'With Christ as our Guide, Learning Together, Loving God and Each Other, Becoming the Best We Can Be.'

Primary Phase Progression Map: Science

	EYFS	Key Stage 1		Lower Key Stage 2		Upper Key Stage 2	
	Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Plants	Talk about what they are doing and what their plant needs. Know how to look after living plants to help them grow. Recognise change in the plants as they grow and talk about what they can see. Bulb, shoot, leaf, roots, soil, sun, light, grow, change, autumn	Identify and name a variety of common wild and garden plants (at least 2 of each), including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants, including trees. Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, names of trees in the local area and names of garden and wild flowering plants in the local area.	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. Light, shade, sun, warm, cool, water, grow and 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. 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. Photosynthesis, pollen, insect/wind pollination, seed formation and seed dispersal (wind dispersal, animal dispersal and water dispersal).	***NOTE: National Curriculum statements in italics are from other linked topics.*** *Recognise that living things can be grouped in a variety of ways (Y4 - Living things and their habitats).* *Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment (Y4 – Living things and their habitats).* *Recognise that environments can change and that this can sometimes pose dangers to living things (Y4 - Living things and their habitats).*	***NOTE: National Curriculum statements in italics are from other linked topics.*** *Describe the life process of reproduction in some plants and animals (Y5 - Living things and their habitats).*	***NOTE: National Curriculum statements in italics are from other linked topics.*** *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 (Y6 - Living things and their habitats).* *Give reasons for classifying plants and animals based on specific characteristics (Y6 - Living things and their habitats).*

Animals, including humans	Notice that we are all different. Talk about the different parts of the body and what they can do. Notice that everybody's hair grows differently. Know that children have baby teeth that fall out and then adult teeth grow. Understand that the adult teeth will not grow back and must be taken care of. Know that teeth can be affected by sugary foods and need to be brushed twice a day. Know that the world is made up of different animals and plants. Know that some things are living and others are non-living. Know that animals change as they grow and have life cycles. Sort living things, into two simple groups, using given criteria. Communicate what they have learned through drawing or some other way of recording. Comment on how two animals, are similar or different from each other; notice and describe how they change as they grow.	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. Use the terms carnivore, omnivore and herbivore. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) identifying simple differences between them. Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, names of animals experienced first-hand from each vertebrate group, parts of the body including those linked to RHE teaching N.B. The children need to be able to name and identify a range of animals in each group e.g. name specific birds and fish. They do not need to use the terms mammal, reptiles etc. or know the key characteristics of each, although they will probably be able to identify birds and fish, based on their characteristics.	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). Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease and food types (examples – meat, fish, vegetables, bread, rice, pasta).	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. Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles and joints.	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. Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey and food chain	Describe the changes as humans develop to old age. Reproduce, puberty	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. Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs and lifestyle.

	Head, neck, shoulders, arms, legs, hips, feet, bones, skin, hair, teeth, cavity, healthy, clean						
Living things and their habitats	Notice that there are similarities and differences in the natural world. Notice that the natural environment and world around them supports them to live and grow. Think of ways to respect and care for the natural environment and all living things. Think about how to care for their immediate environment and the wider world. Know that there are different natural environments around the world that have specific characteristics such as deserts, forests, islands. Know that food needs the right environment to grow. Begin to understand that fruits and vegetables grow at different times of the year and come from different countries. Habitat, environment, desert, forest, sea, pond, wet, dry, needs, live, survive.		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 plants and animals in their habitats, including microhabitats. 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. Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, names of local habitats e.g. pond, woodland etc. and names of micro-habitats e.g. under logs, in bushes etc		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. Classification, classification keys, environment, habitat, human impact, positive, negative, migrate and hibernate.	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. Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs and cuttings.	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. Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering and non-flowering.

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. Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species and fossils.

