

Be curious, observant and persistent!

Longhoughton Church of England Primary School

Science Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS A	<u>Understanding the World</u> Personal, social and emotional development <u>All About Me</u> How Can I be Healthy? Key learning - Children understand that they need food, water, exercise. sleep and love to be healthy. - Children recognise that when they get hot, they need to drink. - Children recognise when they are hungry, they need food; identify foods that help their bodies grow. - Children understand their bones and muscles are growing. - Children understand that their grown-ups love them and keep them happy, safe and healthy. Key Vocab: exercise, sleep, fruit, healthy, vegetables, skeleton, muscles Key People Mrs Hinson School Cook Outdoor Learning Explore which play equipment helps their muscles grow e.g. outdoor climbing frame Industry Link Cook, Chef	<u>Understanding the World</u> Physical development <u>Let's Celebrate (Me!)</u> What do I Look Like? Key learning - Children can identify main body parts - Children can use a mirror to look at their faces and identify key features - Children can compare facial features e.g. blue, brown eyes, Key Vocab: eyes, nose, ears, hair, cheek, chin, arm, elbow, leg, knee (plus any others that are part of the discussion) Key People Photographs of staff in school to talk about differences/similarities Outdoor Learning Industry Link Optician Hairdresser	<u>Understanding the World</u> <u>Transport and Travel</u> How do cars move? Key learning - Children can identify a circle as being round. - Children experiment with rolling different objects - Children observe toy cars rolling across different surfaces e.g. hall floor, carpet, grass Key Vocab: Circle, round, wheel, forward, backward Key People Carl Benz Outdoor Learning Roll and push cars over the wood-chip, grass, paving stones, yard, ramp and talk about what they can see happening Industry Link Mechanics	<u>Understanding the World</u> <u>On the Farm</u> Which animals live on a farm? Key learning - Children understand the difference between a pet, farm and a wild animal - Children can talk about what a farm is - Children can identify 5 wild animals and 5 farm animals and sort into 2 groups - Children can identify daffodils, blossom, hedges, trees and bushes Key Vocab: pet, farm, wild, grass, hedge, tree, flowers Key People - Farmer Ian Outdoor Learning School Growing Project: every child to grow a plant from a seed; measuring the growth and observing the changes. A display of plants/flowers to be created in the school grounds – staff to collaboratively decide Children can identify plants in our school grounds: beech hedge, blossom trees, daisies, daffodils, willow tree Visit to Whitehouse Farm; visit from the lamb Industry Link Farming	<u>Understanding the World</u> <u>Creepy Crawlies</u> Where do insects live? Key learning - Children can name 6 insects that live in our local area: wasp, moth, bee, ladybird, butterfly - Children know insects have 6 legs and wings - Children can draw/create out of natural materials an insect based on observation Key Vocab: insect, wasp, moth, bee, ladybird, butterfly Key People - Sir David Attenborough Outdoor Learning Find insects that live in our school grounds using magnifying glasses Industry Link Gardening, Blyth Wildlife Trust	<u>Understanding the World</u> <u>On the Beach</u> What plants and animals live at the seaside? Key learning - Children observe the movement of the waves - Children feel and identify seaweed - Children listen and observe seagulls - Children can collect and sort shells and pebbles into hoops - Children observe sea safety rules Key Vocab: beach, sand, sea, rocks, seaweed, dolphins, seagulls, crabs Key People - Grace Darling - Mr Curtis/Mrs Archer RNLI Outdoor Learning Visit to the beach Industry Link RNLI

