Skills & Knowledge Progression:

HAWKHURST
Church of England Primary School
Extending Horizons

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.'

– The National Curriculum, 2013

Embedding our Intent: Science

At Hawkhurst CEP School, we are committed to fostering the awe and wonder experienced at finding out about the world around us throughout children's science education. We endeavour to harness children's natural curiosity and support them in learning about the biological, physical and chemical processes in the world around us through practical experiences, subject specific vocabulary and making cross-curricular links.

At Hawkhurst CEP School we follow the Kent scheme of learning for science. This enables us to provide pupils with regular access to high-quality practical experiences and experiments using appropriate scientific equipment and materials. This scheme is structured in such a way that the children in Key Stage 1 and Key Stage 2 each follow the same unit of work for their respective key stage, with the skills used differentiated to reflect the attainment targets expected for each year group. This enables children to make clear progression in science and for all pupils to have the same opportunities to access resources and high-quality science lessons.

In the EYFS, children's science learning is through a combination of play and child-initiated activities and discrete science lessons. In this age phase children explore and learn about the world around them through identifying, classifying, observing and asking and answering questions. As children progress to Key Stage 1 they continue to develop these skills and additionally begin to use and understand data gathered as part of more structured scientific experiments and investigations. In Key Stage 2 children learn how to plan, present and analyse data gathered and evaluate their scientific work. They expand their knowledge of specialist vocabulary and are increasingly able to record their work in more formal ways.

All children also learn about key thinkers and scientists within the area of science they are studying, developing their appreciation of the historical, cultural and academic context of what they are learning about.

We are committed to ensuring all children in our school have equal opportunities to access learning and lessons are planned and taught in line with our SEN and inclusion policies, particularly within the STEM subjects.

Early Years Foundation Stage

The EYFS framework is structured very differently to the national curriculum as it is organised across seven areas of learning rather than subject areas. The aim of this document is to help demonstrate how the skills taught across EYFS feed into national curriculum subjects.

This document demonstrates which statements from the 2020 Development Matters are prerequisite skills for science within the national curriculum. The table below outlines the most relevant statements taken from the Early Learning Goals in the EYFS statutory framework and the Development Matters age ranges for Three and Four-Year-Olds and Reception to match the programme of study for science.

Science		
Three and Four-Year-Olds	Communication and Language	• Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"
	Physical Development	• Make healthy choices about food, drink, activity and toothbrushing.
	Understanding the World	• Use all their senses in hands-on exploration of natural materials. • Explore collections of materials with similar and/or different properties. • Talk about what they see, using a wide vocabulary. • Begin to make sense of their own life-story and family's history. • Explore how things work. • Plant seeds and care for growing plants. • Understand the key features of the life cycle of a plant and an animal. • Begin to understand the need to respect and care for the natural environment and all living things. • Explore and talk about different forces they can feel. • Talk about the differences between materials and changes they notice.

Reception	Communication and Language		• Learn new vocabulary. • Ask questions to find out more and to check what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to work out problems and organise thinking and activities. Explain how things work and why they might happen. • Use new vocabulary in different contexts
	Physical Development		• Know and talk about the different factors that support their overall health and wellbeing: • regular physical activity • healthy eating • toothbrushing • sensible amounts of 'screen time' • having a good sleep routine • being a safe pedestrian
	Understanding the World		• Explore the natural world around them. • Describe what they see, hear and feel while they are outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them.
ELG	Communication and Language	Listening, Attention and Understanding	• Make comments about what they have heard and ask questions to clarify their understanding
	Personal, Social and Emotional Development	Managing Self	• Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.

	Understanding the World	The Natural World	• Explore the natural world around them, making observations and drawing pictures of animals and plants. • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

My Learning Journey: Science Year 1		
Topic	**"I CAN"** These are all the skills I have learnt	**"I KNOW"** This is all the knowledge I have learnt
TERM 1 and 2 Changing Materials	I can distinguish between an object and the material from which it is made. I can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. I can describe the simple physical properties of a variety of everyday materials. I can compare and group together a variety of everyday materials on the basis of their physical properties. I can identify and classify. I can observe carefully, using simple equipment. I can ask simple questions and recognise that they can be answered in different ways. I can perform simple tests. I can record simple data in order to answer a question.	I know how to sort materials by their properties and they can be sorted into in different ways. I know the name of the material an object is made from. I know how to fill in a table with information I have found. I know how to make simple measurement. I know how to use my knowledge of materials and their physical properties to select appropriate materials for a job (I.e., selecting materials that are waterproof for a coat). I know that mixing some materials can cause a reaction. I know how to use my knowledge of materials to separate them (I.e. using magnets). I know that some materials can be recycled and reused. I know that some materials can decompose.

