Hillcross Primary Science Curriculum

EYFS

Reception

		Autumn 1:	Autumn 2:	Spring 1:	Spring 2:	Summer 1:	Summer 2: Whole School Topic
Natural World **(Science)**	**Progression of skills** **EYFS Statutory Framework** **Birth To five matters** **Development Matters**	**Nature-** Natural world materials - Seasons **Animals-** ourselves and body parts • Explore the natural world around them, making observations and drawing pictures of animals and plant ○ **Recognising Natural materials** - in the world- Tree map - sorting ○ *Link to Science*- **Seasons - Autumn**- Explore the natural world- ○ **Our body**- labelling- similarities and difference • Can talk about some of the things they have observed such as plants, animals, natural and found objects **(Range 4)**	**Nature-** Weather, Countries around the world, **Materials -**changing state cooking • Know some similarities and differences between the natural world around them and contrasting environments ○ *Link to families and countries visited* ○ *Link to weather- different types/ investigating rain/ wind* • Talk about the differences between materials and changes they notice. ○ **Materials** -cooking – combining different ingredients, and then cooling or heating (cooking) them	**Materials -** clothing & waterproof, hot and cold- **Nature-** weather- hot and cold- around world**. Animals-** general grouping • Understand some important processes and changes in the seasons and changing states of matter ○ **Change state of materials** - Freezing & melting- Hot/ cold- ○ **Materials-** waterproof and non-waterproof ○ **Clothing** - focus on weather - • Shows care and concern for living things and the environment **(Range 5)** ○ **Animals** - Baby and Adult - changes	**Materials-** categorizing, floating and sinking, **Animals-** Life cycles • Know some similarities and differences- **Materials focus** ○ **Floating/ sinking-** materials properties- Vehicles ○ **Grouping materials** - Metal/ plastic/ wood/ stone/ fabric • Shows care and concern for living things and the environment • Talks about why things happen and how things work **(Range 5)** ○ **Animals** -Life cycles- Baby Chicks	**Materials**- dark and light- see through- **Animals Habitats** • Explore the natural world around them, making observations and drawing pictures of animals and plants Compare/ contrast- **light/ Dark-** link to animals/ day and night/ events. • Explore how you can shine light through some materials, but not others. Investigate shadows. • Shows care and concern for living things and the environment **(Range 5)** ○ **Plants -** linked to spring and changing of plants and trees	• Explore the natural world around them, making observations and drawing pics of animals and plants. ➔ Developing an understanding of growth, decay and changes over time ➔ Teeth & dental care ➔ Growing as Human ➔ Healthy lifestyles • Makes observations of animals and plants and explains why some things occur, and talks about changes • Understand the effect of changing seasons on the natural world • children to observe how animals behave differently as the seasons change
	Vocabulary	**Change, Natural materials, plants, Seasons,**	**Change, Natural materials, plants, Seasons,**	**Change, Natural materials, plants Seasons, Weather, Melt, freeze, Animals**	**Change, Natural materials, plants Seasons, Weather, Melt, freeze, Animals,** Life cycle,	**Change, Natural materials, plants Seasons, Weather, Melt, freeze, Animals,** Life cycle, **light, dark, day, night, Shadow**	**Change, Natural materials, plants Seasons, Weather, Melt, freeze, Animals,** Life **cycle, light, dark, day, night, Shadow Human, growing, cause, decay,**
	Science Progression & Outcome (To be completed across topic)	**Biology** - Animals- Our body/ labelling **Investigation skill-** Identifying & Classifying **(Observations & work sample- / C&L and Mark making link)**	**Biology** - Weather experiment - different types- wind/ rain **Investigation Skill:** Researching **(Observations - outside role)**	**Biology -** Animals- Baby & Adult **-** Naming and labelling- seeing change **Investigation skill-** Identifying & Classifying **(Observations & work sample)**	**Chemistry -** Materials - for purpose sorting/ waterproof **Investigation skill-** Identifying & Classifying **(Observations & Photo and videos)**	**Physics** - Shadows - investigating light and dark- how shadows are made. **Investigation skill**- Fair testing **(Observations & work sample- C&L and Mark making link)**	**Biology -**Animals- life cycle - of plants and animals - link back to Chicks **Investigation skill**- Identifying, classifying and grouping. **(Observations & work sample)**
	Progression of tools and materials (CP Provision)	Autumn pictures- materials to place and arrange Labelling the body-Skeleton/ early reading of labels - Non-fiction books-	Changing state of materials - melting - Ice in outside learning Role play - Weather station - forecasting / symbols / days/ months	Animals- patterns on fur/ skin- Clothing/ Materials -	Water Tray - floating and sinking Investigation station- Baby chicks/ Butterflies/ Frogs to tadpoles in unit Range of materials - inside & outside	Outside- shadows Puppet theatre- shadows Use of light box- ICT link	Investigation station - fruit rotting/ plants over time Seasons recap - summer What to wear - clothing recap Sun care - how to keep safe

