



Hunmanby Primary School



Science Curriculum Map

Intent

Our vision at Hunmanby Primary School is to develop a lifelong love of Science within our pupils. We want our children to be curious, inquisitive and enthusiastic learners. We aim to enable them to suggest and use different lines of enquiry in order to answer their own questions. We offer a broad, rich and progressive Science curriculum that covers all areas of the national curriculum. We make cross curricular links through our Cornerstones topics. We want to equip our learners to understand the importance and use of Science today and in the future. Our Science capital is high as we have lots of sharing opportunities within our school.

Implementation

We collect evidence of Science in many ways at Hunmanby Primary School. Our books show recording and photographs of Science investigations and alongside this we also conduct practical assessments at the end of every unit to ensure that we are meeting the working scientifically goals as well as assessing the pupils understanding of the current Science topic. We also share our Science work with parents too via Twitter and ClassDojo. We are a well-equipped school and the Science coordinator regularly checks the resources and shares this list with the staff. We cover a Science topic in every half term and these are often linked to our Cornerstones topic.

Impact

By the end of the curriculum all pupils will have a coherent knowledge and understanding of the three science disciplines: biology, chemistry and physics. This knowledge, alongside scientific skills, will be able to ask perceptive questions, think critically and gather evidence, drawing relevant conclusions. This will be assessed through practical assessments (half term) built into their Cornerstones projects. Evidence of this learning will be recorded within the pupil's books and in the Science Whole School Practical investigation folder.

Long Term Overview						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Cycle 1 Me and My Community	Cycle 1 Marvelous Machines	Cycle 1 Child initiated	Cycle 1 Animal Safari	Cycle 1 Ready Steady Grow	Cycle 1 On The Beach
Year 1	Everyday materials	Animals, including humans	Seasonal changes	Seasonal changes	Plants	Animals, including humans
Year 2	Animals, including humans (humans)	Living things and their habitats	Animals, including humans (animals)	Animals, including humans (animals)	Uses of everyday materials	Plants
Year 3	Animals, including humans	Animals, including humans	Rocks	Forces and magnets	Plants	Light
Year 4	Animals, including humans	Sound	States of matter	Living things and their habitats	Electricity	Electricity
Year 5	Friction and Forces	Earth and Space	Properties and Changes of Materials	Properties and Changes of Materials	Living Things and Their Habitats	Animals Including Humans
Year 6	Animals, including humans	Animals, including humans	Living things and their habitats	Electricity	Light	Evolution and inheritance
Key:	Biology	Physics	Chemistry			

EYFS						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
CM topic based learning All topics include aspects of child initiated learning.	Cycle 1 Me and My Community (Build It Up Homes for the pigs)	Cycle 1 Marvelous Machines	Cycle 1 Child initiated	Cycle 1 Animal Safari	Cycle 1 Ready Steady Grow	Cycle 1 On The Beach
Links to the following units through topic based learning:	Materials	Sound	Earth and Space	Animals including humans	Plants	Light
	Evolution and Inheritance	Forces	Electricity	Living things and their habitats	Seasonal Changes	Rocks
	Seasonal changes	Electricity	Seasonal changes	Seasonal changes	Living things and their habitats	Seasonal Changes
	Seasonal changes	Seasonal changes				
Rationale / local context / enrichment	Seasonal changes throughout the school year	Seasonal changes throughout the school year	Seasonal changes throughout the school year	Seasonal changes throughout the school year	School pond - pond dipping – living things and their habitats Seasonal changes throughout the school year	Filey Beach - rocks
What might science look like in the Early Years:						
Providing scientific 'invitations to play' – dark den, magnets, light sources, ice melting.	Learning about life cycles.		Sharing books about the weather, the human body, the world, growing etc.		Exploring how things work, change. Predicting what will happen.	
Noticing and talking about the changing seasons		Encouraging awe and wonder about the natural world.		Recording data such as tally charts, number/pictorial representations.		
<i>SEE TEACHER'S WEEKLY PLANS FOR SKILLS, CORE KNOWLEDGE AND ACTIVITY DETAILS</i>						