	I can make simple measurements with equipment (non-statutory).	I know that the density and gravity can cause a material to float or sink. I know that there can be a reaction to some materials if hot or cold is added to them (e.g., freezing and melting). **Concept Vocabulary**: materials, properties, experiment, test, data, measure, group. **Key Vocabulary**: wood, plastic, glass, metal, water, rock, brick, fabric, sand, paper, flour, butter, milk, soil, hard/soft, stretchy/not stretchy, shiny/dull, rough/smooth, bendy/not bendy, transparent/not transparent, sticky/not sticky, waterproof, crumble, squash, bend, stretch, twist, touch, see, hear, smell and taste
TERM 3 Animals including Humans	I can identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates. I can identify and name a variety of common animals that are carnivores, herbivores and omnivores. I can describe and compare the structure of a variety of common animals. I can identify, name draw and label the basic parts of the human body. I can record data in a table. I can observe closely, using simple equipment. I can record data in simple ways (Venn diagram/ chart/ table). I can sort and group animals with some help (non-statutory).	I know how to label a diagram. I know which part of the body is associated with each sense. I know the names of common animals including animals kept as pets. I know the names of each part of the human body. I know that I can find information about the animals in my environment by observing them. I know how to record data in a table and following the information it provides. I know how to categorise animals on a Venn diagram into their animal groups and identify which are carnivore, herbivores and omnivores. I know the physical structures of animals in each animal group. I know the difference between a vertebrate and an invertebrate.

		Concept Vocabulary: Birds, fish, amphibians, reptiles, mammals and invertebrates, vertebrates, feathers, scales, gills, fins, hair, land, water, backbone, skeleton, exoskeleton, carnivores, herbivores, omnivores, meat, plants **Key Vocabulary**: Common parts/structures of animals, Names of animals that can be found in the school grounds, Names of animals that the children keep as pets
TERM 4 Seasonal Change	I can observe and describe weather associated with the seasons and how day length varies. I can observe changes across the four seasons. I can ask simple questions and recognise that they can be answered in different ways. I can identify objects. I can perform simple tests. I can observe closely, using simple equipment. I can gather and record data to help answer a question.	I know what the weather is like in each season and I am beginning to understand why. I know that there are four seasons and their order. I know the names of the four seasons. I know how we can use devices to measure the weather. I know that we can record the weather daily to notice pattern. I know how to read a thermometer. I know that the amount of daylight is different in each season. I know some of the ways that nature (including animals) changes for each season. **Concept vocabulary**: Seasons; spring, summer, autumn, winter, weather, year, months, days, wet, damp, dry, temperature, degrees, thermometer, weather vane, anemometer **Key Vocabulary**: Hot, warm, mild, cold, sunny, cloudy, rain, sleet, snow, hail, thunder, lightning, rainbow, windy, breezy, gust, measurement, record, hibernation

TERMS 5 and 6 Plants	I can identify and describe the basic structure of a variety of common plants including roots, stem/trunk, leaves and flowers. I can identify and name a variety of common plants. I can classify trees as deciduous and evergreen. I can observe closely. I can ask simple questions and recognise that they can be answered in different ways. I can observe carefully using simple equipment. I can use parts of the plant to identify and classify it. I can use simple features of a plant to sort and group them (non-statutory). I can ask simple questions and recognise the ways in which they can be answered.	I know how to label a diagram. I know that plants have a similar structure. I know the name of different parts of a flower and a tree. I know the names of variety of plants. I know the names of the plants in my environment. I know how to make careful observations of the plants in my environment and how to use magnifying glasses to enhance my observations. I know how to group a variety of plants. I know the difference between deciduous and evergreen trees. I know what a plant needs to grow. I know how to observe the growth of a plant. I know how to collect data, put it into a graph/ chart and read the results. **Concept Vocabulary**: plants, nature, growth, classfy, identify, measurement, **Key Vocabulary**: Trees - deciduous, evergreen, ash, birch, beech, rowan, common lime, oak, sweet chestnut, horse chestnut, apple, willow, sycamore, fir, pine, holly, etc Wild flowering plants - cleavers, coltsfoot, daisy, dandelion, garlic mustard, mallow, mugwort, plantain, red clover, selfheal, shepherd's purse, sorrel, spear thistle, white campion, white deadnettle and yarrow. Garden plants – crocus, daffodil, bluebells, etc Parts of plants – roots, branch, trunk, stalk, leaf, flower, petal, seeds, bulbs and twigs, shoots