Hillcross Primary Science Curriculum

KS1

Common themes taught in each year group

1. Animals including humans
2. Living things and their habitats

Yellow links to SRE within PSHE curriculum

	Year 1					
Topic	**Autumn 1: A change over time**	**Autumn 2: Carnival of animals**	**Spring 1: A Step in Time**	**Spring 2: Very Victorian Values**	**Summer 1: Fe Fi Fo Fum**	**Summer 2: Whole School Topic**
NC knowledge and understanding	**Seasonal Changes** **Observe changes across the four seasons.** **Observe and describe weather associated with the seasons and how day length varies.**	**Animals** Science Overview - Biology - Animals including Humans.pdf **Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.** **Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).**	**Humans** Science Overview - Biology - Animals including Humans.pdf **Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.** **Observe changes across the four seasons.**	**Everyday materials** Science Overview - Chemistry - Everyday Materials.pdf **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.**	**Plants/Seasonal Changes** Science Overview - Biology - Plants.pdf **Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.** **Identify and describe the basic structure of a variety of common flowering plants, including trees.** **Observe changes across the four seasons**	**Animals/Seasonal Changes** Science Overview - Biology - Animals including Humans.pdf **Identify and name a variety of common animals that are carnivores, herbivores and omnivores.** **Observe changes across the four seasons**
SC1 skills - working scientifically	• observing closely using simple equipment e.g. thermometer.	• asking simple questions and recognising that they can be answered in different ways • gathering and recording data to help in answering questions. • Observing closely	• performing simple tests. • gathering and recording data to help in answering questions.	• Using observations and ideas to suggest answers to questions. • Performing simple tests • Observing closely, using simple equipment	• identifying and classifying. • asking simple questions and recognising that they can be answered in different ways	• Using their observations and ideas to suggest answers to questions in different ways. • Identifying and classifying.
Type of enquiry	• Observation over time • Pattern Seeking	• Researching • Identifying, classifying and grouping	• Researching	• Identifying, classifying and grouping. • Gathering and recording data.	• Pattern seeking • Identifying and classifying	• Observation over time • Researching
Scientific concepts Biology Chemistry Physics	Physics How the world changes around us.	Biology How all animals are different but have some characteristics that are similar.	Biology How our bodies help us to appreciate the world around us.	Chemistry How materials are tested to ensure they are fit for the purpose intended.	Biology How plants change to suit their habitat.	Biology How all animals are different but have some characteristics that are similar.