EYFS Vocabulary					
Birth to 3 (Bumble Bees 2 Year olds)					
Plants	Living things and their habitats	Animals, including humans	Evolution and inheritance	Materials	Rocks
Explore natural materials, indoors and outside.	Explore natural materials, indoors and outside.	<ul style="list-style-type: none"> • Explore natural materials, indoors and outside. • Make connections between the features of their family and other families. • Notice differences between people. 	Make connections between the features of their family and other families. • Notice differences between people.	<ul style="list-style-type: none"> • Explore materials with different properties. • Explore natural materials, indoors and outside. 	<ul style="list-style-type: none"> • Explore materials with different properties. • Explore natural materials, indoors and outside.
Seasonal changes	Light	Forces	Sound	Electricity	Earth and space
Explore natural materials, indoors and outside.	• Repeat actions that have an effect.	Repeat actions that have an effect.	Repeat actions that have an effect.	Repeat actions that have an effect.	Explore and respond to different natural phenomena in their setting and on trips.
Nursery (Butterflies)					
Working scientifically					
look closely, observe, watch, touch, feel, smell, listen, same, different, compare, ask questions, record, sort, group					
Plants	Living things and their habitats	Animals, including humans	Evolution and inheritance	Materials	Rocks
plant, leaf, stem, branch, root, bark, flower, petal, seed, berry, fruit, vegetable, bulb, plant, hole, dig, water, weed, grow, shoot, die, dead, soil, names of plants they grow	natural, plant, animal, leaves, seeds, conkers, acorns, twigs, bark, shells, feathers, pebbles, stones, same, different, pattern (see plants)	egg, chick, bird, caterpillar, cocoon, chrysalis, butterfly, frog spawn, tadpole, froglet, frog, grow, change, die, names of animals and their young, fur, feathers, scales, tail, wings, beak, claws, paws, hooves, swim, walk, run, jump, fly, patterns, spots, stripes, grow, change, baby, toddler, child, adult, old person, smell, taste, touch, feel, hear, see, blind, deaf	<i>see Living things and their habitats see Nursery</i>	mix, stir, cook, hot, oven, microwave, change, burn, melt, hard, runny, set, freeze, freezer, cold, blended, hard, soft, bendy, stiff, wobbly, wood, plastic, paper, card, fabric	natural, shells, pebbles, stones
Seasonal changes	Light	Forces	Sound	Electricity	Earth and space
<i>See Nursery – Plants, Animals, excluding humans</i>	light, torch, bulb, lamp, spotlight, shiny, bright, brighter, brightest, Sun, shine, glow, mirror	object, float, sink, water, up, down, top, bottom, push, pull, magnet, spring, squash, bend, twist, stretch, turn, spin, smooth, rough, fast, slow	sound, noise, loud, quiet, high, low, music, bang, blow, pluck, soft, hard, fast, slow, names of instruments	battery, plug, socket, electricity, wire, sound, light, move	
Reception (Ladybirds)					
Working scientifically					
look closely, observe, watch, touch, feel, smell, listen, same, different, compare, ask questions, record, sort, group					
Plants	Living things and their habitats	Animals, including humans	Evolution and inheritance	Materials	Rocks
tree, bush, herb, names of plants they see (Reception - Living things and their habitats)	plant, tree, bush, flower, vegetable, herb, weed, animal, names of plants and animals they see, name of a contrasting environment (e.g. beach, forest)	names of animals, live, on land, in water, jungle, desert, North Pole, South Pole, sea, hot, cold, wet, dry, snow, ice, hair (e.g. black, brown, dark, light, blonde, ginger, grey, white, long, short, straight, curly), eyes (e.g. blue, brown, green, grey), skin (e.g. black, brown, white), big/tall, small/short, bigger/smaller, baby, toddler, child, adult, old person, old, young, brother, sister, mother, father, aunt, uncle, grandmother, grandfather, cousin, friend, family, boy, girl, man, woman	<i>see Living things and their habitats</i>	ice, water, frozen, icicle, snow, melt, wet, cold, slippery, smooth, big, bigger, biggest, smaller, smallest, smallest, hard, soft, bendy, rigid, wood, plastic, paper, card, metal, strong, weak, hot, apply heat, waterproof, soggy, not waterproof, best, change, change back	
Seasonal changes	Light	Forces	Sound	Electricity	Earth and space
spring, summer, autumn, winter, seasons, sunny, cloudy, hot, warm, cold, shower, raining, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, windy, rainbow, animals, young, plants, flowers	Sun, sunny, light, shadow, shady, clouds, torch, see-through, not see-through, source, light source	float, sink, up, down, top, bottom, surface, move, roll, drop, fly, turn, spin, fall, fast, slow, faster, slower, fastest, slowest, further, furthest, wind, air, water, blow, bounce	sound, noise, listen, hear, music, voices, bird song, traffic, sirens, thunder, high, low, loud, quiet, soft, volume, crackle, thunder, hum, buzz, roar		Sun, Moon, Earth, star, planet, sky, day, night, space, round, bounce, float