My Learning Journey: Science Year 2		
Topic	**"I CAN"** These are all the skills I have learnt	**"I KNOW"** This is all the knowledge I have learnt
TERM 1 and 2 Living things and their Habitats	I can Explore and compare the differences between things that are living, dead, and things that have never been alive. I can Identify and name a variety of plants and animals in their habitats, including micro-habitats. I can 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. I can observe closely using simple equipment such as a microscope and hand lens. I can gather information and record data in tally charts and bar charts. I can make observations and suggest answers to different questions.	I know the differences between things that are living, dead, and things that have never been alive. I know how to identify and name a variety of plants and animals in their habitats, including micro-habitats. I know how to identify and name a variety of plants and animals in their habitats, including micro-habitats. I know 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. I know how to 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. **Concept Vocabulary:** **Key Vocabulary**: Habitat, micro habitat, pond, meadow, log pile, woodland, river, lake, beach, cliff Organism – plant, animal Trees - deciduous, evergreen, ash, birch, beech, rowan, common lime, oak, sweet chestnut, horse chestnut, apple, willow, sycamore, fir, pine , holly, etc Wild flowering plants - cleavers, coltsfoot, daisy, dandelion, garlic mustard, mallow, mugwort, plantain, red

		clover, self heal, shepherd's purse, sorrel, spear thistle, white campion, white deadnettle and yarrow. Garden plants – crocus, daffodil, bluebells, etc Parts of plants – roots, branch, trunk, stalk, leaf, flower, petal, seeds, bulbs and twigs Invertebrates – snail, slug, woodlouse, spider, beetle, fly, etc Pond animals – pond skater, water slater, ramshorn snail, pond snail, leech, common frog, smooth newt, etc
TERM 3 Uses of Everyday Materials	I can Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	I know how to distinguish between an object and the material from which it is made. I know how to identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. I know how to be able to ask simple questions and recognise that they can be answered in different ways. I know how to use their observations and ideas to suggest answers to questions. I know how to gather and record data to help in answering questions. I know how to perform simple tests. I know how to use observations and ideas to suggest answers to questions. I know how to use simple measurements to gather data. I know how to be able to use simple secondary sources to find answers (non-statutory). I know how to talk about what I have found out and how they found it out (non-statutory).

		I know how the shapes of some solid objects can be changed by squashing, bending, twisting and stretching. **Key vocabulary**: wood, plastic, glass, metal, water, rock, brick, fabric, sand, paper, flour, butter, milk, soil Properties of materials: hard/soft, stretchy/not stretchy, shiny/dull, rough/smooth, bendy/not bendy, transparent/not transparent, sticky/not sticky Verbs associated with materials: crumble, squash, bend, stretch, twist
TERM 4 Plants	I can Observe and describe how seeds and bulbs grow into mature plants. I can Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	I know how to categorise different seeds I know how to observe plants closely using simple equipment. I know how bulbs grow into mature plants. I know how to observe and describe how seeds grow into mature plants. I know plants need water, light and a suitable temperature to grow and stay healthy. I know how to describe how plants need water, light and a suitable temperature to grow and stay healthy. I know the lifecycle of a plant. **Concept Vocabulary:** **Key Vocabulary**:
TERM 5 and 6 Animals including Humans	I can notice that animals, including humans, have offspring which grow into adults. I can find out about and describe the basic needs of animals, including humans, for survival (water, food and air). I can Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	I know that animals have offspring that grow into adults. I know that human offspring grow into adults. I know how be able to find out about and describe the basic needs of animals, including humans, for survival (water, food and air). I know the importance for humans of eating the right amounts of different types of food I know the importance for humans of exercise.