Science Capital (people, jobs, scientific question)	BBC meteorologists, military weather officer, meteorological technician Channel 4 - Liam Dutton meteorologist	Looking after animals - vet, marine biologist, animal charities, caring for Willow Zoologist - Rachel Carson	Doctor, nurse, optologist, audiologist Elizabeth Garrett Anderson - first female doctor in the UK	Fashion designer, engineer, road worker, builder, plumber Stephanie Kwolek - invented an immensely strong plastic.	Garden centre worker, tree surgeon, tree planter, conservation worker, Botanist - Barbara McClintock	Looking after animals - vet, marine biologist, animal charities, caring for Willow, zoo keeper. Noel Fitzpatrick - SuperVet
Outcome	• Pictorial class graph of the weather over the week • By the end of the year a thinking map to show how the weather has changed across the year.	• To produce a tree map of the different animals. • To produce posters of each animal naming different types (e.g. on the birds, robin, sparrow, blue tit. Show the features e.g. beak, wing etc)		• To understand what different items are made from and why they are the most suitable.		
Scientific Vocabulary **Working scientifically vocabulary**	season - autumn, winter, spring, summer, weather (and words associated with that weather), day, night, light, dark **questions, answers equipment, gather, measure, record**	names of common fish, amphibians, reptiles, mammals and birds, fin, scales, feathers, beak **sort, group, compare**	sense - sight, sound, taste, touch, smell eyes, tongue, ears, hands, nose for the senses body, head, neck, arms, elbows, legs, knees, face, hair, teeth, vagina, penis	object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil. hard, soft, stretchy, stiff, bendy, waterproof, absorbent	season - autumn, winter, spring, summer names of locally found plants/flowers/wildflowers, leaf, flower, petal, fruit, root, bulb, seed, trunk, branch, stem, vegetable, fruit **questions, answers equipment, gather, measure, record**	season - autumn, winter, spring, summer carnivore, herbivore, omnivore, names of common animals

Hillcross Primary Science Curriculum

KS1

	Year 2					
Topic	**Autumn 1: London Landmarks**	**Autumn 2: Hearts and Lanterns**	**Spring 1: Under the Sea**	**Spring 2: Disaster strikes**	**Summer 1: A journey to Discovery**	**Summer 2: Whole School Topic**
NC knowledge and understanding	**Living things and their habitat** Science Overview - Biology - Living Things and Their Habitat.pdf **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.**	**Animals including humans- (humans)** Science Overview - Biology - Animals including Humans.pdf **Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Link to SRE Y1)** **Find out about and describe the basic needs humans, for survival (water, food and air).**	**Living things and their habitats - food chains (link to Y1 summer 2 - key vocabulary)** Science Overview - Biology - Living Things and Their Habitat.pdf **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.**	**Materials (Links to Yr1)** Science Overview - Chemistry - Everyday Materials.pdf **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 (applying a force).**	**Animals including humans - (animals and their offspring)** Science Overview - Biology - Animals including Humans.pdf **Notice that animals have offspring which grow into adults.**	**Plants (Links to Y1)** Science Overview - Biology - Plants.pdf **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.**
SC1 skills - working scientifically Biology Chemistry Physics	• Identifying and classifying. • Asking simple questions and recognising they can be answered in different ways.	• Performing simple tests. • Asking simple questions and recognising they can be answered in different ways.	• Asking simple questions and recognising they can be answered in different ways. • Identifying and classifying	• Performing simple tests • Observing closely, using simple equipment • gathering and recording data to help in answering questions.	• Identifying and classifying. • Using their observations and ideas to suggest answers to questions.	• gathering and recording data to help in answering questions. • Observing closely • Using their observations and ideas to suggest answers to questions.
Type of enquiry	• Research • Identifying and classifying	• Research • Pattern seeking	• Research • Identifying and classifying	• Fair testing • Identifying and classifying	• Identifying, classifying and grouping. • Research	• Observing over time. • Comparative and fair testing
Scientific concepts	Biology How living things adapt to their surroundings to survive.	Biology Identifying ways to keep ourselves and animals healthy.	Biology How every part of the food chain has an important part to play in the survival of different species.	Chemistry How materials are tested to ensure they are fit for the purpose intended.	Biology How animals including humans change over time.	Biology How plants are similar to humans and animals and have certain needs to survive.
Science Capital	Wildlife technician, wildlife biologist, wetland biologist Carolus Linnaeus investigated living things and their habitats, conservation worker	Zoologist, vet, gymnast, fitness instructor Louis Smith - gymnast	Marine biologist, habitat restoration officer, wetland biologist Spring watch - Chris Packham	Fashion designer, engineer, road worker, builder, plumber Charles MacIntosh - invented waterproof material	Zoologist, vet, marine biologist, animal technologist	Garden centre worker, tree surgeon, tree planter, conservation worker, botanist Ira Gabrielson - conservationist pioneer Margaret Fountaine - Lepidopterist

