

Science: EYFS

Birth – 3 Year Olds

- I can explore materials with different properties
- I can explore and respond to different natural phenomena, e.g., standing in the rain, splashing in puddles, seeing the Spring daffodils, etc.

3 – 4 Year Olds

- I can use all of my senses in hands-on exploration of natural materials
- I can explore collections of materials with similar and/or different properties
- I can talk about what I see, using a wide vocabulary
- I can explore how things work
- I can plant seeds and care for growing plants
- I understand the key features of the life cycle of a plant and an animal
- I am beginning to understand the need to respect and care for the natural environment and all living things
- I can explore and talk about different forces I can feel
- I can talk about the differences between materials and changes they notice
- I can understand why questions like; “Why do you think the caterpillar got so fat?”
- I can make healthy choices about food, drink, activity and tooth brushing.

Reception

- I can explore the natural world around me
- I can describe what I can see, hear and feel when outside
- I can recognise that some environments are different to the one in which I live
- I understand the effect of changing seasons on the natural world around them
- I can ask questions to find out more and to check what has been said to me.
- I can manage my own basic hygiene and personal needs, including dressing, going to the toilet, oral health and understanding the importance of healthy food choices.

Science: Year 1

Scientific Enquiry	Biology		Chemistry	Physics	
	Animals, including Humans	Plants	Everyday Materials	Seasonal Changes	
	Name common animals Carnivores, etc	Human body and senses	Common plants Plant structure	Properties of materials Grouping materials	The four seasons Seasonal weather
• I can ask simple questions and recognise that they can be answered in different ways • I can observe closely, using simple equipment Challenge: I can choose the best equipment for a job • I can perform simple tests Challenge: I can explain when a test is fair • I can identify and classify according to their properties • I can use my observations and ideas to suggest answers to questions • I can gather and record data to help in answering questions	• I can name a variety of animals, including fish, amphibians, reptiles, birds and mammals • I know how to classify a range of animals by amphibian, reptile, mammal, fish and birds Challenge: I can explain some features of each animal group • I can name a variety of common animals that are carnivores, herbivores and omnivores • I know and classify animals by what they eat (carnivore, herbivore and omnivore) • I know how to sort by living and non-living things Challenge: I can explain how I know something is living.	• I know the name of parts of the human body (head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) that can be seen Challenge: I can explain how each of my senses help me to stay safe • I know which part of the body is associated with each sense Challenge: I can make suggestions about what the main parts of my body are for	• I know and can name a variety of common wild and garden plants • I can name deciduous and evergreen trees Challenge: I can describe the difference between evergreen and deciduous trees • I know and can name the petals, stem, leaves and root of a plant • I know and can name the roots, trunk, branches and leaves of a tree	• I know the name of the materials an object is made from Challenge: I can explain why an object is made from a specific material • I can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock • I know about the properties of everyday materials • I can compare and group together a variety of everyday materials on the basis of their simple physical properties Challenge: I can perform simple tests to find out which material would be suitable for a given job.	• I can name the seasons Challenge: I can name an event or occasion that happens in each season • I know about the type of weather in each season • I can describe how day length varies Challenge: I can explain how day length varies across the four seasons

Science: Year 2

Scientific Enquiry	Biology			Chemistry	
	<i>All living things and their habitats</i>	<i>Animals, including Humans</i>	<i>Plants</i>	<i>Everyday Materials</i>	
	Alive or dead Habitats Adaptations Food chains	Animal reproduction Healthy living Basic needs	Plant and seed growth Plant reproduction. Keeping plants healthy	Identify different materials. Name everyday materials Properties of materials	Compare the use of different materials Compare movement on different surfaces
- I can ask simple questions and recognise that they can be answered in different ways - I can observe closely, using simple equipment - I can perform simple tests - I can identify and classify according to their properties Challenge: I can use my observations and ideas to suggest answers to questions - I can gather and record data to help in answering questions Challenge: I can use a range of simple secondary sources to find answers to a question.	- I can classify things by living, dead or never lived - I know how a specific habitat provides for the basic needs of things living there (plants and animals) - I can match living things to their habitat - I can name some different sources of food for animals - I know about and can explain a simple food chain Challenge: I can suggest why the plants in a habitat need the animals	- I know the basic stages in a life cycle for animals, (including humans) - I know that animals have offspring which grow into adults - I can describe the basic needs of animals for survival (water, food and air) - I know why exercise, a balanced diet and good hygiene are important for humans Challenge: I can identify a range of food according to basic food groups and can talk about the importance of a balanced diet	- I know and can explain how seeds and bulbs grow into plants - I know what plants need in order to grow and stay healthy (water, light & suitable temperature) Challenge: I can explain that different plants have different needs	I know how materials can be changed by squashing, bending, twisting and stretching Challenge: I can explain how the inventions and the discoveries of others have impacted on our lives today	I know why a material might or might not be used for a specific job