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EYFS B	<u>Understanding the World</u> Marvellous Me Why do some animals live in a zoo?	<u>Understanding the World</u> How do we keep warm and dry in winter?	<u>Understanding the World</u> People Who Help Us Who Looks After Us?	<u>Understanding the World</u> Down in the Jungle Where are the Wild Animals?	<u>Understanding the World</u> Minibeasts How can we look at tiny objects?	<u>Understanding the World</u> <u>Ship Ahoy</u> How do we keep safe in the sunshine?
	Key learning - Children can name animals that live in other countries - Children can use key vocabulary to describe animals - Children understand the difference between a wild animal compared to one kept in a zoo - Children can talk about how zoo keepers look after animals - Children can explain why they like an animal - Children can identify different parts of an animal's body Key Vocab: Head, body, tail, fur, scales, colour words, plus 10 zoo animals. Key People - Deadly 60 Steve Backshall Deadly 60 - CBBC - BBC - Northumberland Zoo Outdoor Learning Visit to Northumberland zoo Make an enclosure using sticks/twigs from our school grounds and put model animals in them. Industry Link Zoo/Safari parks	Key learning - Children can identify winter weather - Children can explain why they need special winter clothes - Children can explain why they wear wellies/boots - Children understand the term waterproof and apply to clothes Key Vocab: Ice, snow, rain, cold, freezing, waterproof, thick Key People Father Christmas and his elves who live in the North Pole Sir David Attenborough Frozen Planet - BBC iPlayer Outdoor Learning Talk children on a winter walk – wearing appropriate clothing Industry Link - Trespass in Alnwick – where can they buy warm clothes for skiing/winter weather	Key learning - Children can name adults who help them keep safe - Children can talk about what tools/equipment adults need to help them do their job - Children talk about jobs their parents/family do and how they may help people Key Vocab: Nurse, firefighter, doctor, vet, RAF, police, RNLI, Reverend Alison/Nathaniel Key People Ask parents/local people to talk to the children Outdoor Learning Gardeners – look at the outdoor space that needs looking after Church – visit Reverend Alison	Key learning - Children can use vocabulary to describe a jungle environment - Children can identify at least 10 jungle animals - Children understand the term camouflage and how it helps animals to survive. - Children can spot the differences between woods in our locality, and the trees in a jungle. - Children understand how some animals are endangered e.g. elephants Key Vocab: Jungle, camouflage, endangered, tropical plus 10 jungle animals Key People Jane Goodall –Big Dreams Little People book Outdoor Learning School Growing Project: every child to grow a plant from a seed; measuring the growth and observing the changes. A display of plants/flowers to be created in the school grounds – staff to collaboratively decide	Key learning - Children can point to small/tiny objects in and out of school - Children can use tweezers to pick up tiny objects e.g. stones, pom poms, beads - Children can use a magnifying glass to look at small objects - Children can name 5 minibeasts that live in our area : spider, worm, snail, slug, caterpillar, - Children know that minibeasts have a backbone - Children can sort big and small objects into hoops Key Vocab: Small, tiny, magnifying glass, big, sort, spider, worm, snail, slug, caterpillar, Key People Bing Videos Steve Backshall Bullet Ant Outdoor Learning Create minibeast habitats in the school grounds using sticks/twigs. Woods nature walk looking for minibeasts	Key learning - Children understand that our sun gives us light and heat - Children know that the sun can damage their eyes if they look directly at it. - Children know to apply sunscreen and why they need to do that - Children understand that the sun can burn their skin. - Children understand that plants need sunlight to grow. Key Vocab: Sunburn, sunscreen, shade, sunrays Outdoor Learning Take the children outdoors and compare how it feels standing in the shade to standing in the middle of the field. Grow cress and place in sunlight/dark and compare what happens Industry Link Look at different brands of sunscreen and what the numbers mean (SPF)

