Holy Trinity C of E Primary School
Science Curriculum Progression of Key Knowledge

	EYFS	KS1		KS2			
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
BIOLOGY	**Plants** Explore the natural world around them, making observations and drawing pictures of plants - Plants grow from seeds - A plant starts as a seed, grows into a small plant, and then makes new seeds to grow more plants - Plants need water, sunlight and soil to grow strong and healthy - In Autumn, leaves on some trees change colour and fall off *Plant, sun, water, soil, seeds*	**Plants** Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. - Know that a tree is a plant - Recognise the basic parts of a plant, including the roots, stem, leaves, and flowers - Different plants can grow together in the same place, like a garden - Deciduous trees lose their leaves in winter. Evergreen trees keep their leaves all year round. Identify and describe the basic structure of a variety of common flowering plants, including trees. - Seeds are 'dormant. They grow into plants - Fruits like apples and berries, and vegetables like carrots and peas are types of plants - If a bean is planted in soil it will usually grow and change in height, leaf growth and flower development. *Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud*	**Plants** Observe and describe how seeds and bulbs grow into mature plants - Seeds and bulbs grow into plants, but they look different and grow in different ways - Plants germinate from seeds or bulbs, grow, and produce more seeds Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy - Plants need water, light, and the right temperature to grow and stay healthy - Plants change to live in shade, the sun, or different temperatures like warm or cool places *As for year 1 plus - light, shade, sun, warm, cool, water, grow, healthy, germinate*	**Plants** Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers - Roots absorb water and nutrients, stems transport them, leaves produce food through photosynthesis, and flowers support reproduction - Water is transported through the plant from the roots to the leaves 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 - Plants need sunlight, water, and air to grow - Plants use a process called photosynthesis to make their own food - Identify and describe how factors like sunlight, water, and soil type can affect the growth of plants Investigate the way in which water is transported within plants - Water is transported through the plant from the roots to the leaves Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal - Flowers are important for plant reproduction; seeds are produced - Pollination is the transfer of pollen from one flower to another by insects or the wind - Seeds are dispersed by animals, wind, and water and dispersed to create new plants *Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal – wind dispersal, animal dispersal, water dispersal*			

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	EYFS	KS1		KS2			
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
BIOLOGY	**Animals inc. Humans** Explore the natural world around them, making observations and drawing pictures of animals - Animals are living things that can move, eat, and grow. - Animals live in different places like farms, forests, or oceans and need food, water, and shelter to survive. - Insects are small animals with six legs. Three body parts and often wings - Antennae are the thin feelers on insects that help them smell and feel - Invertebrates are animals with no backbone. Insects are a type of invertebrate. - A habitat is a place where an animal lives (e.g. garden, pond, forest) - Lifecycles are how an insect grows and changes - Pollination is when insects help move pollen between flowers so plants can grow Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices (PSED Link)	**Animals inc. Humans** Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals - Animals are living things. They can move around and feed themselves by eating plants and other animals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores - Some animals eat only meat, including other animals. They are called carnivores. - Some animals eat only plants. They are called herbivores. - Some animals eat both plants and meat. They are called omnivores. - Different groups of animals have different body parts to help them do different things. (i.e. birds have wings to help them fly) Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) - Mammals and birds are both animals. - Mammals are warm blooded and have fur or hair and feed their young milk. - Birds have feathers, wings and lay eggs. - Reptiles are cold-blooded animals that have dry, scaly skin and lay eggs on land, e.g. snakes, lizards, turtles, and crocodiles. - Fish are animals that live in water, breath through gills and lay eggs in water, e.g. salmon, tuna and goldfish	**Animals inc. Humans** 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) - Animals need water, food, air and shelter to stay alive - Humans need water, food, and air to live and grow Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene - Eating the right food types, like vegetables, bread, and meat, helps keep us healthy - A balanced diet includes different food groups like fruit, vegetables, and	**Animals inc. 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 - Each food group plays a role in keeping our bodies healthy - Food gives animals energy and nutrients that our bodies need to grow, stay healthy, and perform daily activities Identify that humans and some other animals have skeletons and muscles for support, protection and movement - Skeletons support, protect, and help movement	**Animals inc. Humans** Describe the simple functions of the basic parts of the digestive system in humans - The digestive system has organs like the mouth, oesophagus, stomach, and intestines that work together to break down food - The mouth chews food, the stomach mixes it with acids, and the intestines absorb nutrients. Identify the different types of teeth in humans and their simple functions - Humans have incisors for cutting, canines for tearing, and molars for grinding food. - Different liquids, like water and sugary drinks, can affect teeth by making them healthier or causing decay. Construct and interpret a variety of	**Animals inc. Humans** Describe the changes as humans develop to old age - Mammals go through key stages: birth, childhood, adolescence, adulthood, and old age - The gestation period is the time a mammal grows inside its mother before birth - A baby, or foetus, grows inside its mother and gets food and oxygen through the umbilical cord - During puberty, the body changes as it gets ready for adulthood, with hormones causing growth and development - In adulthood, people may grow stronger, but in old age, their bodies may slow down	**Animals inc. 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 - The heart is a muscle that pumps blood through blood vessels to deliver oxygen and nutrients around the body. - Blood vessels include arteries, veins, and capillaries, which carry blood to and from the heart and lungs. - Blood carries oxygen, carbon dioxide, nutrients, and water to help the body work. Describe the ways in which nutrients and water are transported within

