Farnworth CE Primary School
Curriculum Map
Science

Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	**Visit to the forest school** **Autumn Pictures** **Diwali**	**Visit to the forest school** **Look closely at similarities, differences, patterns and change** **Christmas**	**Visit to the forest school** **Who can help us?** **Job roles** **Winter Pictures** **Chinese New Year**	**Visit to the forest school** **Signs of Spring** **Spring Pictures** **Cooking** **Life cycles**	**Visit to the forest school** **Summer Pictures** **Composting** **How do plants grow?**	**Visit to the forest school** **Recycling** **Changing State**
	Children in Reception			**Early Learning Goals**		
Science Knowledge and skills for EYFS	**Communication and Language** • Learn new vocabulary. • Ask questions to find out more and to check what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.	**Personal, Social and Emotional** • Know and talk about the different factors that support their overall health and wellbeing: • regular physical activity • healthy eating • tooth brushing • sensible amounts of 'screen time' • having a good sleep routine • being a safe pedestrian	**Understanding the World** • Explore the natural world around them. • Describe what they see, hear and feel while they are outside. • 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.	**Communication and Language – ELG** **Listening, Attention and Understanding** • Make comments about what they have heard and ask questions to clarify their understanding.	**Personal, Social and Emotional Development – ELG** **Managing Self** • Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.	**Understanding the World – ELG** **The Natural World** • Explore the natural world around them, making observations and drawing pictures of animals and plants. • 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. • Understand some important processes and changes in the natural world around

	• Use new vocabulary in different contexts.					them, including the seasons and changing states of matter
Year 1	**Animals including humans** **Name common animals** **Carnivores, etc** **Animals including humans** **Human body and senses** • 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 • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. **Working scientifically** • using their observations to compare and contrast animals at first hand or through videos and photographs describing how they identify and group them; • grouping animals according to what they eat; and using their senses to compare different textures, sounds and smells. • Exploring and answering questions related to the topic		**Everyday Materials** • Distinguish between an object and the materials 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 **Working scientifically** performing simple tests to **explore questions**, for example: What is the best material for an umbrella?		**Plants** • Identify and name a variety of common, wild and green plants, including deciduous and evergreen trees; • Identify and describe the basic structure of a variety of common flowering plants, including trees. **Working scientifically** • **observing closely**, perhaps using magnifying glasses, and **comparing and contrasting** familiar plants • **describing** how they were able to **identify and group** plants, and **drawing diagrams** showing the parts of different plants including trees • **keep records** of how plants have changed over time, for example the leaves falling off trees and buds opening; and **compare and contrast** what they have found out about different plants.	
Seasonal Changes (throughout the year)	• Observe changes across the four seasons; • Observe and describe weather associated with the seasons and how day length varies.					

Y2	**Use of Everyday materials** • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, rock, brick, 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. **Working scientifically** • comparing the uses of everyday materials in and around the school with materials found in other places • **observing** closely, **identifying** and **classifying** the uses of different materials and **recording their observations**	**Living things and their Habitats** • Explore and compare 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 plants and 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 **Working scientifically** • **sorting and classifying** things according to whether they are living, dead or were never alive, and **recording** their findings using charts • They should **describe** how they decided where to place things, **exploring questions** for example: Is a deciduous tree dead in winter?' and talk about ways of answering their questions. • **construct** a simple food chain that includes humans • **describe** the conditions in different habitats and micro-habitats and **find out** how the conditions affect the number and type(s) of plants and animals that live there	**Plants** • Observe and describe how seeds and bulbs grow into mature plants • Find out and describe how plants need water, light and suitable temperature to grow and stay healthy **Working scientifically** • **observing and recording**, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or **observing** similar plants at different stages of growth • setting up a **comparative test** to show that plants need light and water to stay healthy.	**Animals including Humans** • Know 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) • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. **Working scientifically** • **observing**, through video or first-hand **observation and measurement**, how different animals, including humans, grow • **asking questions** about what things animals need for survival and what humans need to stay healthy • **suggesting** ways to find answers to their questions.

Y3	**Rocks and soils** • 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 **Working scientifically** • make systematic and careful observations of different rocks • record findings using simple scientific language, drawings, labelled diagrams, keys of rocks and soils • gather, record, classify and present data in a variety of ways to help in answering questions • identify differences, similarities or changes to rocks and soils • report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • use straightforward scientific evidence to answer questions or to support their findings	**Forces and magnets** • compare how 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. **Working scientifically** • **comparing** how different things move and **grouping** them • **raising questions and carrying out tests** to find out how far things move on different surfaces and **gathering and recording data** to find answers their questions • **exploring** the strengths of different magnets and **finding a fair way to compare** them • **sorting materials** into those that are magnetic and those that are not • **looking for patterns** in the way that magnets behave in relation to each other and what might affect this, for example, the strength of the magnet or which pole faces another • **identifying** how these properties make magnets useful in everyday items and **suggesting** creative uses for different magnets.	**Animals including humans** • 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. **Working scientifically** • **identifying and grouping** animals with and without skeletons and **observing and comparing** their movement • **exploring ideas** about what would happen if humans did not have skeletons. **compare and contrast** the diets of different animals (including their pets) and decide ways of **grouping** them according to what they eat. • **research** different food groups and how they keep us healthy and **design** meals based on what they find out.	**Plants** • 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 • investigate the way in which water is transported within plants • explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. **Working scientifically** • **comparing** the effect of different factors on plant growth, for example, the amount of light, the amount of fertiliser • discovering how seeds are formed by **observing** the different stages of plant life cycles over a period of time • **looking for patterns** in the structure of fruits that relate to how the seeds are dispersed. o**bserve** how water is transported in plants,	**Light** • 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 a solid object • find patterns in the way that the size of shadows change **Working scientifically** **looking for patterns** in what happens to shadows when the light source moves or the distance between the light source and the object changes.