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KS1 A	<u>Animals including Humans: Growth</u> Biology	<u>Everyday Materials</u> Physics	<u>Plants</u> Biology	<u>Living Things and their Habitats</u> Biology
	What do animals need to survive?	What keeps us dry when it rains?	How do plants grow?	What is a habitat?
	Key learning - Children notice that animals, including humans, have offspring which grow into adults - Children find out about and describe the basic needs of animals, including humans, for survival (water, food and air) - Children describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene Key Vocab: Human, animal, air (oxygen), exercise, hygiene Key People - Hamza Yassin Ranger Hamza: Tips for having fun outdoors with kids - BBC Tiny Happy People Outdoor Learning School grounds exploration and observation of animal life -hibernation Industry Link RSPCA – looking after animals A lifetime of care with a Canine Care Card Dogs Trust – looking after our pets	Key learning - 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. Key Vocab: material (wood, plastic, glass, metal, water, rock, rubber), waterproof, absorbent, Key People - Charles Mackintosh Outdoor Learning Pour water on different materials – outside and observe Industry Link Mackintosh wellies/coats Mackintosh Official Hand-made Luxury Raincoats & Jackets	Key learning - 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. Key Vocab: Grow, water, sunlight, temperature, root, bulb, stem, leaf, petal Key People Famer Ian – which crops does he grow on the farm and why? What happens to them? Outdoor Learning School Growing Project: every child to grow a plant from a seed; measuring the growth and observing the changes. A display of plants/flowers to be created in the school grounds – staff to collaboratively decide	Key learning - 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 (<i>dandelions, willow, cherry blossom, sunflowers, pampas grass; sparrow, bluetit, seagulls, frogs, crow</i>) - 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. Key Vocab: Food chain, prey, predator, habitat (<i>plus animal and plant names</i>) Key People Outdoor Learning Pond, hedgerows, woods/beach, Hauxley Bird Reserve Industry Link RSPB RSPB Bird & Wildlife Conservation Charity

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KS1 B	<u>Animals including Humans: Identification</u> Biology	<u>The Five Senses</u> Biology	<u>Plants</u> Biology	<u>Seasonal Changes</u> Biology/Geography Link
	What animals live in our school grounds/beach? Key learning - identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals - identify and name a variety of common animals that are carnivores, herbivores and omnivores - describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) Key Vocab: Fish, amphibians, reptiles, birds, mammals, carnivore, herbivore, omnivore Key People Steve Backshall: Deadly 60 Outdoor Learning Autumn walk to observe and identify local wildlife - classify Industry Link Northumberland Zoo – different sections of a zoo	What are our 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 (see, hear, smell, touch, taste) Key Vocab: Senses, sight, hearing, touch, taste, smell Key People Rose Ayling-Ellis – how she challenged the view of the deaf community by appearing on Strictly Bing Videos Outdoor Learning Autumn walk to observe and identify local wildlife - classify Industry Link Hospital departments – opticians, GP	What plants and trees grow in our school grounds/beach? Key learning - 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. Key Vocab: Identify - blossom tree, willow, daffodils, hawthorn, beech, silver larch Know and define - root, stem/trunk, leaves, petal, blossom, bark, evergreen Key People - Lee Scoble as a gardener/school grounds maintenance Outdoor Learning Use outdoor nature/pond area (beach) to identify and observe plants, trees and flowers School Growing Project: every child to grow a plant from a seed; measuring the growth and observing the changes. A display of plants/flowers to be created in the school grounds – staff to collaboratively decide Industry Link Woodland Trust Plant Trees on Your Land with MOREwoods - Woodland Trust	Why do we have seasons? This unit can be taught across the year, utilising the local area to observe seasonal changes. Key learning - observe changes across the four seasons - observe and describe weather associated with the seasons and how day length varies. Key Vocab: Autumn, winter, spring, summer, season, adaptation, hibernation Key People Outdoor Learning Collection of leaves/flowers to show the different season. Industry Link Howick Hall