Outcome		• What advice would you give Florence Nightingale or Mary Seacole about a healthy day?		• To understand why some materials are better suited to an item than others.		
Scientific Vocabulary	pond, woodland, meadow, micro-habitat living, dead, never been alive suited, basic needs, depend, food, shelter	offspring, babies, young, adults, basic needs, water, food, air, survival, exercise fruit, vegetable, bread, rice, potato, pasta, milk, dairy foods, foods high in fat or sugar, meat, fish, egg, beans hygiene, exercise, drugs, medicine, wash vagina, penis	food chain, herbivore, carnivore, omnivore, producer, prey, predator	suitable, unsuitable, object, material, property, wood, plastic, glass, metal, water, rock, flexible, shape, changed, twist, squash, bend, stretch, force transparent, opaque, translucent	calf (whale and cow), kitten, puppy, cub, piglet, lamb, chick, foal, gosling egg, pupa, larva, frog spawn, tadpole, frog	seeds, bulbs, water, light, grow, healthy, shoot, seedling, limp/wither, dry/crispy, soil, earth Use of comparatives - hotter/cooler, lighter/darker

Hillcross Primary Science Curriculum

LKS2

	Year 3					
Topic	**Autumn 1: Supermarket Sweep**	**Autumn 2: Rotten Romans**	**Spring 1: Settle Down**	**Spring 2: Secret Garden**	**Summer 1: Dig Deep**	**Summer 2: Whole School Topic**
NC knowledge and understanding	**Animals including humans (Links to Yr2)** Science Overview - Biology - Animals including Humans.pdf **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.**	**Light** Science Overview - Physics - Light.pdf **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 changes.**	**Forces and magnets** Science Overview - Physics - Forces.pdf **(Links to materials Y2)** **Compare how things move on different surfaces** **Notice that some forces need contact between two objects, but magnetic forces can act at a distance.** **Observe how magnets attract or repel each other and attract some materials and not others.** **Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials.** **Describe magnets as having two poles.** **Predict whether two magnets will attract or repel each other, depending on which poles are facing.**	**Plants (Links to Y1 and Y2)** Science Overview - Biology - Plants.pdf **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.**	**Rocks and fossils** Science Overview - Chemistry - Everyday Materials.pdf **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.**	**Animals including humans - skeleton, muscles** Science Overview - Biology - Animals including Humans.pdf **Some other animals have skeletons and muscles for support, protection and movement.**
SC1 skills - working scientifically Biology Chemistry Physics	• Use straightforward science to answer questions. • Gather and classify data in a variety of ways to help answer questions. • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	• Asking relevant questions and using different types of scientific enquiries to answer them. • Setting up simple practical enquiries, comparative and fair tests.	• Setting up simple practical enquiries, comparative and fair tests. • Making systematic and careful observations using a range of equipment. • Recording findings in tables.	• Setting up simple practical enquiries, comparative and fair tests, taking accurate measurements. • Record findings using simple scientific language, drawings and labelled diagrams.	• Use straightforward science to answer questions. • Making systematic and careful observations using a range of equipment. • Record findings using simple scientific language, drawings and labelled diagrams.	• Identify differences, similarities or changes related to simple scientific ideas. • Report on findings from enquiries using oral and written explanations. • Use straightforward science to answer questions.