		I know the importance of human hygiene **Concept Vocabulary:** **Key Vocabulary**: Classification - Birds, fish, amphibians, reptiles, mammals and invertebrates Classification - Carnivores, herbivores, omnivores Stages of growth of many insects – egg, larva, pupa, adult Names of some invertebrates – ladybirds, butterflies, dragonflies, etc Names of some amphibians – smooth newt, common frog, toad Stages of life –baby, toddler, child, teenager, adult Life processes – growth, nutrition (feeding), respiration (breathing is part of this) Hygiene – clean, wash, germs Foods – healthy, grow, strong, energy

My Learning Journey: Science Year 3		
Topic	**"I CAN"** These are all the skills I have learnt	**"I KNOW"** This is all the knowledge I have learnt
TERM 1 Forces and Magnets	I can set up a simple fair-test. I can record findings in a bar chart. I can identify changes related to scientific ideas. I can use results to draw simple conclusions. I can provide an oral explanation of findings. I can make systematic and careful observations.	I know how to compare how things move on different surfaces. I know how to 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.

		I know how that some forces need contact between two objects, but magnetic forces can act at a distance. I know how to predict whether two magnets will attract or repel each other, depending on which poles are facing. I know how to observe how magnets attract or repel each other and attract some materials and not others. I know how to describe magnets as having two poles. **Concept Vocabulary:** **Key Vocabulary**: Magnets – bar and horseshoe Attract, repel North and south poles Magnetic Magnetic field
TERM 2 Rocks	I can make careful observations. I can set up simple comparative tests. I can measure using beakers and syringes. I can present information in a branching key.	I know how to compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. I know how to recognise that soils are made from rocks and organic matter. I know how to recognise that soils are made from rocks and organic matter. **Concept Vocabulary:** **Key Vocabulary**: Names of rocks – Chalk, limestone, granite, basalt, sandstone, flint, slate, shale, marble Types of rock – Sedimentary, metamorphic, igneous Types of minerals – Calcite, feldspar, topaz, diamond, talc, corundum Properties of rocks – Hard/soft, permeable/impermeable Processes – Heat, pressure, erosion, transportation, deposition, melt, solidify

		Size of rocks – Grain, pebbles Rock describing words – Crystals, layers Early areas of land – Gondwana, Pangea Land formations – Plates, volcanoes, mountains, valleys
TERM 3 Light	I can set up a simple fair test. I can make systematic and careful observations and measurements. I can record findings as drawings. I can record findings as a bar chart. I can make predictions for further values.	I know how to recognise that they need light in order to see things and that dark is the absence of light. I know how to notice that light is reflected from surfaces. I know how to recognise that light from the sun can be dangerous and that there are ways to protect their eyes. I know how to recognise that shadows are formed when the light from a light source is blocked by a solid object. I know how to find patterns in the way that the sizes of shadows change. **Concept Vocabulary:** **Key Vocabulary**: Simple comparisons: dark, dull, bright, very bright Comparative vocabulary: brighter, duller, and darker Superlative vocabulary: brightest, dullest, and darkest Opaque, translucent, transparent Shadow – block, absence of light Reflect – bounce, mirror, reflection See – light source, Sun – sunset, sunrise, position
TERM 4 and 5 Plants	I can set up a simple practical enquiry. I can make systematic and careful observations. I can gather and record data. I can use results to draw simple conclusions. I can use straightforward scientific evidence to answer questions or to support their findings.	I know how to identify and describe the function of the roots. I know how to investigate the ways in which water is transported within plants. I know how to identify and describe the function of the stem.