Year 1						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Everyday materials	Animals, including humans (Human Senses)	Seasonal changes	Seasonal changes	Plants (Plant Parts)	Animals, including humans (Animal Parts)
Prior learning	N - Materials, including changing materials	N, R - Humans	N – Plants & Animals, excluding humans R – Seasonal changes		N – Plants Reception – Living things and their habitats	N,R - Humans
National Curriculum Substantive Knowledge	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. 	<ul style="list-style-type: none"> • Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies. 		<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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).
Vocabulary	object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through	senses, touch, see, smell, taste, hear, fingers, skin, eyes, nose, ears, tongue	weather, sunny, rainy, raining, shower, windy, snowy, cloudy, hot, warm, cold, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, rainbow, seasons, winter, summer, spring, autumn, Sun, sunrise, sunset, day length		leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, names of trees in the local area, names of garden and wild flowering plants in the local area	head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves, names of animals experienced first-hand from each vertebrate group, parts of the human body including those within the school's RSE policy
Enquiry type focus	Comparative/fair testing Observation over time Pattern-seeking Identifying, grouping and classification Problem-solving	Comparative/fair testing Pattern-seeking Identifying, grouping and classification Research	Comparative/fair testing Observation over time Pattern-seeking Identifying, grouping and classification Problem-solving		Research Observation over time Identifying, grouping and classification	Research Comparative/fair testing Observation over time Pattern-seeking Identifying, grouping and classification
Rationale / local context / links to topics / enrichment	DT – shade and shelter		Literacy links – non-fiction writing	SCIENCE WEEK Art – rain and sunrays collagraphy	RHS Harlow Carr	Flamingo Land zoo