Rocks	Investigate and play with different rocks and shells during choosing time, noticing similarities and differences. Smooth, bumpy, rough, shiny, hard.	***NOTE: National Curriculum statements in italics are from other linked topics:*** *Distinguish between an object and the material from which it is made (Y1 - Everyday materials).* *Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock (Y1 - Everyday materials).* *Describe the simple physical properties of a variety of everyday materials (Y1 - Everyday materials).* *Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials).*	***NOTE: National Curriculum statements in italics are from other linked topics:*** *Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses (Y2 - Uses of everyday materials).*	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. Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat and sandy/chalk/clay soil.			***NOTE: National Curriculum statements in italics are from other linked topics:*** *Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago (Y6 - Evolution and inheritance).*

Everyday materials	Use their senses and hands to explore natural materials in their environment and talk about what they see, hear, smell and touch. Discuss how different objects feel. Choose different objects on the basis of their properties when playing and constructing. Hard, soft, strong, bendy	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. Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through and not see-through.	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. Opaque, transparent and translucent, reflective, non-reflective, flexible and rigid. Shape, push, pushing, pull, puling, twist, twisting, squash, squashing, bend, bending, stretch and stretching.				

Properties and changes of materials	Know that there are important processes and changes that happen. Know that temperature can change materials in both reversible and irreversible ways such as melting ice or baking cakes. Melt, freeze, heat, bake, liquid, solid- hard, soft					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. Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-	

						reversible change, burning, rusting and new material.	
States of matter	Know that there are important processes and changes that happen. Know that temperature can change materials in both reversible and irreversible ways such as melting ice or baking cakes. Notice changes that happen in the natural world. Frozen, melt, warm, heat, freezing, bake, liquid, solid, rise, frost, fog, sun, dry.				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. Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature and water cycle.		

Light	Know that there is day and night. Begin to recognise that in Summer there are more hours of light. Notice they have a shadow, running and chasing their shadow in outdoor learning and making shadow drawings on the ground. Day, night, summer shadow.			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. Find patterns in the way that the size of shadows change. Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight and dangerous.			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. Straight lines, light rays.

Sound	Experiment with how sounds are made using pots, pans and musical instruments. Sound, loud, soft, high, low	***NOTE: National Curriculum statements in italics are from other linked topics:*** *Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense (Y1 - Animals, including humans).*			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. Sound, source, vibrate, vibration, travel, pitch (high/ low), volume, faint, loud and insulation.		

Forces and magnets	Experiment with magnets during play, noticing that they will stick to metal.		***NOTE: National Curriculum statements in italics are from other linked topics:*** *Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching (Y2 - Uses of everyday materials).*	Compare how things move on different surfaces. Notice that some forces need contact between 2 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 2 poles. Predict whether 2 magnets will attract or repel each other, depending on which poles are facing Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole and south pole.		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. Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys and gears.	

Seasonal Changes	Notice that plants and animals react to seasons in the way they grow and their natural life cycles. Talk about changes in the weather and say how we need to change what we wear as a result. Spring, summer, autumn, winter, change, cold, hot	Observe changes across the 4 seasons. Observe and describe weather associated with the seasons and how day length varies. Weather (sunny, rainy, windy, snowy etc.). Seasons (winter, summer, spring, autumn). Sun, sunrise, sunset and day length.		***NOTE: National Curriculum statements in italics are from other linked topics:*** *Recognise that light from the sun can be dangerous and that there are ways to protect their eyes (Y3 - Light).*		***NOTE: National Curriculum statements in italics are from other linked topics:*** *Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky (Y5 - Earth and space).*	
Earth and Space		***NOTE: National Curriculum statements in italics are from other linked topics:*** *Observe changes across the four seasons (Y1 - Seasonal changes).* *Observe and describe weather associated with the seasons and how day length varies (Y1 - Seasonal changes).*				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. Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit and planets.	

Electricity	Know that science helps us to develop equipment that makes our lives easier: cars, trains, planes, scanned tickets etc…				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. Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal and symbol. N.B. Children in Year 4 do not need to use standard symbols for electrical components, as this is taught in Year 6.		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. Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch and voltage. N.B. Children do not need to understand what voltage is but will use volts and voltage to describe different batteries. The words "cells" and "batteries" are now used interchangeably.