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	- Eating healthy foods like fruits, vegetables, and drinking water helps keep your body strong. <u>Dental Care</u> 1. Children will develop an understanding of good oral hygiene 2. Know the importance of good dental care. - We need to brush our teeth twice a day to keep our teeth healthy 3. Know how to brush our own teeth and the importance of doing this - I use a toothbrush and toothpaste to brush my teeth - I need to brush my teeth front and back *tooth/teeth, toothbrush, toothpaste, brush, healthy, rinse* Aquafresh Shine Bright Dental Health session	- Amphibians are animals that are able to live on land and in water, e.g. frogs, toads and salamanders. - Pets can be kept in the home and looked after by humans. - Wild animals should not be kept as pets, they live freely in the wild and find their own food, water and shelter. RSE Link (Jigsaw Scheme) - Human and animal Life Cycles, Being Unique & Personal hygiene *Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves* **Senses** Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense - The human body has different parts like the head, arms, legs, eyes, ears, nose, and mouth, each with a special job - The eyes help us see things around us by detecting light and colours - the ears help us hear sounds, like music, talking, or animals - The tongue helps us taste different flavours like sweet, salty, sour, and bitter - Our skin (especially on our fingers) helps us feel things, like hot, cold, soft, or rough - The nose helps us smell different things, like flowers or food *Senses, touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue*	carbohydrates in the right amounts - Exercise helps our heartbeat and breathing stay strong and healthy - Good hygiene, like washing hands, keeps germs away and stops disease *Linked Text: Tadpole's Promise by Jeanne Willis* *Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples – meat, fish, vegetables, bread, rice, pasta)* Linked Texts: Funnybones by Janet & Allan Ahlberg	- The human skeleton supports the body, protects organs, and works with muscles to allow movement - Some animals have skeletons for support, protection, and movements while others so not. - Muscles pull bones to help them move *Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints*	food chains, identifying producers, predators and prey - A food chain shows how producers like plants are eaten by herbivores, and then by predators like carnivores. - A food web shows how producers, predators, and prey are all connected in nature. *Linked Text: The Little Mole Who Knew it was None of his business* *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, food chain*	and need more care *Vocab to be decided alongside PSHE puberty topic*	animals, including humans - The body moves water and nutrients through blood to keep muscles and organs healthy. - Your heart rate changes based on exercise, rest, and stress because your heart pumps faster or slower. - Drugs and alcohol can affect how your heart, lungs, and other parts of your body work. *Link to World War project - transfusions* *Linked Text: Pig Heart Boy* *Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs and lifestyle*

