<br>4. The Circulatory system<br>5. Germs, diseases and preventing illness | **Living Things and their Environments**<br>1. Dead or Alive<br>2. What is a habitat?<br>3. Rainforest and Desert habitats<br>4. Meadow habitats<br>5. Underground habitatss | **Plants**<br>1. Plants around us<br>2. Seeds and bulbs<br>3. Comparative test 1<br>4. Comparative test 2<br>5. Food and Farming | | **Materials**<br>1. Materials and their uses 2. George de Mestral and Velcro 3. Matter under the microscope 4. Changing Solid Objects 5. Liquids and their properties | |

# Key Stage 2 Science and the National Curriculum

| Year Group | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
|---|---|---|---|---|---|---|
| **Year 3 National Curriculum Coverage** | • 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<br>• identify that humans and some other animals have skeletons and muscles for support, protection and movement. | • compare and group together different kinds of rocks on the basis of their appearance and simple physical properties<br>• describe in simple terms how fossils are formed when things that have lived are trapped within rock<br>• recognise that soils are made from rocks and organic matter.<br>• | • Recognise that they need light in order to see things and that dark is the absence of light  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 an opaque object | Pupils should be taught to:<br>• identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers<br>• explore the requirements of plants for life and growth and how they vary from plant to plant<br>• investigate the way in which water is transported within plants | • compare how things move on different surfaces<br>• notice that some forces need contact between 2 objects, but magnetic forces can act at a distance<br>• observe how magnets attract or repel each other and attract some materials and not others<br>• 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<br>• describe magnets as having 2 poles<br>• predict whether 2 magnets will attract or repel each other, depending on which poles are facing<br>• | |
| **Year 3 Topic and lesson sequence** | **The Human Body**<br>1. The Muscular System<br>2. The Skeletal System<br>3. The Nervous System<br>4. Preparing to Eat<br>5. The Digestive System | **Rocks**<br>1. Sorting rocks<br>2. How Rocks are Formed<br>3. Permeability<br>4. Fossils<br>5. Soil | **Light**<br>1. Light and Dark<br>2. Transparent and Opaque Surfaces<br>3. Mirrors and Reflection<br>4. Part 1—Shadows<br>5. Part 2—Finding Patterns in Changing Shadows | **Plants**<br>1. Botany and Flowering Plants<br>2. Requirements for Life and Growth<br>3. Water Transportation in Plants<br>4. Pollination in Flowering Plants<br>5. Seed Dispersal | **Forces and Magnets**<br>1. Forces (Gravity)<br>2. Friction<br>3. Magnet<br>4. Magnetic Poles and Fields<br>5. Investigating the strength of magnets | |

# Key Stage 2 Science and the National Curriculum

| Year Group | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
|---|---|---|---|---|---|---|
| **Year 4 National Curriculum Coverage** | • Describe the simple functions of the basic parts of the digestive system in humans (NC Yr4) • Identify the different types of teeth in humans and their simple functions (NC Yr4) | | • Recognise that living things can be grouped in a variety of ways (NC Yr4)<br>• Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment (NC Yr4) | Pupils should be taught to:<br>• identify how sounds are made, associating some of them with something vibrating<br>• recognise that vibrations from sounds travel through a medium to the ear<br>• find patterns between the pitch of a sound and features of the object that produced it<br>• find patterns between the volume of a sound and the strength of the vibrations that produced it | • compare and group materials together, according to whether they are solids, liquids or gases<br>• 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)<br>• identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature | • identify common appliances that run on electricity<br>• construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers<br>• 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<br>• recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit<br>• recognise some common conductors and insulators, and associate metals with being good conductors |
| **Year 4 Topic and lesson sequence** | **The Human Body**<br>1. Cells and Nutrients<br>2. Teeth and Senses 3. Digestion<br>4. A Healthy Diet<br>5. Vitamins and Minerals | | **Classification**<br>1. Introduction to classification<br>2. Classes of vertebrates: Fish and Amphibians<br>3. Classes of vertebrates: Reptiles, Birds and Mammals<br>4. Classes of invertebrates: Insects, Arachnids and Molluscs<br>5. Classification of plants | **Sound**<br>1. What is sound?<br>2. Speed of sound<br>3. Qualities of sound—Pitch and Volume<br>4. Human Voice<br>5. Ears– How we Hear | **States of Matter**<br>1. States of Matter<br>2. Evaporation<br>3. Condensation<br>4. Precipitation<br>5. The Water Cycle | **Electricity**<br>1. Electrical Safety<br>2. Parts of a circuit<br>3. Switches<br>4. Thomas Edison and Lewis Latimer<br>5. Investigating conductive and non-conductive materials |