	Working Scientifically						
	Explore the natural world around them, making observations and drawing pictures of animals and plants.	**Ask simple questions and recognise that they can be answered in different ways** **Observe closely, using simple equipment** **Perform simple tests** **Identify and classify** **Use their observations and ideas to suggest answers to questions** **Gather and record data to help answer questions**		**Ask relevant questions and use different types of scientific enquiries to answer them** **Set up simple practical enquiries, comparative and fair tests** **Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers** **Gather, record, classify and present data in a variety of ways to help answer questions** **Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables** **Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions** **Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions** **Identify differences, similarities or changes related to simple scientific ideas and processes** **Use straightforward scientific evidence to answer questions or to support their findings.**		**Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary** **Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate** **Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs** **Use test results to make predictions to set up further comparative and fair tests** **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** **Identify scientific evidence that has been used to support or refute ideas or arguments**	
Observing	Describe what they see. Identify what is the same and what different. Ask simple questions about what they see.	Begin to make observations about what they see, hear, smell and feel. Ask more complex questions about what they see, hear, smell and feel.	Make observations using all their senses. Ask questions about the world around us and recognise that they can find answers in different ways.	Ask questions about their scientific topics. Observe detail carefully. Use different methods to answer questions, including research, observation and experiments.	Ask questions directly related to their science knowledge. Understand that they can use research, observation and experiments to answer their questions.	Understand that there are different types of scientific enquiry. Observing over time; identifying and classifying through observation; pattern seeking; Research; comparative or fair testing.	Identify which sort of enquiry they will use.
Predicting	Make guesses during play e.g. with water and floating.	Make simple guesses about what will happen.	Make predictions based on their questions.	Use both research and tests to try to answer questions, making predictions.	Make predictions based on scientific knowledge.	Plan a test based on a scientific prediction.	Choose the best type of enquiry to test a prediction, and say why.

Experimenting	Try out their guesses.	Use simple equipment with support.	Use simple equipment such as timers, rulers and magnifying glasses. Understand that a test should be fair.	Use more complex equipment such as data loggers with support. Start to identify ways to make a test fair.	Make decisions about the best way to answer their questions. Suggest what equipment they will need. Use thermometers and dataloggers. Measure using standard units. Identify what needs to be kept the same to make a test fair.	Understand that sometimes taking several measurements and averaging can make results more accurate. Choose and use equipment with precision. Explain which variables need to be controlled.	Make decisions to ensure that their results will be as trustable as possible – understand the idea of degree of trust. Identify when they may have made errors. Take repeat readings when necessary.
Analysing, conducting and classifying	Say what happened Start to use comparative terms e.g. bigger. Talk about changes.	Record data with support in drawing a table. Compare relevant objects or pictures with support. Use first hand experiences to suggest answers to questions.	Compare objects, and suggest ways of comparing or grouping them. Record data in a variety of ways, including a table and a diagram. Use observations and their knowledge to suggest answers to questions. Say what happened in an investigation.	Record data in tables, bar charts, and diagrams. State what they have found out, using their data or observations. Suggest how an investigation could have been improved.	Record data in tables, bar charts, keys, graphs and diagrams, starting to choose the best way to record it. See patterns in results, such as differences, similarities or changes, and describe them. Draw on their scientific knowledge to suggest further questions or explanations.	Choose a recording method that helps them analyse. Start to systematically analyse and compare their data. Use their scientific knowledge to draw conclusions e.g. develop keys, analyse data mathematically. Say whether they applied fair testing effectively.	Choose the best recording method and say why e.g. scientific diagrams, keys, tables, scatter graphs, line graphs. Systematically analyse and compare their data. Recognise when further tests are necessary. Understand that scientists' conclusions help their ideas to change over time.

'With Christ as our Guide, Learning Together, Loving God and Each Other, Becoming the Best We Can Be.'