Hillcross Working Scientifically Progression	• Classifying into Eatwell plate. • Written/Oral Explanation why we eat fats, fibres, proteins and carbohydrates. • Record data in tables.					
Type of enquiry	• Research • Identifying and classifying	• Pattern seeking • Comparative and fair testing.	• Pattern seeking • Comparative and fair testing.	• Comparative and fair testing. • Observing over time • Pattern seeking	• Research • Identifying and classifying	• Pattern seeking • Research • Identifying and classifying
Scientific concepts Biology Chemistry Physics	Biology How humans have survived over thousands of years.	Physics How shadows are created, and that darkness is the absence of light	Physics How magnets can be used in everyday life.	Biology How plants are similar to humans and have certain requirements to survive.	Chemistry When the world was created it contained all the natural resources it would need.	Biology That a variety of other animals have skeletons and/or muscles to support their movement.
Outcome		What material would be best for a shadow puppet show? AFL knowledge and understanding of materials.		To understand how living things stay alive.		
Science Capital	Doctor, nurse, nutritionist, chef, anthropologist Elsie Widdowson - dietitian	Optician, light technician - theatres, movie sets, laser engineer, optical engineer Jean Rosenthal - pioneer theatrical lighting design	Explorers, magnet engineer, robotics engineer, geomagnetist Helen Greiner - multi rotor drones.	Soil scientist, conservation scientist, botanist, bioprocessing engineer. Anna Atkins - English botanist	Volcanologist, geologist, mining geologist, mineralogist Haroun Tazieff - volcanologist	Zoologist, sports scientist, surgeon, herpetology, herpetologist Ross Tucker - consultant to World Rugby, ambassador and scientific advisor to Virgin Active and Adidas.
Scientific Vocabulary	nutrient, nutrition, food types, carbohydrates, protein, vitamins and minerals, fat, dietary fibre, balanced diet	light source - torch, dark/darkness, reflect, reflective, shadow, block, direct, transparent, opaque, translucent	force, push, pull, contact, magnetic force, magnet, bar magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole,	seeds, bulbs, water, light, grow, healthy, shoot, seedling, limp/wither, dry/crispy, soil, earth, transported, life cycle, pollination, seed formation, seed dispersal	rock, stone, pebble, boulder, soil, fossils, grains, crystals, texture, permeable/impermeable (let water through/doesn't let water through), marble, chalk, granite, sandstone, slate, sandy soil, clay soil, chalky soil, peat	skeleton, muscles, support, protection, movement, ribs, spine (vertebrate/invertebrate), joints, sockets, bones, tendons, skull, rib cage, pelvis and spin, jaw, spine

Hillcross Primary Science Curriculum

LKS2

	Year 4					
Topic	Autumn 1: Walk Like an Egyptian	Autumn 2: Journey over Europe	Spring 1: Battle Stations	Spring 2: Natural Disasters	Summer 1: Playing Cat and Mouse	Summer 2: Whole School Topic
NC knowledge and understanding	**Animals including humans** Science Overview - Biology - Animals including Humans.pdf **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 (Links to Y2)**	**Living things and their habitats** Science Overview - Biology - Living Things and Their Habitat.pdf **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.**	**Sound** **Identify how sounds are made, associating some of them with something vibrating.** **Recognise that vibrations from sounds travel through a medium to the ear.** **Find patterns between the pitch of a sound and features of the object that produced it.** **Find patterns between the volume of a sound and the strength of the vibrations that produced it.** **Recognise that sounds get fainter as the distance from the sound source increases.**	**States of matter** Science Overview - Chemistry - Everyday Materials.pdf **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.**	**Electricity - circuits** Science Overview - Physics - Electricity.pdf **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.**	**Electricity - conductors and insulators** Science Overview - Physics - Electricity.pdf **Recognise some common conductors and insulators, and associate metals with being good conductors.**
SC1 skills - working scientifically Biology Chemistry Physics	• Asking relevant questions and using different types of scientific enquiries to answer them. • Using results to draw simple conclusions, suggest improvements and raise further questions.	• identify differences, similarities or changes related to simple scientific ideas. • Report on findings from enquiries using displays or presentations of results. • Recording findings using scientific language and keys.	• Make systematic and careful observations taking accurate measurements using a range of equipment. • Using results to draw simple conclusions • Gathering, recording and presenting data to answer questions.	• Setting up simple practical enquiries, comparative and fair tests. • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • Recording findings using bar charts	• Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • Recording findings using scientific language and drawings	• Asking relevant questions and using different types of scientific enquiries to answer them. • Using straightforward scientific evidence to answer questions or to support findings. •
Type of enquiry	• Researching • Comparative and fair testing.	• Identifying and classifying • Research • Pattern seeking	• Comparative and fair testing. • Pattern seeking	• Pattern seeking • Fair testing • Observation over time	• Comparative and fair testing. • Pattern seeking	• Research • Pattern seeking • Identifying and classifying
Scientific concepts	Biology Different parts of the human body work together to help us survive.	Biology The similarities and differences between living things.	Physics How different parts of the human body are connected and this allows us to hear.	Chemistry How the same material can be represented in different ways but be returned to its original state.	Physics How electricity works and benefits are daily life.	Physics How to stay safe around electricity and how it can travel in different ways.
Science Capital	Nurse, doctor, surgeon, sports	Habitat restoration engineer,	Sound technician, music producer,	Chemist, nanotechnologist, solid	Electricians, broadcast engineer,	Network engineer,power plant