# Key Stage 2 Science and the National Curriculum

| Year Group | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
|---|---|---|---|---|---|---|
| **Year 5 National Curriculum Coverage** | • Describe the changes as humans develop to old age | • 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<br>• know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution<br>• Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating<br>• Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic<br>• Demonstrate that dissolving, mixing and changes of state are reversible changes (NC Yr5) | • describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird<br>• describe the life process of reproduction in some plants and animals | • explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object <br>• identify the effects of air resistance, water resistance and friction, that act between moving surfaces<br>• Recognize that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect (NC Y5). | • Describe the movement of the Earth and other planets relative to the sun in the solar system<br>• Describe the movement of the Moon relative to the Earth<br>• Describe the Sun, Earth and Moon as approximately spherical bodies<br>• Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. | |
| **Year 5 Topic and lesson sequence** | **The Human Body**<br>1. Gestation and Infancy<br>2. Adolescence and Puberty<br>3. Slowing Down<br>4. Growth in Humans and Animals | **Materials**<br>1. Properties of materials<br>2. Which material is best?<br>3. Solubility- which materials are most soluble/what solubility means<br>4. Separating mixtures- sieving, filtering, evaporating<br>5. Reversible changes- dissolving, mixing, change of state | **Living Things**<br>1. Life Cycles of Plants and Animals in our Local Area<br>2. Reproduction in Plants<br>3. Life Cycles of Mammals and Amphibians<br>4. Life Cycles of Insects and Bats<br>5. The Work of David Attenborough and Jane Goodall | **Forces**<br>1. Forces Including Gravity<br>2. Air Resistance, Water Resistance and Friction<br>3/4. Guided Investigation: Paper Drop<br>5. Pulleys, Gears and Levers | **Astronomy**<br>1. The Big Bang and the expanding universe<br>2. Gravity<br>3. Our Solar System<br>4. The Moon<br>5. Our Galactic neighbourhood | |

# Key Stage 2 Science and the National Curriculum

| Year Group | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
|---|---|---|---|---|---|---|
| **Year 6 National Curriculum Coverage** | • Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.<br>• Describe the ways in which nutrients and water are transported within animals, including humans.<br>• recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function | • Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals<br>• Give reasons for classifying plants and animals based on specific characteristics (NC Yr6) | • Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit<br>• Compare and give reasons for the variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off positions of switches<br>• Use recognized symbols when representing a simple circuit in a diagram | | • Recognise that light appears to travel in straight lines <br>• 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 <br>• 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 | • Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago<br>• Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents<br>• Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. |
| **Year 6 Topic and lesson sequence** | **The Human Body**<br>1. The Heart: Circulation of the Blood<br>2. Blood Vessels and Transport<br>3. Blood Pressure and Heart Rate<br>4. Heart Rate- an Investigation<br>5. Heart Rate– an Investigation continued | **Classification**<br>1. Classifying organisms<br>2. Cells: Plant and Animal cells<br>3. Taxonomy<br>4. Vertebrates<br>5. Invertebrates | **Electricity**<br>1. Simple Series Circuits<br>2. Voltage<br>3. Switches<br>4. Planning an Investigation<br>5. Investigation | | **Light**<br>1. How Light Travels<br>2. How We See<br>3. Shadows and Their Shapes<br>4. The Colour of Light<br>5. Making a Periscope | **Evolution**<br>1. Fossils and Mary Anning<br>2. Inheritance<br>3. Adaptation<br>4. Charles Darwin<br>5. Alfred Wallace |

# Early Years Foundation Stage Skills Coverage

## Early Years Science Skills Progression

| Development Matters 3&4 Years will learn to: | Development Matters Children in Reception will learn to: | Statutory Framework Early Learning Goals |
|---|---|---|
| • To explore the effect of physical activity on their bodies.<br>• To comment and ask questions about aspects of their familiar world, such as the place where they live or the natural world.<br>• To talk about some of the things they have observed, such as plants, animals, natural and found objects.<br>• To talk about why things happen and how things work.<br>• To develop an understanding of growth, decay and changes over time.<br>• To show care and concern for living things and the environment<br>• To begin to be interested in and describe the texture of things. | • To eat a healthy range of foodstuffs and understand a need for variety in food.<br>• To show some understanding that good practices with regard to exercise, eating, sleeping and hygiene can contribute to good health.<br>• To look closely at similarities, differences, patterns and change. | • To know the importance for good health of physical exercise and a healthy diet, and talk about ways to keep healthy and safe.<br>• To know about similarities and differences in relation to places, objects, materials and living things.<br>• Talk about the features of their own environment and how environments might very from one another. |

# Skills Progression in Working Scientifically

| Science Skill | Year 1 and 2 | Year 3 and 4 | Year 5 and 6 |
|---|---|---|---|
| **Asking questions and recognising that they can be answered in different ways** | **Asking simple questions and recognising that they can be answered in different ways**<br>• While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions.<br>• The children answer questions developed with the teacher often through a scenario.<br>• The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered. | **Asking relevant questions and using different types of scientific enquiries to answer them**<br>• The children consider their prior knowledge when asking questions. They independently use a range of question stems. Where appropriate, they answer these questions.<br>• The children answer questions posed by the teacher.<br>• Given a range of resources, the children decide for themselves how to gather evidence to answer the question. They recognise when secondary sources can be used to answer questions that cannot be answered through practical work. They identify the type of enquiry that they have chosen to answer their question. | **Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary**<br>• Children independently ask scientific questions. This may be stimulated by a scientific experience or involve asking further questions based on their developed understanding following an enquiry.<br>• Given a wide range of resources the children decide for themselves how to gather evidence to answer a scientific question. They choose a type of enquiry to carry out and justify their choice. They recognise how secondary sources can be used to answer questions that cannot be answered through practical work. |