Y4	**Animals including humans** • Describe the simple functions of the basic parts of the digestive system in humans • Identify the different types of teeth in humans and their simple functions • Construct and interpret a variety of food chains, identifying producers, predators and prey. **Working scientifically** • **comparing** the teeth of carnivores and herbivores, and **suggesting reasons** for differences; • **finding out** what damages teeth and how to look after them. • **draw and discuss** their ideas about the digestive system and **compare** them with models or images.	**Living things and their habitats** • recognise that living things can be grouped in a variety of ways • explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment • recognise that environments can change and that this can sometimes pose dangers to living things. **Working scientifically** • using and making simple guides or keys to **explore and identify** local plants and animals • making a guide to local living things • **raising and answering questions** based on their **observations** of animals and what they have found out about other animals that they have researched.	**Sound** • identify how sounds are made, associating some of them with something vibrating • 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 • recognise that sounds get fainter as the distance from the sound source increases. **Working scientifically** • find patterns between the pitch of a sound and features of the object that produced it • Set up simple practical enquiries, comparative and fair tests • Make accurate measurements using a range of equipment, for example data loggers • Record findings using simple scientific language and drawings • Use results to draw simple conclusions and suggest improvements and predictions for setting up further tests	**Electricity** • 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. **Working scientifically** **observing patterns**, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.	**States of matter** • compare and group materials together, according to whether they are solids, liquids or gases • 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) • identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. **Working scientifically** •Gathering, recording and classifying materials into solid, liquid and gases •Identifying similarities and differences between items (e.g. all solids) •plan different types of scientific enquiries to answer questions, including recognising and controlling variables for size of 'puddles' •Take measurements using a range of scientific equipment like thermometer readings, measuring sizes of puddles •report and present findings from enquiries using write ups, graphs, tables. •Draw conclusions about findings

Y5	**Forces** • explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • identify the effects of air resistance, water resistance and friction, that act between moving surfaces • recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. **Working scientifically** • **exploring** and designing and making a variety of parachutes and **carrying out fair tests** to determine which designs are the most effective. • **explore** resistance in water by making and testing boats of different shapes. • design and make products that use levers, pulleys, gears and/or springs and **explore** their effects (DT engineering project)	**Properties of materials** • 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 • 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 • give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic • demonstrate that dissolving, mixing and changes of state are reversible changes • explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. **Working scientifically** • **carrying out tests** to answer questions, for example, Which materials would be the most effective for making a warm jacket? • **compare** materials in order to make a switch in a circuit. **observe and compare** the changes that take place, for example, when burning different materials or baking bread or cakes **research and discuss** how chemical changes have an impact on our lives, for example, cooking, and discuss the creative use of new materials such as polymers, super-sticky and super-thin materials	**Earth and Space** • 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 and the apparent movement of the sun across the sky. **Working scientifically** • Pattern Seeking e.g day/night etc • Identifying, Classifying and Grouping • Researching using secondary resources and present findings • Take measurements with increasing accuracy and precision (distances of planets)	**Living things – and their habitats** • 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 plants and animals. **Working scientifically** • **observing and comparing** the life cycles of plants and animals in their local environment with other plants and animals around the world • **asking pertinent questions and suggesting reasons** for similarities and differences. They might try to **grow** new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs • **observe** changes in an animal over a period of time **comparing** how different animals reproduce and grow	**Animals including humans** Describe the changes as humans develop to old age. **Working scientifically** Pupils could work scientifically by **researching** the gestation periods of other animals and **comparing** them with humans; by **finding out and recording** the length and mass of a baby as it grows.

Y6	**Electricity** • 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 **Working scientifically** • **systematically identifying** the effect of changing one component at a time in a circuit; • **designing and making** some useful circuit. (DT fairground ride)	**Light** • 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 light 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. **Working scientifically** • **deciding** where to place rear-view mirrors on cars • **designing and making** a periscope and using the idea that light appears to travel in straight lines to explain how it works • **investigate the relationship** between light sources, objects and shadows by using shadow puppets • extend their experience of light by **looking a range of phenomena** including rainbows, objects looking bent in water and coloured filters (they do not need to explain why these phenomena occur)	**Animals including humans** • 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. **Working scientifically** **exploring** the work of scientists and scientific **research** about the relationship between diet, exercise, drugs, lifestyle and health.	**Evolution and Inheritance** • 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 and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. **Working scientifically** • Identifying scientific evidence that has been used to support or refute ideas in evolution • Planning different types of scientific enquiries evolution of an animal • Presenting findings in a variety of ways e.g. non-chronological reports	**Living things and their habitats** • 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 • give reasons for classifying plants and animals based on specific characteristics. **Working scientifically** • using classification systems and keys to **identify** some animals and plants in the immediate environment. • **research** unfamiliar animals and plants from a broad range of other habitats and **decide** where they belong in the classification system.