	scientist Pierre Fauchard- 'Father' of modern dentistry	biostatician, wildlife technician Gerrald Durrell - wildlife expert	medical physicist, live sound engineer James West - inventor of the microphone	state physicist Lanying Lin - physicist	control systems engineer, Marianna Woodson Cobb - first female broadcast engineer	operator, nuclear engineer Radia Perlman - computer/network engineer
Scientific Vocabulary	digestive system, nutrition, nutrients, mouth, tongue, teeth - canines, incisor, molar, oesophagus, stomach, small intestine, large intestine, carnivore, herbivore, omnivore, producer, consumer, predator, prey, food chain.	classification key, environment, fish, amphibians, reptiles, birds, mammals, vertebrates, invertebrates human impact, positive and negative impact	sound, sound source, vibrate, vibration, travel, medium (solid, gas, liquid), pitch, tune, high/low volume, fainter, insulation, instrument, percussion, strings, brass, woodwind	solid, liquid, gas, air, oxygen, ice, water, steam, change state, heat, cool, temperature, degrees Celsius, melt, freeze, solidify, melting point, boiling point, evaporate/evaporation, condense/condensation, water cycle, precipitation	electrical circuit, appliances/device, mains, plug, complete circuit, circuit diagram, circuit symbol. Components, cell, battery, positive, negative, wire, bulb, switch, buzzer	conductor, insulator, metal, non-metal, bright, dim

Hillcross Primary Science Curriculum

UKS2

	Year 5					
Topic	Autumn 1: We're the kids in America	Autumn 2: Third Rock from the sun	Spring 1: It's all Greek to me	Spring 2: Oh, I do like to be beside the seaside.	Summer 1: Marvellous Mayas	Summer 2: Whole School Topic
NC knowledge and understanding	**Forces** Science Overview - Physics - Forces.pdf **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.**	**Earth and Space** **Describe the movement of the Earth, and other planets, relative to the Sun in the solar system** **Describe the movement of the Moon relative to the Earth.** **Describe the Sun, Earth and Moon as approximately spherical bodies.** **Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.**	**Living things and their habitats** **(last taught in years 1,2 and 4)** Science Overview - Biology - Living Things and Their Habitat.pdf **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.**	**Forces** Science Overview - Physics - Forces.pdf **Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.**	**Properties and changes to materials (reversible)** Science Overview - Chemistry - Everyday Materials.pdf **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 taught in year 4 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.**	**Properties and changes to materials (irreversible)** Science Overview - Chemistry - Everyday Materials.pdf **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.** **Describe the changes as humans develop to old age. (Statutory) including puberty (Non statutory and links toPSHE))** **Describe the life process of reproduction in animals. Link to SRE.**
SC1 skills - working scientifically	• Planning different scientific enquiries to answer questions, including controlling variables where necessary. • Reporting and presenting findings from enquiries using causal relationships • Recording data and results of increasing complexity using tables and bar graphs.	• Identify scientific evidence that has been used to support or refute ideas or arguments. • Recording data and results of increasing complexity using scientific diagrams and labels.	• Reporting and presenting findings from enquiries in oral and written forms such as displays and other presentations. • Recording data and results of increasing complexity using scientific diagrams and labels.	• Planning different scientific enquiries to answer questions, including controlling variables where necessary. • Taking measurements using a range of scientific equipment, taking repeat readings when appropriate.	• Using test results to make predictions to set up further comparative and fair tests. • Reporting and presenting findings from enquiries including conclusions and causal relationships.	• Reporting and presenting findings from enquiries including conclusions and causal relationships.