# Skills Progression in Working Scientifically

| Science Skill | Year 1 and 2 | Year 3 and 4 | Year 5 and 6 |
|---|---|---|---|
| **Making observations and taking measurements** | **Observing closely, using simple equipment**<br>• Children explore the world around them. They make careful observations to support identification, comparison and noticing change. They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations.<br>• They begin to take measurements, initially by comparisons, then using non-standard units. | **Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers**<br>• The children make systematic and careful observations.<br>• They use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements | **Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate**<br>• The children select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale.<br>• During an enquiry, they make decisions e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in order to get accurate data (closer to the true value). |

# Skills Progression in Working Scientifically

| Science Skill | Year 1 and 2 | Year 3 and 4 | Year 5 and 6 |
|---|---|---|---|
| **Engaging in practical enquiry to answer questions** | **Performing simple tests**<br>• The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time. Identifying and classifying<br>• Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting.<br>• They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing | **Setting up simple practical enquiries, comparative and fair tests**<br>• The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher.<br>• They follow their plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking. | **Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary**<br>• The children select from a range of practical resources to gather evidence to answer their questions. They carry out fair tests, recognising and controlling variables. They decide what observations or measurements to make over time and for how long. They look for patterns and relationships using a suitable sample. |

# Skills Progression in Working Scientifically

| Science Skill | Year 1 and 2 | Year 3 and 4 | Year 5 and 6 |
|---|---|---|---|
| **Recording and presenting evidence** | **Gathering and recording data to help in answering questions**<br>• The children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing.<br>• They record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs.<br>• They classify using simple prepared tables and sorting rings. | **Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables**<br>• The children sometimes decide how to record and present evidence. They record their observation e.g. using photographs, videos, pictures, labelled diagrams or writing. They record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings). They record classifications e.g. using tables, Venn diagrams, Carroll diagrams.<br>• Children are supported to present the same data in different ways in order to help with answering the question. | **Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs**<br>• The children decide how to record and present evidence. They record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing. They record measurements e.g. using tables, tally charts, bar charts, line graphs and scatter graphs. They record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys.<br>• Children present the same data in different ways in order to help with answering the question. |

# Skills Progression in Working Scientifically

| Science Skill | Year 1 and 2 | Year 3 and 4 | Year 5 and 6 |
|---|---|---|---|
| **Answering questions and concluding** | **Using their observations and ideas to suggest answers to questions**<br>• Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources. | **Using straightforward scientific evidence to answer questions or to support their findings**<br>• Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. The answers are consistent with the evidence | **Identifying scientific evidence that has been used to support or refute ideas or arguments**<br>• Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. When doing this, they discuss whether other evidence e.g. from other groups, secondary sources and their scientific understanding, supports or refutes their answer.<br>• They talk about how their scientific ideas change due to new evidence that they have gathered.<br>• They talk about how new discoveries change scientific understanding |
| | **Using their observations and ideas to suggest answers to questions**<br>• The children recognise 'biggest and smallest', 'best and worst' etc. from their data. | **Identifying differences, similarities or changes related to simple scientific ideas and processes**<br>• Children interpret their data to generate simple comparative statements based on their evidence. They begin to identify naturally occurring patterns and causal relationships. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions<br>• They draw conclusions based on their evidence and current subject knowledge. | **Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations**<br>• In their conclusions, children: identify causal relationships and patterns in the natural world from their evidence; identify results that do not fit the overall pattern; and explain their findings using their subject knowledge |

# Skills Progression in Working Scientifically

| Science Skill | Year 1 and 2 | Year 3 and 4 | Year 5 and 6 |
|---|---|---|---|
| **Evaluating and raising further questions and predictions** | | **Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions**<br>• They identify ways in which they adapted their method as they progressed or how they would do it differently if they repeated the enquiry | **Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations**<br>• They evaluate, for example, the choice of method used, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources used.<br>• They identify any limitations that reduce the trust they have in their data. |
| | | **Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions**<br>• Children use their evidence to suggest values for different items tested using the same method e.g. the distance travelled by a car on an additional surface.<br>• Following a scientific experience, the children ask further questions which can be answered by extending the same enquiry. | **Using test results to make predictions to set up further comparative and fair tests**<br>• Children use the scientific knowledge gained from enquiry work to make predictions they can investigate using comparative and fair tests. |

# Skills Progression in Working Scientifically

| Science Skill | Year 1 and 2 | Year 3 and 4 | Year 5 and 6 |
|---|---|---|---|
| **Communicating their findings** | | **Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions**<br>• They communicate their findings to an audience both orally and in writing, using appropriate scientific vocabulary. | **Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations**<br>• They communicate their findings to an audience using relevant scientific language and illustrations |