		I know how to identify and describe the function of the leaves. I know how to explore the requirements of plants for life and growth (air, light, water, nutrients from soil). I know how to identify and describe the function of the flower. **Concept Vocabulary:** **Key Vocabulary**: Trees - deciduous, evergreen, ash, birch, beech, rowan, common lime, oak, sweet chestnut, horse chestnut, apple, willow, sycamore, fir, pine , holly, etc Wild flowering plants - cleavers, coltsfoot, daisy, dandelion, garlic mustard, mallow, mugwort, plantain, red clover, self heal, shepherd's purse, sorrel, spear thistle, white campion, white deadnettle and yarrow. Garden plants – crocus, daffodil, bluebells, etc Parts of plants – roots, branch, trunk, stalk, leaf, flower, petal, seeds, bulbs and twigs Parts of a flower – petal, stamen (anther + filament), carpel (stigma + style + ovary + ovule) Processes – pollination, fertilisation, germination
TERM 6 Animals and Humans	I can record using drawings. I can report on findings from enquiries. I can use evidence to answer questions. I can set up a comparative test. I can record data in a table. I can identify the correct type of enquiry to answer a question. I can record data in a scatter graph (non-statutory).	I know that animals cannot make their own food. I know that animals, including humans, need the right amounts and types of food. I know the ways in which nutrients and water are transported within animals, including humans. I know that humans and some animals have skeletons and muscles for support, protection and movement. Concept Vocabulary: Key Vocabulary: Nutrition

		Diet Vitamins, minerals, fats, proteins and carbohydrates Functions of skeletons – protect, support and aid movement

My Learning Journey: Science Year 4		
Topic	**"I CAN"** These are all the skills I have learnt	**"I KNOW"** This is all the knowledge I have learnt
TERM 1 Sound	I can use a scientific enquiry to answer a question. I can set up a simple practical enquiry. I can make systematic and careful measurements with a data logger. I can report on findings from an enquiry. I can identify differences, similarities or changes related to simple scientific ideas. I can set up simple fair tests.	I know how sounds are made, associating some of them with something vibrating. I know that vibrations from a sound travel through a medium to the ear. I know that there are patterns between the pitch of a sound and features of the object that produced it. I know that there are patterns between the volume of a sound and the strength of the vibrations that produced it. I know that sounds get fainter as the distance from the sound source increases. **Concept Vocabulary:** **Key Vocabulary:** Ways to create sound – bang, blow, shake, and pluck Loudness – quiet, quieter, quietest, loud, louder and loudest Pitch - low, lower, lowest, high, higher, and highest Vibrations

		Source
TERM 2 Living things and their Habitats	I can gather, record, classify and present data in a variety of ways to help in answering questions. I can report on findings from enquiries, including oral and written explanations.	I know that living things can be grouped in a variety of ways. I know how to use classification keys to help group, identify and name a variety of living things in their local and wider environment. I know that environments can change and that this can sometimes pose dangers to living things. **Concept Vocabulary:** **Key Vocabulary**: Habitat, micro habitat Pond, meadow, log pile, woodland, river, lake, beach, cliff Organism – plant, animal Trees - deciduous, evergreen, ash, birch, beech, fir, pine, holly, etc Garden plants – daffodil, bluebells, etc Parts of plants – roots, branch, trunk, stalk, leaf, flower, petal, seeds, bulbs and twigs Invertebrates – snail, slug, woodlouse, spider, beetle, fly, etc
TERM 3 States of Matter	I can set up a fair test. I can set up a simple test. I can use results to draw simple conclusions. I can use a data logger to take accurate measurements. I can use a thermometer to take accurate measurements. I can provide a written explanation. I can use straightforward scientific evidence to answer questions or to support my findings.	I know how to compare and group materials together, according to whether they are solids, liquids or gases. I know 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). I know the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

		Concept Vocabulary: Key Vocabulary: Processes – Solid, liquid and gas Melting, condensation, evaporation, solidifying, freezing, water cycle, water vapour, steam, heating, cooling, oxygen, hydrogen, helium, carbon dioxide, petrol, oil, wood, rocks, metal, plastic, glass, wool, leather
TERM 4 Electricity	I can set up a simple practical enquiry. I can record findings using drawings. I can use results to make predictions	I know some common appliances that run on electricity. I know how to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. I know 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. I know some common conductors and insulators, and associate metals with being good conductors. I know that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Concept Vocabulary: Key Vocabulary: Electricity, Appliances: fridge, freezer, TV, computer, iron, kettle, series circuit Components: battery, bulb (lamp), bulb (lamp) holder, buzzer, crocodile clip, leads, wires, switch Describing words: brighter, duller, slow, fast, quiet, loud Conductor, insulator Effects of electricity: Light, sound, movement, heat Switches – open, close