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LKS2 A	<u>Use of Everyday Materials</u> Physics Key Question Key learning - 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 Key Vocab: Materials; natural and man-made (and materials list) Key People - Charles Mackintosh - Nike owners Outdoor Learning Which natural materials can twist, bend, stretch, are strong? Industry Link IKEA – sustainable approach to business	<u>Forces</u> Physics What slows us down? Key learning - compare how things move on different surfaces - notice that some forces need contact between two objects, but magnetic forces can act at a distance Key Vocab: push, pull, friction, invisible, rough, smooth Key People - John MacAdam - Charles Goodyear American 1839 invented rubberised soles Outdoor Learning Observing different surfaces inside and outside of school Industry Link Nike Trainers	<u>Magnets</u> Physics What are magnets? Key learning - 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. Key Vocab: North, South, poles, magnetic, attract, repel Key People - Marie Curie 17 Famous Female Scientists Who Helped Change the World Outdoor Learning Use magnets to investigate materials that are magnetic Industry Link Magnets used in car industry Nissa	<u>Rocks</u> Chemistry What are rocks? Key learning - 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 Key Vocab: Rock, fossil, soil, volcanic Key People - John Macadam Outdoor Learning Longhoughton Village Walk to observe different road surfaces Visit to Woodhorn Museum to find out about rocks, fossils, coal mining Industry Link Longhoughton Quarry – Mr Parker School Growing Project: every child to grow a plant from a seed; measuring the growth and observing the changes. A display of plants/flowers to be created in the school grounds – staff to collaboratively decide	<u>Plants</u> Biology Do Plants Breathe? Key learning - 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 Key Vocab: Root, stem/trunk, leaves, flowers, nutrition, pollination, seeds Key People - Emma Braun - Sir David Attenborough Outdoor Learning Flower observation walk around Longhoughton Village Industry Link Botanists at Alnwick Gardens, Howick Hall, Longhoughton Gardening Club	<u>Light</u> Biology How do we see? Key learning - recognise that they need light in order to see things and that dark is the absence of light - notice that light is reflected from surfaces - recognise that light from the sun can be dangerous and that there are ways to protect their eyes - recognise that shadows are formed when the light from a light source is blocked by an opaque object - find patterns in the way that the size of shadows change. Key Vocab: Light, reflection, shadow, opaque, transparent Key People - Suni Williams and Butch Wilmore (NASA astronauts) Outdoor Learning Outlining shadows on the yard with chalk at different times of the day. Industry Link NASA
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LKS2 B	<u>Living Things and their Habitats</u> Biology What's My Favourite Animal and Why? Key learning - 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 Key Vocab: Vertebrate, invertebrates, fish, mammals, birds, amphibians, reptiles Key People - Sir David Attenborough Outdoor Learning Observation and grouping of animals in local environment e.g. village, coastal Industry Link Northumberland Zoo Hauxley Bird Reserve Kirkley Hall	<u>Animals including Humans</u> Biology Where does our food go? Key learning - 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 Key Vocab: Digestion, teeth, producers, predators, prey, carnivore, herbivore, omnivore Key People - Flora's mum (dental nurse) Outdoor Learning Observation of animals in local habitat to create food chains Industry Link Dental nurse	<u>States of Matter</u> Physics Where does water come from? Key learning - 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 Key Vocab: Solid, liquid, gas, evaporation, condensation, heat, cool Key People - Greta Thunberg Outdoor Learning Opportunity Industry Link Meteorology Climate Change Environmentalists	<u>Sound</u> Biology How do we hear sounds? Key learning - 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 Key Vocab: Sound, vibration, pitch, volume, loud, quiet Key People - Rose Ayling-Ellis Outdoor Learning How far does sound carry through the air – field School Growing Project: every child to grow a plant from a seed; measuring the growth and observing the changes, A display of