Science: Year 3

Scientific Enquiry	Biology		Chemistry	Physics		
	Animals, including Humans	Plants		Rocks	Forces	Light
	Skeleton and muscles Nutrition Exercise & health	Plant life Basic structure and functions	Life cycle Water transportation	Fossil formation Compare and group rocks Soils	Different forces Magnets	Reflections Shadows
• I can ask relevant questions and use different types of scientific enquiries to answer them • I can set up simple practical enquiries, comparative and fair tests • I can make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • I can gather, record, classify and present data in a variety of ways to help in answering questions • I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • I can identify differences, similarities or changes related to simple scientific ideas and processes • I can use straightforward scientific evidence to answer questions or to support my findings. Challenge: I can make and explain predictions	• I can identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat • I can identify that humans and some other animals have skeletons and muscles for support, protection and movement. Challenge: I can talk about what humans and animals need to stay healthy, showing an understanding of food groups and the nutrients humans need for a healthy diet and why we need them.	• I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers • I can explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant Challenge: I can identify and describe the stages of the life cycle of flowering plants.	• I can investigate the way in which water is transported within plants • I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. Challenge: I can explain how water moves through a plant.	• I can compare and group rocks based on their appearance and physical properties, giving reasons • I know how soil is made and how fossils are formed • I recognise that soils are made from rocks and organic matter • I know about and can explain the difference between sedimentary, metamorphic and igneous rock Challenge: I can identify the importance of Mary Anning's work to the field of palaeontology.	• I know about and can describe how objects move on different surfaces • I know how some forces require contact and others work at a distance (such as magnets) • I can observe how magnets attract and repel (and other materials) • I can predict whether magnets will attract or repel based on direction of poles • I can compare & group together everyday materials based on whether they are attracted to magnet & identify some magnetic materials. • I can describe magnets as having two different poles. Challenge: I can use a magnetic compass with 8-points.	• I recognise that we need light in order to see things and that dark is the absence of light • I notice that light is reflected from surfaces • I recognise that light from the sun can be dangerous and that there are ways to protect my eyes • I recognise that shadows are formed when the light from a light source is blocked by an opaque object • I can find patterns in the way that the size of shadows change. Challenge: I can understand and explain why the size of shadows change.

Science: Year 4

Scientific Enquiry	Biology		Chemistry	Physics	
	<i>Animals, including Humans</i>	<i>All living things and their habitats</i>	<i>States of Matter</i>	<i>Electricity</i>	<i>Sound</i>
	Digestive system Teeth Food chains	Grouping living things Classification keys Adaptation of living things	Compare and group materials Solids, liquids and gases Changing state Water cycle	Uses of electricity Simple circuits and switches Conductors and insulators	How sounds are made Sound vibrations Pitch and Volume
- I can ask relevant questions and use different types of scientific enquiries to answer them - I can set up simple practical enquiries, comparative and fair tests - I can make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers - I can gather, record, classify and present data in a variety of ways to help in answering questions - I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables - I can report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions - I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions - I can identify differences, similarities or changes related to simple scientific ideas and processes - I can use straightforward scientific evidence to answer questions or to support my findings. Challenge: I can make and record accurate representations of experiments	- I can identify and name the parts of the human digestive system - I know the simple functions of the organs in the human digestive system - I can identify and know the different types of human teeth - I know the functions of different human teeth - I can use and construct food chains to identify producers, predators and prey. Challenge: I can construct the digestive system and explain the function of each part	- I can use classification keys to group, identify and name living things in their local and wider environment - I can recognise that living things can be grouped in a variety of ways - I know that environment can change and that this can sometimes endanger living things Challenge: I can explain in detail how changes to the environment have affected endangered species	- I can compare and group materials together, according to whether they are solids, liquids or gases. - I can observe that some materials change state when they are heated or cooled and measure or research the temperature at which this happened in degrees Celsius. - I know the part played by evaporation and condensation in the water cycle and associate evaporation with temperature. Challenge: I can explain why a material's melting and freezing point is the same temperature	- I can identify and name appliances that require electricity to function - I can construct a simple series circuit - I can identify and name the components in a series circuit (including cells, wires, bulbs, switches and buzzers) - I can predict and test whether a lamp will light within a circuit (is it complete?) - I know the function of a switch and therefore whether a lamp lights in a simple circuit. - I know the difference between a conductor and an insulator; recognise metals as good conductors Challenge: I can explain why a circuit is incomplete	- I know how sound is made, associating some of them with vibrating - I know how sound travels from a source to our ears - I can find the patterns between pitch and the feature of the object producing a sound - I can find the patterns between the volume of a sound and the strength of the vibrations that produced it - I know the link between how loud a sound is and the distance from the object making that sound Challenge: I can explain why sounds travel better through solids than gases.