TERM 6 Animals including Humans	I can record findings using labelled diagrams. I can use written explanations to report on findings from an enquiry. I can identify the correct type of enquiry to answer a question. I can set up a comparative test. I can use evidence to support findings.	I know how to describe the simple functions of the basic parts of the digestive system in humans. I know the different types of teeth in humans and their simple functions. **Concept Vocabulary:** **Key Vocabulary** Digestive system –, oesophagus, stomach, acid, small intestine Protein, vitamin, mineral, carbohydrate, fats, energy, growth, repair. Saliva Teeth – Incisors, canines, premolars, molars Function Foodchain – producer, consumer, predator, prey

My Learning Journey: Science **Year 5**		
Topic	**"I CAN"** These are all the skills I have learnt	**"I KNOW"** This is all the knowledge I have learnt
TERM 1 Earth and Space	I can plan a scientific enquiry to answer a question. I can report a presentation of an explanation.	I know how the Earth, and other planets, move in relation to the Sun in the solar system. I know that the Sun, Earth and Moon are approximately spherical bodies. I know how the moon moves in relation to the Earth. I know how the Earth's rotation creates night and day and makes the sun look like it moves across the sky. **Concept Vocabulary**: Day and night, Solar system, Phases of the Moon

		Key Vocabulary: Earth, axis, rotate, Planets = Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune (Pluto was classified as Dwarf planet in 2006), full moon, gibbous moon, half moon, crescent moon, new moon, waxing ,waning, Moon's orbit: 29.5 days, lunar month, orbit, planets, revolve, sphere
TERM 2 Properties and changing of Materials	I can take accurate measurements using a data-logger. I can measure accurately using a thermometer. I can record data in a line graph. I can use test results to make predictions to set up further comparative and fair tests. I can report and present findings from enquiries, including conclusions, causal relationships and explanations. I can plan a scientific enquiry that will answer a question. I can recognise control variables when planning a fair test. I can evaluate an enquiry in terms of the amount of trust one can have in it.	I know how to compare and group together everyday materials based on evidence from comparative and fair tests, including their conductivity of heat. I know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. I know how to use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. I know how to give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. I know how to demonstrate that dissolving, mixing and changes of state are reversible changes. I know 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. **Concept Vocabulary**: Thermal conductivity, Electrical conductivity, Dissolving, Separating materials **Key Vocabulary:** thermal conductor, thermal insulator electrical conductor, electrical insulator, solvent, solution, solute, soluble, insoluble, solid, liquid, particles, suspensions, sieve, filter, evaporate, condense

TERM 3 and 4 Forces and Magnetism	I can identify scientific evidence that has been used to support or refute ideas or arguments. I can take repeated accurate measurements using a stopwatch. I can explain the degree of trust in results. I can use test results to make predictions to set up further fair tests. I can plan a fair test; identifying the control variables.	I know that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. I know the effects of air resistance, water resistance and friction, that act between moving surfaces. I know how to recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. **Concept Vocabulary**: Types of force, Measuring force **Key Vocabulary**: gravity, friction, air resistance, upthrust, weight, Newton meter, Newtons (N), Particles, surface area, push, pull, balance, Mass – grams and kilograms
TERM 5 Animals and their Habitats	I can plan the correct enquiry to answer a question. I can recognise which secondary sources will be most useful to their research (non-statutory). I can use scientific diagrams and labels. I can explain findings.	I know the differences in the life cycles of a mammal, an amphibian, an insect and a bird. I know and can describe the life process of reproduction in some plants and animals. **Concept Vocabulary**: animals, animal development, parts of a flower, processes **Key Vocabulary:** amphibians, reptiles, birds, mammals, insects, fish, egg, larva, pupa, nymph, adult, metamorphosis, petal, stamen (anther + filament), carpel (stigma + style + ovary + ovule), pollination, fertilisation, germination
TERM 6	I can communicate data using a scatter graph. I can present conclusions. I can use evidence to refute or support an idea. I can record data within tables. I can record data using line graphs.	I know how to describe the changes as humans develop from birth to old age. **Concept Vocabulary**: Fertilisation, Gestation