Autumn 1	**All About Me** Our explorations of the world will start with our immediate environment of the classroom and the outdoor learning area. We will learn where everything lives and how we can find things and put them away. We will learn where all our belongings go and where we can go to the toilet and go for lunch and playtime. The children will learn about themselves and what makes them the same and different to others in their class. Through our RE topic of Creation, we will look carefully at how God created a world that we now need to look after. We will look at how God created land, sea and air and creatures that inhabit each environment. We will also look at ways to protect the environment and make homes for nature in our local environment of the outdoor area.	**Superheroes** We will spend some time looking at the different heightened senses and skills that many superheroes have and identify which part of the body each is associated with. Following this, our focus will switch to materials and their properties. We will look at the wide variety of everyday objects that Traction Man encounters in the focus text and identify the materials that they are made from. We will then explore and compare the properties of these different materials. Finally, the children will carry out simple tests to find the best material to help Traction Man with different jobs – the best material for his underwater dive suit and the best material to replace 'Poisonous Cloth' as a means to mopping up any spillages for example! They will explore the concept of magnetism as an alternative resolution to save the Spoons. These simple tests enable us to work scientifically by asking questions, observing and to classify.	**All at Sea** In their Science lessons, the children will explore the suitability of different materials in designing and making a floating raft. In particular, they will investigate which materials are waterproof, float, and are mouldable/flexible in order to manipulate into their required design shape. They will also learn about the development of the lifejacket, starting with Captain Ward's invention of the cork lifejacket in 1854.	**Funny Bones** The children will use to the vocabulary 'endoskeleton' and 'exoskeleton' to classify animals. They will compare animals with a skeleton to those without. During this topic the children will be learning about the human skeleton including the names of common bones and joints. We will begin by making our own pasta skeletons to represent the human skeleton. We will discuss why we chose certain shaped pasta for certain bones before linking this to their scientific names. We will learn that skeletons are needed for support, protection and movement. Following this we will compare the human skeleton to that of a wolf! We will compare our teeth to those of a wolf and suggest reasons for the differences, taking our diets into consideration. We will explore how both humans and wolves get their nutrition. In particular, for humans, we will research different food groups and how they keep us healthy.	**Awesome Australia** The children will investigate that most living things live in habitats to which they are well suited. They will explore and describe how the different habitats in Australia (e.g. desert, bush, Great Barrier Reef) provide for the basic needs of the animals and plants that live there. We will also consider how animals have adapted and evolved over time to survive the harsh living conditions. The children will consider grouping the animals in different ways e.g. where they live, what they eat, features. They will then create a classification grid. The children will then look at how habitats change over time *e.g. weather*, and the effect that this has on wildlife. They will find out how human behaviours impact both positively and negatively on different habitats *e.g. Australian fires, Tourists taking the reef, the positive effects of nature reserves.*	**Ancient Egypt** The children will consider the changes humans experience as they develop into old age. They will learn that the Ancient Egyptians used mummification to preserve a body so it could be transported to a spiritual afterlife. They will conduct their own investigation to explore if and how salt can be used to preserve a tomato!	**World at War** The children will explore the composition of our blood and the role it has to play in the human body. They will create their own anatomically correct model of the human heart, exploring its structure and function. They will then move on to investigate heart rates for varying levels of exertion. Next, the children will describe how the digestive system works and complete an investigation into how nutrients and water are transported around the body. They will look at how blood circulates around the body, identifying the three main types of blood vessel, their function and the way in which they are structured for this purpose. Finally, the children will consider how diet, exercise and lifestyle impact the human body. This will involve investigating the truths and myths surrounding the effects of drugs and alcohol on the human body.

'With Christ as our Guide, Learning Together, Loving God and Each Other, Becoming the Best We Can Be.'