plants/flowers to be created in the school grounds – staff to collaboratively decide Industry Link British Sign Language	<u>Electricity</u> Physics How can we conserve energy? Key learning - identify common appliances that run on electricity - construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers - identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery - recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit - recognise some common conductors and insulators, and associate metals with being good conductors Key Vocab: Energy, electricity, circuit, conductor, insulator, clean energy sources Key People - Lord Armstrong Craggs Outdoor Learning Visit to Craggs Industry Link Green Energy	<u>Alternative Energy Sources</u> Physics How can we look after our planet? Key learning - identify what green energy is - identify how wind turbines generate energy - understand how solar energy works - understand what global warming is - know how our actions can have an impact on the environment Key Vocab: turbine, solar, green energy, global warming, Key People - Greta Thunberg Outdoor Learning Test solar panels for devices Industry Link Newcastle College
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UKS2 A	<u>Forces</u> Physics	<u>Properties and Change in</u> <u>Materials</u> Chemistry	<u>Animals including Humans</u> Biology	<u>Living Things and their</u> <u>Habitats</u> Biology	<u>Earth and Space</u> Physics	<u>Scientific Enquiry</u>
	What makes things move?	Do some materials disappear?	How do we change as we get older?	How can protect our planet?	Is there life in outer space?	Does the person with the longest legs, run the fastest?
	Key learning - 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 that act between moving surfaces - recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. Key Vocab: gravity, air resistance, water resistance, friction	Key learning - compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets - know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution - use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating - give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic - demonstrate that dissolving, mixing and changes of state are reversible changes - explain that some changes result in the formation of	Key learning - describe the changes as humans develop to old age. - draw a timeline to indicate stages in the growth and development of humans. - learn about the changes experienced in puberty. - researching the gestation periods of other animals and comparing them with humans Key Vocab: birth, puberty, gestation, growth, development	Key learning - describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals - give reasons for classifying plants and animals based on specific characteristics Key Vocab: characteristics, classification, similar, difference, micro-organism	Key learning - 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. Key Vocab: solar system, orbit, spherical, rotation, celestial	Key learning - Create an investigation, choosing their own equipment - Decide how to record their measurements e.g. graph, table - Draw a conclusion from their data - Consider the reliability of their data - Research the question and find evidence to support or dispute the question. Key Vocab: Investigate, enquire, data, mean/average, conclude
	Key People - Sir Isaac Newton - Galileo Galilei Outdoor Learning Observation of leaves falling to the ground/seeds falling		Key People Mary Seacole Outdoor Learning Observation of animal life cycles e.g. egg – chick – bird	Key People Greta Thunberg Outdoor Learning Collection and classification of leaves collected from the school/local area. School Growing Project: every child to grow a plant from a seed; measuring the growth and observing the changes. A display of plants/flowers to be created in the school grounds – staff to collaboratively decide	Key People - Copernicus - Helen Sharmer Outdoor Learning Observe movement of shadows and connect to the rotation of Earth around the sun.	Key People - Florence Griffith Joyner - Usain Bolt Outdoor Learning Sports day practise races outside on the field
	Industry Link How do lifeboats cut through the water at speed? RNLI		Industry Link Different departments within a hospital for different age people e.g. maternity, paediatrics, geriatrics	Industry Link Alnwick Gardens/Hauxley	Industry Link Kielder Observatory	Industry Link Olympics/local running clubs