Type of enquiry	• Pattern seeking • Observing over time • Comparative and fair testing.	• Research • Identifying and classifying • Observation over time.	• Research • Pattern seeking • Identifying and classifying	• Comparative and fair testing • Pattern seeking • Research	• Comparative and fair testing • Pattern seeking • Observation over time.	• Research • Identifying and classifying • Comparative and fair testing
Scientific concepts Biology Chemistry Physics	Physics Forces support the natural development of the world.	Physics How the Earth, moon and sun work together to support all living things.	Biology How animals use the resources in the environment to stay alive.	Physics How pulleys and levers can be used to move heavy loads.	Chemistry There are reversible changes to materials, and these can change, strengthen or weaken a material.	Chemistry There are irreversible changes to materials, and these can change, strengthen or weaken a material. Biology Humans change throughout their lifecycle.
Science Capital	Structural engineer, civil engineer, mechanical engineer Issac Newton,	Astronomer, astronaut, engineer, astrophysicist, satellite engineer Maggie Aderin-Pocock **Mae Jemison - first black female astronaut** Black scientist - Neil deGrasse Tyson - demotion of Pluto Mary Somervile - astronomer. Catherine Johnson, Dorothy Vaughan and Mary Jackson - NASA engineer	Wildlife biologist, naturalist, biostatician, environmentalist restoration planner David Attenbourogh	Mechanical engineer, automotive engineer, robotic technician Satya Nadella - mechanical engineer	Materials scientist, material engineer, product/process development, metallurgist, geologist, patent examiner Lee Ann - materials scientist	Materials scientist, material engineer, product/process development, metallurgist, geologist, patent examiner Dr Shenda Baker- materials scientist
Scientific Vocabulary	Fall, Earth, gravity, air resistance, water resistance, friction, moving surface	Earth, planets, Sun, Moon, solar system, celestial body, sphere, rotate, names of the 8 planets, dwarf planet, orbit, geocentric model, heliocentric model, shadow clocks, sundials, astronomical clock	life cycle, reproduction, sexual, asexual, germination, pollination, seed formation, seed dispersal, pollen, stamen, stigma, plantlets, runners, mammal, amphibian, insect, bird, fish, reptile	moving surfaces, mechanisms, levers, pulleys, gears, force, transfers, funicular railway,	flexible, waterproof, absorbent, solubility, electrical conductivity, thermal conductivity, dissolve, solution, soluble, insoluble, particle, mix, mixture, filtering, sieving, evaporating, residue, reversible changes,	irreversible changes, burning, rusting