Autumn 2	**Fantastic Food** This topic allows us to look closely at eating healthily and to ensure that we are doing enough exercise to keep our bodies happy and healthy. The children will make healthy food plates and be encouraged to make informed decisions about the food they eat. They will have the opportunity to taste different foods and will make healthy fruit kebabs in class. We will introduce them to some exotic fruits they may not have tried before! Through our discussions about food, we will begin to look at the right environment needed for different foods to grow. Children will begin to understand that fruits and vegetables grow at different times of the year and come from different countries. The children will begin to understand that there is a main Harvest time in England. This will be celebrated with a Harvest Festival. In the kitchen, the children will have the opportunity to make some bread. This will link to our learning all about harvest time. We will also plant some seasonal vegetables which should be ready to harvest in the spring and make typical food from other countries that have meaning to us:	**Out of Africa** The children will find out about the animals common to Africa and compare these to animals found in the UK. They will learn to group animals by talking about similarities and differences in their features.	**Meerkat Madness** The children will study meerkats as living things, developing their knowledge and understanding of what animals need in order to survive. They will learn about the feeding relationships of meerkats so that they can begin to read and write simple food chains. In the text, Sunny goes off in search of a new place to live but he learns that no-where is quite as perfect as home. The children will be finding out about how meerkats, and other animals, are suited to their habitats. In looking at Meerkat family groups, they will learn that animals have offspring that grow into adults.	**The Tin Forest** Stemming from the idea of a 'Tin Forest,' the children will consider what plants need in order to germinate. They will then conduct their own investigation to discover what they require to continue to grow into healthy plants. From this, the children will then be challenged to germinate their own seeds and nurture a healthy plant which will be added to our Tin Forest!	**The Rotten Romans** This half-term, the children will be learning all about 'Sound'. They will identify how sounds are made, linking this to the recognition of vibrations travelling through a medium to the ear. To build on their understanding of how sound is produced, the children will explore links between pitch, volume and strength in their own investigations. They will be tasked with creating and using sound as a weapon on the 'battlefield'. The investigation will be linked to 'war cries and wailing weapons' where they create frightening sounds to instil fear into their opponents.	**An Expedition to Antarctica** In Science, the children will investigate the properties of different materials including their thermal conductivity. They will set up and carry out an experiment in which they will investigate a range of materials to discover which is the best insulator. From their results, they will choose which material would be the most appropriate for an explorer to wear on a trip to the Antarctic! The children will also consider how animals from frozen climates stay warm by conducting their own 'blubber experiment'. Finally, the children will investigate ways in which they can keep ice colder for longer using different substances such as: hot and cold water, sugar and salt.	**Chocolate** In Science, the children will be challenged to design a festive advertisement for their own, complete with working bulbs and buzzers. The children will pitch their chocolate bars in our very own Dragons' Den where they will then use their advertisements to showcase their product. In preparation for this, the children will learn the circuit symbols to use when representing a simple electrical circuit in a diagram. They will then plan and carry out their own investigations into which materials are electrical conductors and which are insulators. The children will explore what happens to the brightness of a bulb or the volume of a buzzer when the number of cells or batteries within a circuit is increased or decreased. The children will use a data logger to take accurate and precise measurements and these will then be presented as a line graph. The knowledge gained from this should then aid the children with their chocolate advertisement designs. Finally, the children will hear from the dragons who challenge the children to make a last-minute design - to incorporate a dimmer switch into their electrical circuits using nothing other than a pencil. Confused? Graphite is the only non-metal conductor of electricity.

	Polish soup and Spanish rice. **Tooth Tales** Through our Tooth Fairy story, Children will be taught about tooth hygiene and how teeth can decay if not cleaned properly with a special tooth paste. We will also discuss general hygiene with regard the spread of germs and sing the 'wash your hands song' to remind us before we eat. We will look at the role of a dentist and how they have to have a good understanding of how the body works. We will listen to a dentist talk about their job. Then, as part of our mission set by the Tooth Fairy, we will teach older children how they should be brushing their teeth through videos that we record. We will investigate what effect sugary foods/drink have on teeth. One way we may do this is by describing a tooth before and after it is placed in a glass of coke for example.						