Science: Year 5

Scientific Enquiry	Biology		Chemistry	Physics	
	<i>All living things and their habitats</i>	<i>Animals, including Humans</i>	<i>Properties and changes in Materials</i>	<i>Forces</i>	<i>Earth & Space</i>
	Life cycles – plants and animals Reproductive processes Famous naturalists	Changes as humans develop from birth to old age	Compare properties of everyday materials Soluble/ dissolving Reversible and irreversible substances	Gravity Friction Forces and motion of mechanical devices	Movement of the Earth and the planets Movement of the Moon Night and day
- I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Challenge: I can make and explain predictions. Challenge: I can identify the dependent, independent and controlled variable. - I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate - I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs - I can use test results to make predictions to set up further comparative and fair tests - I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations Challenge: I can use scientific language to explain my findings. Challenge: I can use my findings to make generalisations and further predictions - I can identify scientific evidence that has been used to support or refute ideas or arguments	- I know the differences between life cycles of a mammal, an amphibian, an insect and a bird - I know the life process of reproduction in some plants Challenge: I can explain the difference between sexual and asexual reproduction. - I know the life process of reproduction in some animals. Challenge: I can describe the stages in sexual reproduction.	I can describe the changes as a human develops towards old age. Challenge: I can analyse the similarities and differences between how boys and girls experience puberty.	- I can compare and group materials based on their properties (e.g. hardness, solubility, transparency, conductivity, [electrical & thermal], and response to magnets - I can give reasons, based on evidence from comparative and fair tests for the particular uses of everyday materials, including metals, wood and plastic. - I know and can explain how a material dissolves to form a solution Challenge: I can explain why materials have dissolved in certain conditions. - I know and can show how to recover a substance from a solution - I can use my knowledge of solids, liquids and gases to decide how materials can be separated (e.g. through filtering, sieving and evaporating) Challenge: I can explain the most suitable processes to separate different materials. - I can demonstrate that dissolving, mixing and changes of state are reversible changes - I can explain how some changes result in the formation of a new material and that this is usually irreversible – include burning and acid on bicarbonate of soda	- I know what gravity is and the fact that it acts between things on Earth and the falling object Challenge: I can identify balanced and unbalanced forces. Challenge: I can identify the difference between mass and weight. - I can identify the effect of air and water resistance between moving surfaces - I can identify the effect of friction between moving surfaces - I can recognise that some mechanisms, including levers, pulleys and gears allow a smaller force to have a greater effect	- I know about and can explain the movement of the Earth and other planets relative to the Sun - I know about and can explain the movement of the Moon relative to the Earth - I know and can demonstrate how night and day are created using terms such as rotation - I can explain why the sun looks like it moves across the sky - I can describe the Sun, Earth and Moon (using the term spherical) Challenge: I can describe the different shapes the Earth was thought to be. Challenge: I can describe the features of some of the different planets.

Science: Year 6

Scientific Enquiry	Biology			Physics	
	<i>Animals, including Humans</i>	<i>All living things and their habitat</i>	<i>Evolution and Inheritance</i>	<i>Electricity</i>	<i>Light</i>
	The circulatory system Water transportation Impact of exercise on body	Classification of living things and the reasons for it	Identical and non identical off-spring Fossil evidence and evolution Adaptation and evolution	Electrical components Simple circuits Fuses and voltage	How light travels Reflection Ray models of light
- I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Challenge: I can identify and explain the variables they will control in an investigation. Challenge: I can set up accurate and reliable investigations. - I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate - I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Challenge: I can use the most appropriate graph to present my findings. - I can use test results to make predictions to set up further comparative and fair tests - I can report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations - I can identify scientific evidence that has been used to support or refute ideas or arguments	- I can identify and name the main parts of the human circulatory system - I can describe the function of the heart, blood vessels and blood - I recognise the impact of diet, exercise, drugs and lifestyle on the way our bodies function - I can describe the ways in which nutrients and water are transported within animals, including humans Challenge: I can understand how the circulatory and digestive system connect to transport water and nutrients throughout the body.	- I can classify living things into broad groups according to observable characteristics and based on similarities and differences including micro-organisms, plants and animals - I can give reasons for classifying plants and animals based on a specific characteristic Challenge: I can explain how living things are classified at each level of the Linnaean System.	- I recognise that living things have changed over time - I recognise that fossils can be used to find out about living things that inhabited the Earth millions of years ago - I recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents Challenge: I can explain in simple terms what genes and DNA are. Challenge: I can investigate the ethical issues of human intervention in the process of evolution by natural selection - I can identify how animals and plants are adapted to suit their environment in different ways - I can link adaptation over time to evolution	- I can compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and on/off position of switches - I can draw circuit diagrams using correct symbols - I know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer	- I recognise that light appears to travel in straight lines - I can explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes - I can use the idea of light travelling in straight lines to explain why shadows have the same shape as the objects that cast them - I can use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye Challenge: I can recognise that the angles of incidence and reflection are equal. Challenge: I can explain how light is refracted as it travels through glass or water.