Hillcross Primary Science Curriculum

UKS2

	Year 6					
Topic	Autumn 1: Everybody want to rule the world	Autumn 2: A Class Act	Spring 1: War of the Worlds	Spring 2: Peace at Last	Summer 1: Game, Set and Match	Summer 2: Whole School Topic
NC knowledge and understanding	**Electricity (last taught in Y4)** Science Overview - Physics - Electricity.pdf **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.**	**Living things and their habitats - animals and plants** Science Overview - Biology - Living Things and Their Habitat.pdf **Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals** **Give reasons for classifying plants and animals based on specific characteristics.**	**Light (last taught in Y3)** Science Overview - Physics - Light.pdf **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.**	**Evolution** **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.**	**Animals including humans** Science Overview - Biology - Animals including Humans.pdf **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 and exercise on the way their bodies function.** **Describe the ways in which nutrients and water are transported within animals, including humans.**	**Animals including humans** Science Overview - Biology - Animals including Humans.pdf **Recognise the impact of drugs and lifestyle on the way their bodies function.**
SC1 skills - working scientifically	• Planning different scientific enquiries to answer questions, including recognising and controlling variables where necessary. • Using test results to make predictions to set up further comparative and fair tests. • Reporting and presenting findings from enquiries, including conclusions and explanations of and degree of trust in results.	• Recording data and results of increasing complexity using classification keys and scientific diagrams. • Report and present findings from enquiries in oral or written forms such as displays and other presentations.	• Planning different scientific enquiries to answer questions, including recognising and controlling variables where necessary. • Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. • Identify scientific evidence that has been used to support ideas or arguments.	• Identify scientific evidence that has been used to support or refute ideas or arguments. • Report and present findings from enquiries in oral or written forms such as displays and other presentations. • Recording results of increasingly complexity using scientific diagrams and labels .	• Recording data and results of increasing complexity using scatter graphs and line graphs. • Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.	• Using test results to make predictions to set up further comparative and fair tests. • Recording data and results of increasing complexity using tables and scientific diagrams and labels. • Identify scientific evidence that has been used to support or refute ideas or arguments.
Type of enquiry	• Pattern seeking • Comparative and fair testing.	• Pattern seeking • Research • Identifying and classifying	• Comparative and fair testing. • Research	• Research • Identifying and classifying • Pattern seeking	• Research • Pattern testing • Identifying and classifying	• Identifying and classifying • Research • Pattern seeking
Scientific Concepts Biology Chemistry	Physics Different components can be altered to change the effect electricity has, for example, make	Biology All living things have certain similarities to help them survive.	Physics How different parts of the body work together to allow us to see.	Biology How animals and humans have changed over time to suit their needs and changing habitat.	Biology How the human body works together to help us stay healthy.	Biology All living things have certain characteristics to help them survive.

Physics	the bulb brighter.					
Science Capital	IT systems analyst, electrical engineer, electrical technician, control systems engineer Lyn Conway - electrical engineer	Primatologist, taxidermist, biostatician David Attenborough Walter Potter - taxidermist Carl Linnaeus - 5 Kingdoms	Optician, light technician - theatres, movie sets, laser engineer, optical engineer Patricia Bath - cataract treatment	Palaeontologist, biological anthropologist, evolutionary biologist geneticist Mary Anning - unsung hero of fossil discovery	Sports scientist, doctor, dentist, nurse Marie Maynard Daly - the effect of drugs and poor diet on the heart.	Wildlife technician, doctor, nurse, surgeon, zoologist Alexander Flemming - penicillin Edward Jenner - Vaccine Sarah Gilbert - COVID Vaccine
Scientific Vocabulary	electrical circuit, appliances/device, mains, plug, complete circuit, circuit diagram, circuit symbol. Components, cell, battery, positive, negative, wire, bulb, switch, buzzer, voltage, current, resistance	organism, classification key, environment, arachnid, mollusc, insect, crustacean, moss, fern, conifer, seed, microorganism	light source - torch, dark/darkness, reflect, reflective, shadow, block, direct, transparent, opaque, translucent	suited, adapted, offspring, characteristics, variation, inherit/inheritance, fossils, evolution	circulatory system, heart, blood, blood vessels, pumps, oxygen, carbon dioxide, lungs, nutrients, water, diet, exercise, drugs, lifestyle, platelets, plasma, red blood cells, white blood cells, alcohol, tobacco	, virus, bacteria, penicillin, alcohol, drug- prescription, legal and illegal, vaccine, antibiotic