'With Christ as our Guide, Learning Together, Loving God and Each Other, Becoming the Best We Can Be.'

Spring 1	**Celebrations** Through our party planning, in which we will bake cupcakes and talk about new creations that make parties fun, the children will think about how things change as a result of deifferent processes. **Marvellous Monsters** Through gloop and slime play based on our Monster topic, along with monsters frozen in ice the children will use their senses to explore melting ice and notice changes that happen in the natural world.	**Frozen Planet** The children will observe British weather and consider the changes that take place across different seasons as winter sets in. They will explore the properties of ice and make close observations of it as it melts. They will also find out about animals that live in cold climates and investigate the role of blubber in keeping Penguins warm. They will wrap their hands in a variety of different materials before dipping them into icy water and make observations.	**Mini Master-chefs** The children will look at what humans need in order to survive and in order to grow into healthy adults. They will consider where Benny (the protagonist in the focus text) is going wrong – by eating the wrong foods in large amounts. The children will be challenged to educate Benny (and others like him) on the importance of exercise, eating the right amounts of different foods and good hygiene. They will also explore and investigate the effects of exercise on their bodies by creating their own investigations.	**The Savage Stone Age** The children will investigate the rock cycle, making our own 'crayon rocks' to find out how sedimentary, metamorphic and igneous rocks are formed. Then, they will compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. They will closely observe the rocks to see if they have grains, crystals or fossils within them. They will investigate what happens when rocks are rubbed together or what changes occur when they are in water. The children will then create 'edible cups' to represent and learn about the different layers of soil. They will study fossils collected from local beaches and then research the different living things whose fossils, learning how they were formed. Finally, they will observe different types of rocks, and explore how and why they might have changed over time.	**Water World** The children will explore a variety of everyday materials and develop simple descriptions of their states of matter. They will observe water as a solid, liquid and gas, noting the changes to water when it is heated or cooled as a change of state. They will observe evaporation over a period of time to investigate the effect of temperature. Following this, they will identify the part played by evaporation and condensation in the water cycle and describe each step in the water cycle in their own words.	**Invaders and Settlers** Farming was an incredibly important part of Anglo- Saxon life and was essential to their survival. The children will explore the life cycles of plants and animals, focusing on the reproduction stage.	**The Amazing Amazon** This half term, the children will be learning about living things and their habitats. We will start the topic by learning about Carl Linnaeus, a famous botanist and 'father of taxonomy', who was responsible for classifying plants and animals based on seven levels of classification. We will learn about the importance of classifying organisms depending on their kingdom, phylum, class, order, family, genus and species. As part of this, we will learn why micro-organism classifications are often more complex. We will then create our own classification diagrams using sweets. We will consider what common observable characteristics can be found between different sets of sweets before classifying these based on their similarities and differences. Following this, we will create our own classification systems for plants as well as animals. Finally, we will write our own scientific descriptions to help others recognise specific plants, animals and fungi.