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		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 Key Vocab: hardness, solubility, transparency, conductivity, reversible and irreversible changes, dissolve, solution Key People Spencer Silver/Arthur Fry, who invented the glue for sticky notes Industry Links Post-it Notes About Post-it® Notes: history timeline Post-it® Brand				
UKS2 B	<u>Light Biology</u> Why do some people need to wear glasses? Key learning - 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	<u>Animals including Humans Biology</u> How can we keep our heart healthy? Key learning - identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood - recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function - describe the ways in which nutrients and water are transported within animals, including humans.	<u>Living Things and their Habitats Biology</u> Are all life cycles the same? Key learning - 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. Key Vocab: cycle, reproduction, mammal, amphibian, insect, bird Key People	<u>Evolution and Inheritance Biology</u> How did it all begin? Key learning - 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	<u>Electricity Physics</u> How can we conserve our energy use? Key learning - 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	<u>Scientify Enquiry</u> How can we create habitats in our local area? Key learning - Research into local wildlife e.g. hedgehogs, deer, buzzards - Research about their habitats – what do they need? - Survey our local school environment: observation, recording of different habitats e.g. hedges, pond, trees - Write a factfile about an animal and include information on habitat, life cycle, diet, adaptat Key Vocab:

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	- use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them Key Vocab: reflection, source, shadow, ocular, optic nerve, lens Key People - Salvino D'Armati (13th century) invented glasses Outdoor Learning Drawing shadows with chalk on the yard and observing changes. Industry Link Specsavers in Alnwick	Key Vocab: circulation, circulatory, artery, vein, chamber, nutrients, lifestyle Key People Dr. Christiaan Barnard South Africa in 1967 did the first heart transplant. Outdoor Learning Create model of the heart using hula hoops as chambers etc and children move through the different parts as blood. Industry Link Heart Surgeons/Cardiology	- Jane Goodall - David Attenborough Outdoor Learning School flower beds - planting Industry Link Howick Hall/Alnwick Gardens	different ways and that adaptation may lead to evolution Key Vocab: fossils, evolution, inheritance, offspring, adaptation, inhabit Key People Charles Darwin Outdoor Learning Fossil hunting on the beach School Growing Project: every child to grow a plant from a seed; measuring the growth and observing the changes. A display of plants/flowers to be created in the school grounds – staff to collaboratively decide Industry Link Palaeontology	- use recognised symbols when representing a simple circuit in a diagram. Key Vocab: Voltage, cells/batteries, components, symbols, current Key People - Michael Faraday Outdoor Learning How many electrical lights do we have in our school grounds? Could any be powered by solar? Industry Link Wind turbine and renewable energy sources	Investigate, enquire, data, mean/average, conclude Key People Sir David Attenborough Outdoor Learning Observation of school grounds/local area and creation of habitats Industry Link Longhoughton Community Garden group
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Disciplinary Knowledge

By the end of...	I can...
Nursery	• Use a range of small tools, including scissors, paint brushes and cutlery. • Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices • Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. • Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary. • Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate. • Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions. • Make comments about what they have heard and ask questions to clarify their understanding. • Hold conversation when engaged in back-and-forth exchanges with their teacher and peers.
Reception	Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension The Natural World Children at the expected level of development will: • Identify features of our school grounds • Identify features of the beach • Know the characteristics and names of the 4 seasons • Use a magnifying glass to examine different natural and man made objects • Sort objects into 2 groups depending on different features e.g. colours, material, location • Observe and draw plants and flowers • Observe and draw animals known to them • Identify the names and symbols for different weather patterns

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By the end of Year 2	During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: ▪ asking simple questions e.g. why, how, when ▪ observing closely, using simple equipment e.g. magnifying glass, microscope ▪ draw and label plants and animals known to them ▪ performing simple tests using equipment ▪ identifying and classifying animals/plants into groups according to features ▪ using their observations and ideas to suggest answers to questions ▪ gathering and recording data to help in answering questions. ▪ Compare different environments e.g. local, polar, tropical ▪ Use a ruler to measure (cm and m) Y2 Links to Maths National Curriculum : • choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels • interpret and construct simple pictograms, tally charts, block diagrams and tables • ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity
By the end of Year 4	During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: • asking relevant questions • setting up simple practical enquiries, comparative and fair tests • choose equipment to support their enquiries • making systematic and careful observations • taking accurate measurements using standard units (cm, m, g, ml) • using a range of equipment, including thermometers and data loggers • gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings • sort animals/plants into groups according to physical features Y4 Links to Maths National Curriculum: • interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs • solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

Be curious, observant and persistent!

By the end of Year 6	During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: • planning different types of scientific enquiries to answer questions • recognising and controlling variables where necessary • taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • using test results to make predictions to set up further comparative and fair tests • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations • identifying scientific evidence that has been used to support or refute ideas or arguments. Y6 Links to Maths National Curriculum: • interpret and construct pie charts and line graphs and use these to solve problems • calculate and interpret the mean as an average
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