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	EYFS	KS1		KS2			
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
BIOLOGY	**Living Things and their Habitats** 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 - Animals are living things that can move, eat, and grow. - Animals live in different places like homes, forests and the sea - Nocturnal animals sleep in the day and move around at night time - Animals need food, water and air to stay healthy		**Living Things and their Habitats** Explore and compare the differences between things that are living, dead, and things that have never been alive - A living thing is something that is currently alive and needs food, air and water to stay alive. - Something that is dead was once living but is no longer alive. - A non-living thing is something that has 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 - Animals and plants live in habitats that are suited to their needs, like food and shelter - Environments change over time, and this can affect the animals and plants living there - Rainforests are home to many living things, but they are being damaged by things like cutting down trees, which affects the animals and plants. - The ocean is full of life, with animals and plants that all need water, food, and shelter to survive - The Arctic and Antarctic are very cold places, where special animals and plants live that can survive the freezing conditions		**Living Things and their Habitats** Recognise that living things can be grouped in a variety of ways - Living things live in different habitats that provide food, water, and shelter - We can study a habitat to learn about the plants and animals that live there Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment - Animals can be grouped into categories based on their features using classification keys - A classification key helps identify and group living things by their characteristics - Animals and plants have special adaptations that help them survive in their environment - Pond plants can be grouped by their appearance and how they grow in their habitat	**Living Things and their Habitats** Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird - Mammals are born as live young. - They grow through stages from baby to adult, where they can reproduce to make more babies - Insects and amphibians go through metamorphosis, changing from eggs to larvae, then to adults - Birds and reptiles lay eggs, which hatch into babies that grow into adults which can lay their own eggs Describe the life process of reproduction in some plants and animals - Plants grow from seeds and can reproduce by making new seeds or through methods like runners, bulbs, or cuttings	**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 - Living things are grouped based on similarities and differences in their characteristics - Carl Linnaeus was a scientist who developed a method used to name and classify living organisms. - Vertebrates are divided into classes such as mammals, birds, reptiles, amphibians and fish - Soil is home to many living things, like plants, fungi, insects, and tiny microorganisms

			Identify and name a variety of plants and animals in their habitats, including micro-habitats - Most living things live in habitats to which they are suited and can survive. 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 - Animals have suitable features that help them to move and find food in their habitat - The way that animals obtain their food from plants and other animals can be show in a food chain - Knows the journey of the food humans eat, from the field to the supermarket *Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, names of local habitats e.g. pond, woodland etc., names of micro-habitats e.g. under logs, in bushes etc.*		Recognise that environments can change and that this can sometimes pose dangers to living things - Ecosystems change with the seasons, affecting how animals and plants live - Cutting down trees (deforestation) harms habitats and the animals that live in them - Air pollution from factories and cars can harm living things and their environment - Water pollution from rubbish and chemicals can make rivers and seas unsafe for animals - We can save water by using it carefully to protect the environment - Humans can help nature by planting trees, cleaning rivers, and protecting animals *Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate*	*Linked Text: Charlotte's Web* *Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings*	- Fungi, like mushrooms, moulds, and yeasts, help break down dead plants and animals *Linked Text: Beetle Boy* 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*

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	EYFS	KS1		KS2			
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
BIOLOGY							**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 - Fossils show us how living things from the past were different from those today and help us understand how species have changed over time - Humans have changed over time, with fossil evidence showing how early humans adapted to their environment. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents - Offspring inherit characteristics from their parents but are not exact copies. These differences (variations) can affect how they look or behave. - Evolution explains how species change over time through adaptation and variation, helping them survive in their environment Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution - Animals have special adaptations (features or behaviours) to help them survive in their environment such as camouflage, thick fur or webbed feet - Plants have special adaptations too like spikes or thorns, waxy leaves or long roots. *Linked Text: One Smart Fish* *Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils*