Spring 2	**Terrific Transport** Whilst looking at developments in transportation, children will look at how engines and power have helped cars grow in popularity. The children will also look at Hot Air Balloons as a form of transport and develop their own hot air balloon with yeast and sugar a bottle and balloon. **It is Not a Box** Looking at the weather in our shared text, and the clothes the children are wearing, the children will be encouraged to think about how we dress for different weather and how we find shelter. The children will also be encouraged to look at different cloud formations and think about what they mean for our weather.	**Space** Nothing on planet Earth is familiar to Beegu – she is confused by the dancing leaves. In creating a guide to Earth, the children will identify a variety of common British plants and describe their basic structure. The children will be given their own bean seed and asked to suggest what it needs in order to grow. They will explore this idea, including wrapping bean seeds in a wet paper towel within a plastic bag. The children will record the journey of the seed and identify the different parts of the plant as they develop. Using plasticine and/or junk modelling, they will show their understanding of the basic structure of a flowering plant and be challenged to describe the function of each part in an information video for Beegu.	**Twisted Tales** Building on their learning from Year 1 and inspired by 'Jack and the Beanstalk,' the children will grow their own beanstalks. They will care for their developing plants under different conditions in order to investigate what plants need in order to grow and stay healthy.	**Tent-Tastic Tales** Whilst exploring different light sources, the children will recognise that they need light in order to see things and that dark is the absence of light. The children will understand how shadows are created as well as how they can be made to appear bigger and smaller, depending on how close or far away they are from the light source. Finally, the children will explore shadow puppetry and apply their scientific knowledge to create a show to retell one of the stories in our class text, Tales Told in Tents.	**Amazing Arachnids** The children will learn about the digestive system in humans. They will describe the simple functions of the basic parts. They will then compare our digestive systems to those of different farm animals. Then, they will look closely inside the human mouth to identify the different types of teeth that we have and their simple functions. They will consider the diets of different farm animals and compare their teeth to ours. Following this, they will construct and interpret a variety of food chains, identifying producers, predators and prey using the theme of farm animals. We will consider the impact of the food chain on the livestock at farms. Finally, the children will identify how habitats change throughout the year and recognise that sometimes this can pose a danger to living things. We will look at how farmers react to the seasonal changes to protect their livestock.	**Going for Gold** The children will explore reversible changes including: evaporating, filtering, sieving, melting and dissolving. They will apply their new knowledge to decide how best to separate gold from a solution as they take part in the gold rush! The children will also explore changes that are difficult to reverse when new materials are created. They will explore this through turning sperate ingredients into a new material – pasta!	**Winged Wonders** The children will explore the concept of evolution. They will first learn about genetics, focusing on inheritance and variations and then consider why we are all genetically unique before learning about dominant and recessive genes, focusing predominantly on how this translates to a person's eye colour. Much of our work will then centre on the 'Theory of Evolution', first proposed by Charles Darwin in his famous book, On the Origin of Species. Working practically, the children will simulate scenarios to explain why birds have adapted to have different shaped beaks just like Darwin first observed on the Galapagos Islands. As part of this, we will learn about natural selection and survival of the fittest. Following on from our investigations into animal adaptations, we will consider how the Theory of Evolution relates to humans by naming and tracing our earliest ancestors. The children will be able to explain some of the changes that have occurred, describing how the human race has evolved over millions of years. They will then learn about the process of fossilisation, explaining what fossils are and how they are formed. Finally, the children will identify examples of body and trace fossils, explaining what fossils can tell us about living things in the past and naming

							significant palaeontologists, such as Mary and Joseph Anning.
Summer 1	**New Life** Through our topic, New life, and the arrival of our duck eggs and caterpillars, the children will observe that animals change as they grow and have life cycles and use their own words to describe these changes. They will learn how to sort living things into two simple groups and comment on how two animals are similar or different from each other. **A Bug's Life** Through exploration of the outside area and soil, the children will search for minibeasts using magnifiers, considering the habitats they think would hide certain creatures. The children will always learn to put the creatures they find back into their original habitat.	**Dinosaurs** The children will revisit their learning from 'Animals, including humans' when they consider which varieties of common animals have descended from dinosaurs. They will also consolidate their understanding and use of the vocabulary carnivores, herbivores and omnivores when describing the diets of different dinosaurs. They will group animals today according to their diets (carnivores, herbivores and omnivores).	**Art Attack!** Using science, the children will create their own Art Attack! They will make careful observations and discover what happens when a paper towel is put into two cups which have been filled with different coloured water. The children will also observe the effect that pouring cold or warm water over a plate of skittles has and use their findings to create their own piece of art work!	**The Vile Victorians** The children will revisit their learning of plants and create a Victorian herb garden, considering the requirements of plants for life and growth. They will explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	Robots The children will construct simple electrical circuits using cells, wires, bulbs, switches and buzzers. They will investigate whether or not a lamp will light when the test conditions are changed and different components are added. They will also understand how switches can be used to open and close a circuit. This will bring the children to designing their own circuits to light up a feature of a model robot.	**The Space Race** To begin, the children will find out about the way that ideas about the solar system have developed, understanding how the geocentric model of the solar system gave way to the heliocentric model by considering the work of scientists such as Ptolemy and Copernicus. The children will carry out an in-depth exploration into our Solar System and explain how different aspects work. They will learn that the sun is a star at the centre of our solar system and that it has 8 planets. They will be introduced to and construct a model of the Sun and Earth which enables them to explain day and night. They will understand that a moon is a celestial body which orbits a planet.	**Ancient Greece!** Our learning will centre on light and how it travels to and around the world. The children will start by distinguishing between objects that are a light source and those that are not. They will then investigate how light travels, recognising that light can only travel in a straight line. The children will then explore how light can appear to change direction through the use of a mirror and reflections. They will work scientifically to explore this by conducting a range of investigations. Using this knowledge, they will then create a Labyrinth out of Lego with the aim of guiding Theseus through the twisting maze, using only a torch and mirrors. Finally, they will investigate how shadows are formed and why they have the same shape as the objects that cast them.