		Key Vocabulary: Foetus, species, baby, toddler, adolescent, adult, elderly person, puberty, hormones, pituitary gland, testosterone, oestrogen

My Learning Journey: Science **Year 6**		
Topic	**"I CAN"** These are all the skills I have learnt	**"I KNOW"** This is all the knowledge I have learnt
TERM 1 Light	I can use scientific evidence to support or refute an idea. I can plan a scientific enquiry to answer a question. I can use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. I can use test results to make predictions to set up further comparative tests. I can explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. I can plan a fair test; recognising and controlling variables. I can report as to the degree of trust in our results.	I know that light appears to travel in straight lines and that when light changes in direction, the path is still continuous. I know that objects are seen because they give out or reflect light into the eye. I know how to draw diagrams using straight lines to show light reflecting off objects and into the eye. I know why shadows have the same shape as the objects that cast them. I know that although a shadow is the same shape as the object, it may not be the same size. I know that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. I know that some objects may be better reflectors than others. **Key vocabulary**: absence of light, shadow, mirror, straight lines, reflection, refraction (opaque, transparent,

		translucent, reflection, light source, absence, position, block, bounce)
TERM 2 Evolution and Inheritance	I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. I can identify scientific evidence that has been used to support or refute ideas or arguments. I can plan an enquiry that will answer a question I can record data in a table. I can measure with a data logger. I can present findings from an enquiry. I can recognise which secondary sources will be most useful to research ideas.	I know that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. I know possible reasons for changes to living things over time, e.g. why penguins can't fly but are good at swimming. I know that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. I know that selective breeding may result in offspring with certain features, e.g. pedigree dogs with a certain shape or colour. I know how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. I can give examples of living things that have evolved in different ways, e.g. different types of finch. **Key vocabulary**: offspring, characteristics, evolution, adaptation, inherited, genetics, genes, environmental
TERM 3 & 4 Electricity	I can recognise symbols when representing a simple circuit in a diagram. I can take repeated measurements of data with precision using a data-logger. I can explain the degree of trust that can be had in results. I can plan a fair test by recognising the control variables. I can use predictions to set up fair tests.	I understand the link between the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. I know the variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. I know the effect of changing the order of the components in a circuit.

		I know how to use recognised symbols when representing a simple circuit in a diagram. I know how to design circuits using symbols. **Key vocabulary**: electricity, volts, series circuit, resistance, bulb, wires (conductor, insulator, series circuit, switch, battery, lamp, buzzer, movement, heat, light, bright, dim, flow)
Term 5 Living things and their habitats	I can give reasons for classifying plants and animals based on specific characteristics. I can make a key to classify plants. I can identify specific evidence that has been used to support or refute ideas or arguments.	I know how living things are classified into broad groups according to common observable characteristics. Explore why some living things, such as the duck billed platypus, don't neatly fit into one group. I know specific characteristics to explain why plants and animals have been classified in a particular way and can explain why other features are less useful as a basis for classification, such as size or colour. Key vocabulary: vertebrate, invertebrate, feathers, scales, kingdoms, classes, order, kingdom, classification (pond, meadow, woodland, river, organism, classification, adaptation, classification key, vertebrates, birds, amphibians, mammals, reptiles, invertebrates, habitat, micro habitat, organism, deciduous, evergreen, invertebrates, roots, branch, trunk, stalk, bulbs)
Term 6 Animals including Humans	I can explain the functions of the heart, blood vessels and blood. I can describe the ways in which nutrients and water are transported within animals, including humans. I can plan a pattern-seeking enquiry. I can report causal relationships. I can record results using a line graph.	I know the main parts of the human circulatory system, and can describe the functions of the heart, blood vessels and blood. I know some characteristics of the heart, blood vessels and blood, e.g. explain that the arteries are thicker because they carry blood at a higher pressure. I know the impact of diet, exercise, drugs and lifestyle on

	I can present findings from enquiries.	the way my body functions. I know how decisions about lifestyle can affect the quality of life, e.g. recognise that making excessive use of convenience foods may introduce more additives into the diet. I know the ways in which nutrients and water are transported within animals, including humans. I know the ways in which nutrients and water are transported in two animals that are quite different.