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	EYFS	KS1		KS2			
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
CHEMISTRY	**Everyday Materials** Understand some important processes and changes in the natural world around them, including changing states of matter - The world around us changes, like the weather in the seasons, or when water becomes ice or steam. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function (EAD Link) - Some things, like ice, melt into water, and water can freeze into ice again.	**Everyday Materials** Distinguish between an object and the material from which it is made - Materials made from the same material, e.g. wood, can be grouped together. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock - Objects are made from materials including wood, plastic, glass, metal, water and rock. Describe the simple physical properties of a variety of everyday materials - Properties can have different properties. They can be hard, soft, shiny or dull. Compare and group together a variety of everyday materials on the basis of their simple physical properties - The choice of material depends on factors like how strong it is and what it looks like. - Different materials are used for different jobs based on their properties. - Some materials come from nature (natural) whilst others are made by humans (man-made) - If something is heavy it will sink, if it is light it will float.	**Uses of Everyday Materials** Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses - Identify materials like wood, metal, plastic, glass, brick, rock, paper, and cardboard - identify material's properties such as strength, flexibility, and transparency - Explain why certain materials (e.g., strong, sturdy materials like wood or metal) are better suited for building structures like bridges. - Know the historical figure Charles Macintosh used materials to make waterproof coats - Know that the historical figure John McAdam used materials to make smooth roads Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching (link to forces unit introduced in Year 3)			**Properties and Changes 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 - Evaporation separates a dissolved substance (solute) 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 - Dissolving, mixing, and changes of state can be reversed. *Linked Text: Itch, Kensuke's Kingdom* Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including	

		- We choose materials for specific purposes based on their properties, e.g. metal pots are made of metal as they conduct heat well - Strong materials like wood or brick can stand up to strong forces like wind. - Waterproof materials like tiles or thatch can protect structures from rain. - Glass is see through, hard and can break. - Glass is used for windows, bottles, and other objects that need to be see-through. - Different materials like wood, metal and plastic are used to make furniture. - Fabrics can be cotton, wool and polyester. - Fabrics have different properties; they can be soft, warm and waterproof and are used for different purposes, e.g. clothes, bedding *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, not see through*	- Identify materials that can be stretched (rubber bands, elastic) and those that cannot (wood, metal) - Materials can be changed by physical force (twisting, bending, squashing and stretching) *Names of materials – increased range from year 1* *Properties of materials - as for year 1 plus opaque, transparent and translucent, reflective, non-reflective, flexible, rigid, shape, push/pushing, pull/puling, twist/twisting, squash/squashing. Bend/bending, stretch/stretching*			changes associated with burning and the action of acid on bicarbonate of soda - Chemical reactions create new materials and are usually irreversible. - Reactions between acids and bicarbonate of soda produce new materials like gas bubbles. - Rusting is a chemical reaction between metal, water, and air, forming a new material. - Burning is an irreversible chemical reaction that creates new materials like ash and gases. *Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve reversible/non-reversible change, burning, rusting, new material*	

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	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
BIOLOGY				**Rocks** Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties - Igneous rocks are made when magma or lava cools and hardens, often forming crystals - Sedimentary rocks are made from layers of materials, while metamorphic rocks are formed by heat and pressure - Weathering breaks down rocks, and some are used for building because they are strong, e.g. marble - Water can break down rocks over time by soaking into them and causing them to crack or become softer Describe in simple terms how fossils are formed when things that have lived are trapped within rock - Fossils are made when living things are trapped in rock and change into stone over time Recognise that soils are made from rocks and organic matter - Soil is made from rocks and organic matter and can be sandy, chalky, or clay *Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil*			