'With Christ as our Guide, Learning Together, Loving God and Each Other, Becoming the Best We Can Be.'

Summer 2	**Bog Baby** Building on our knowledge about habitats, that creatures need the right support and environment to thrive, we will look at the fictional 'Bog Baby' and think about the correct environment for him. **The Seaside** Through stories such as Billy Bucket, The Snail and the Whale, Tiddler, and Look what I have found at the seaside, the children will be encouraged to look at the different life forms we see in English waters and beyond. We will look at their habitats and how we can protect them. Through reading, 'Storm Whale' by Benji Davies, the children will be reminded that sea creatures need to be keep in their habitats too.	**The Magic Finger** Based on the plot of 'The Magic Finger,' the children will focus on the theme of bird conservation. They will identify and name a variety of common birds, including ducks. The children will explore our school grounds to observe animal behaviours and habitats. Recognising that birds like to eat insects, the children will investigate how we can encourage more insects to our outdoor areas, conducting a woodlice choice chamber for example. Their off-site trip to Hengistbury Head will allow the children to study further the variety of birds in our local area as well as the theme	**Fire! Fire!** Inspired by the bakery on Pudding Lane, the children will make their own bread, giving them the opportunity to explore how dough can be changed by squashing, twisting, bending and stretching before it is baked. They will continue to explore the properties of different materials and recognise the role that materials played in the spread of the Great Fire. They will use their acquired knowledge to consider the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.	**We Are Explorers** The children will explore how things move on different surfaces including The Green Ship! They will consider the different forces involved and discover that there two forces that don't need contact: gravity and magnetism. The children will experiment with magnets and observe how they attract and repel each other and attract some materials but not others. The children will examine a compass and learn how it uses magnets to work and guide explorers.	**The Terrible Tudors** Music was very important to the Tudors. Tudor musicians would play instruments such as the lute, the harp, the recorder, the virginals and the harpsichord. Building on their knowledge of sound, they will consider what these instruments look like and how they made sounds. The children will experiment how to make sounds louder or quieter in different instruments as well as discovering how the pitch of a sound can be changed.	**Forces in Motion** The children will explore a range of forces and mechanisms that are used in different fairground rides including the London Eye. By doing this, they will experience forces that make things begin to move, get faster or slow down. They will explore the effects of friction on movement and how it slows or stops moving objects. Following this, the children will apply their new knowledge to design and make a new ride.	**Will-i-am-Shakespeare** Building on their knowledge of light, the children will learn that we see things because of the way light travels from light sources to our eyes or from light sources to objects and then to our eyes. They will link this learning to our Shakespeare topic by exploring light and staging during one of Shakespeare's many plays. In addition to this, the children will also experience a range of secondary-based Science workshops from specialist secondary teachers where we will conduct a range of experiments and have a taster of what a secondary science lesson may involve.