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CHEMISTRY

EYFS	KS1		KS2			
Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
States of Matter Understand some important processes and changes in the natural world around them, including changing states of matter - The world around us changes, like the weather in the seasons, or when water becomes ice or steam. - Some things, like ice, melt into water, and water can freeze into ice again.				**States of Matter** Compare and group materials together, according to whether they are solids, liquids or gases - All materials are either solids, liquids, or gases. Solids keep their shape, liquids can flow and take the shape of their container, and gases spread to fill the space they are in - In solids, particles are tightly packed and don't move much. In liquids, particles move around each other. In gases, particles move quickly and spread out. 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) - When a solid like ice is heated, it melts and becomes a liquid at its melting point - Water freezes into ice at 0°C and boils into steam at 100°C. These are its freezing point and boiling point. Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature - When water is heated, it evaporates and turns into water vapor (gas). When gas cools, it condenses back into water (liquid) - The water cycle moves water around the Earth. Water evaporates into the air, condenses into clouds, and then falls as rain *Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle* Linked Texts: Plasma, Poem – What's the Matter		

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	EYFS	KS1		KS2			
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
PHYSICS	**Seasonal Changes and Weather** Understand some important processes and changes in the natural world around them, including changes in the seasons - Leaves on some trees change colour and fall off - Some animals hibernate - It gets darker earlier in the day - It gets colder and we need to wear warmer clothes - Day is when it's light outside and night is when it's dark - Daytime happens when the Sun is out, and night time happens when the Sun goes away - A whole day has two parts: daytime when we see the Sun, and night time when we sleep in the dark - When we are awake, people in other countries may be asleep - The world around us changes, like the weather in	**Seasonal Changes** Observe changes across the four seasons - There are four seasons in a year: Spring, Summer, Autumn, and Winter. - We see different changes in the weather in each season: spring, summer, autumn and winter. Observe and describe weather associated with the seasons and how day length varies - In Autumn the days get shorter and the nights get longer. - Autumn weather is often cooler and wetter, with leaves changing colour and falling from leaves - In winter it is cold and sometimes snows. The days are shorter and it gets dark earlier. - In Spring the weather gets warmer, days get longer and plants and trees start to grow. - In summer, the weather is often hot and sunny, and the days are longer with more daylight than in winter *Weather (sunny, rainy, windy, snowy etc.), seasons (Winter, Summer, Spring, Autumn), sun, sunrise, sunset, day length, monsoon, thunder storm*				**Earth and Space** Describe the movement of the Earth, and other planets, relative to the Sun in the solar system - The sun is the centre of the solar system. Earth, and the other plants, orbit the sun in an anti-clockwise direction. Describe the movement of the Moon relative to the Earth - The shape of the moon appears to change throughout each month. Describe the Sun, Earth and Moon as approximately spherical bodies - The plants in order from the Sun are: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky - The Sun does not actually move around Earth, rather it is Earth that rotates on its axis. - Day and night are due to the Earth rotating on its axis as it orbits the sun. *Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune) spherical, solar system, rotates, star, orbit, planets*	

	the seasons, or when water becomes ice or steam.						

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PHYSICS				**Light** Recognise that they need light in order to see things and that dark is the absence of light - We need light to be able to see. Darkness is where there is no light. Notice that light is reflected from surfaces - Light travels in a straight line - When light travels towards a surface and bounces off it, this is called reflected light. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes - Too much ultra violet light from the sun can be dangerous. There are ways to protect our eyes from the sun. Recognise that shadows are formed when the light from a light source is blocked by an opaque object - A shadow is a dark shape that is formed when an object which is opaque blocks light. Find patterns in the way that the size of shadows changes - Shadows change in size and direction throughout the day as the position of the Sun changes in the sky - The size of a shadow changes depending on the distance of an object from the light source. *Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous*			**Light** Recognise that light appears to travel in straight lines - Light travels in straight lines, and we can see it move from one place to another 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 - We see things because they either give out light or reflect light into our eyes 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 - Reflection happens when light bounces off an object, helping us see things like mirrors or water. - Light rays travel from the light source to the object and then into 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 - Shadows change in size and shape depending on where the light source is, and how far the object is from it. - Shadows look like the object because light travels in straight lines and blocks some of the light, creating a shadow in the shape of the object *As for year 3 plus straight lines, light rays.*

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PHYSICS				**Forces and Magnets** Compare how things move on different surfaces - Objects move differently on surfaces like carpet, wood, and tiles because of the amount of friction Notice that some forces need contact between two objects, but magnetic forces can act at a distance - Some forces, like pushing or pulling, need objects to touch - Magnetic forces can work from a distance Observe how magnets attract or repel each other and attract some materials and not others - Magnets attract some metals like iron and steel, but they don't attract materials like wood or plastic 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 - Magnets come in different shapes like bar magnets and horseshoe magnets, and they have a north pole and a south pole - Magnets are used in everyday objects like fridge doors and toy trains to help them stick together or move *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, south pole*		**Forces** Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object - Gravity is the force that pulls objects towards the Earth, and Isaac Newton explained how it works. Identify the effects of air resistance, water resistance and friction, that act between moving surfaces - Air resistance slows objects down, which is why parachutes help people land safely. - Water resistance slows objects in water, and smooth shapes help objects move through it more easily. - Friction happens when surfaces rub together; rough surfaces create more friction than smooth ones. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect - Levers, pulleys, and gears are simple machines that make it easier to lift or move heavy things. *Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears*	

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	EYFS	KS1		KS2			
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
PHYSICS	**Sound** Level 1 Phonics – Listening carefully, identifying rhyme, alliteration and initial sound To explore sound - which ones make loud/soft/high/low sounds? (creating a 'saucepan band'/musical washing line, making rice shakers/speaking tube) ***Linked Texts***: *Rumble in the Jungle by Giles Andreae* – can you make the same sounds as the animals?	**Sound** ***Linked Text***: *Peace at Last by Jill Murphy – what sounds kept Mr Bear awake?* *Linked Text: Funny Ears - learn how animals ears help them to hear*			**Sound** Identify how sounds are made, associating some of them with something vibrating - Sounds are made when an object vibrates. Recognise that vibrations from sounds travel through a medium to the ear - Sounds are heard when vibrations travel from the object through a medium to the ear. - Some materials are better at absorbing sound waves. These are called sound insulators. Find patterns between the pitch of a sound and features of the object that produced it - Pitch describes how low or high a sound is and can be measured using a sound meter. Find patterns between the volume of a sound and the strength of the vibrations that produced it - Large vibrations create loud sounds and small vibrations create quiet sounds. Recognise that sounds get fainter as the distance from the sound source increases - The volume of a sound depends on the distance from the sound source. The greater the distance, the quieter the sound, *Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation*		

Holy Trinity C of E Primary School
Science Curriculum Progression of Key Knowledge

	EYFS	KS1		KS2			
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
PHYSICS					**Electricity** Identify common appliances that run on electricity - Electrical appliances use electricity to work, and safety is important when handling them Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers - Series circuits have components like 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 - A lamp lights in a circuit only if it forms a complete loop with a battery - Changing components in a circuit, like adding a bulb or buzzer, alters how the circuit works Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit - Switches open and close circuits, controlling whether a lamp light Recognise some common conductors and insulators, and associate metals with being good conductors - Some materials like metal allow electricity to flow easily - these are called conductors. Other materials like plastic don't and these are called insulators *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, symbol*		**Electricity** Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit - Voltage is a measure of electrical push provided by a cell or other source of electricity. It is measured in volts. - Changing the voltage of batteries can affect the brightness of a bulb in a simple 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 - Variations to a circuit (e.g. adding other components or changing the position of a bulb) may affect the brightness of a bulb/loudness of a buzzer. Use recognised symbols when representing a simple circuit in a diagram - Circuit symbols help everybody to understand how the components in a circuit are connected together. *Linked Text: Goodnight Mr. Tom* *Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage - NB 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*