SEE TEACHER'S WEEKLY PLANS FOR SKILLS, CORE KNOWLEDGE AND ACTIVITYDETAILS

Year 2						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Animals, including humans (human survival)	Living things and their habitats	Animals, including humans (animal survival)	Animals, including humans (animal survival)	Uses of everyday materials	Plants (plant survival)
Prior learning	Y1 - Animals, including humans	Y1 – Plants Y1 - Animals including humans Y1 - Seasonal changes	Y1 - Animals, including humans		Y1 - Everyday materials	Y1 – Plants
National Curriculum Substantive Knowledge	<ul style="list-style-type: none"> Notice that animals, including humans, have offspring which grow into adults Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene 	<ul style="list-style-type: none"> 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 micro-habitats 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 	<ul style="list-style-type: none"> Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) 		<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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.
Vocabulary	offspring, reproduction, growth, baby, toddler, child, teenager, adult, old person, names of animals and their babies (e.g. chick/chicken, kitten/cat, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (e.g. meat, fish, vegetables, bread, rice, pasta, dairy)	living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, water, air, survive, survival, names of local habitats (e.g. pond, woodland etc.), names of micro-habitats (e.g. under logs, in bushes etc.), conditions, light, dark, shady, sunny, wet, damp, dry, hot, cold, names of living things in the habitats and micro-habitats studied	survive, survival, water, food, air		opaque, transparent, translucent, reflective, non-reflective, flexible, rigid, shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching	light, shade, Sun, warm, cool, water, space, grow, healthy, bulb, germinate, shoot, seedling
Enquiry type focus	Comparative fair testing Observations over time Pattern seeking Identifying, grouping and Classification	Research and secondary sources Pattern Seeking Identifying, grouping and classification	Research and Secondary sources Pattern seeking Identifying, grouping and classification Observation over time	Research and Secondary sources Pattern seeking Identifying, grouping and classification Observation over time	Comparative fair testing Research and secondary sources Pattern seeking Identifying, grouping and classification Observation over time	Comparative fair testing Research and secondary sources Pattern seeking Identifying, grouping and classification Observation over time
Rationale / local context / links to topics / enrichment	DT – remarkable recipes Art – still life	Sea Life Centre visit/beach trip (Summer 2)	Literacy – non-chronological report (animals)	SCIENCE WEEK Hatch caterpillars; release butterflies	DT – beach huts	Art – flowers

SEE TEACHER'S WEEKLY PLANS FOR SKILLS, CORE KNOWLEDGE AND ACTIVITYDETAILS

Year 3						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Animals, including humans	Animals, including humans	Rocks	Forces and magnets	Plants	Light
Prior learning	Y1, 2 - Animals, including humans		Y1 - Everyday materials Y2 - Uses of everyday materials	N, R – Forces Y2 - Uses of everyday materials	Y2 - Plants	N, R – Light Y1 - Animals, including humans Y1 - Materials
National Curriculum Substantive Knowledge	<ul style="list-style-type: none"> Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food – they get nutrition from what they eat. Identify that humans and some other animals have skeletons and muscles for support, protection and movement. 		<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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.
Vocabulary	nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine		rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorbs water, fossil, bone, flesh, minerals, marble, chalk, granite, sandstone, slate, types of soil (e.g. peaty, sandy, chalky, clay)	force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole	photosynthesis, pollen, insect/wind pollination, male, female, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal), air, nutrients, minerals, soil, absorb, transport	light, light source, dark, absence of light, surface, shadow, reflect, mirror, Sun, sunlight, dangerous
Enquiry type focus	<ul style="list-style-type: none"> Observing over time Research using secondary sources 	<ul style="list-style-type: none"> Research using secondary sources Identifying, classifying and grouping 	<ul style="list-style-type: none"> Identifying, classifying and grouping Comparative and fair testing Observing over time 	<ul style="list-style-type: none"> Comparative and fair testing Identifying, classifying and grouping Pattern seeking Research using secondary sources 	<ul style="list-style-type: none"> Observing over time Identifying, classifying and grouping Comparative and fair testing Pattern seeking Research using secondary sources 	<ul style="list-style-type: none"> Observing over time Identifying, classifying and grouping Comparative and fair testing Pattern seeking Research using secondary sources
Rationale / local context / links to topics / enrichment	PSHE – healthy eating History – Stone Age teeth and eating DT – healthy eating plate		Rotunda Museum – Rocks and fossils workshop Art - fossils	SCIENCE WEEK Geography – tectonic plates	Art – botanical art DT - greenhouses	PSHE – sun safety, reflective materials

SEE TEACHER'S WEEKLY PLANS FOR SKILLS, CORE KNOWLEDGE AND ACTIVITY DETAILS

Year 4 (need to order in line with teacher plans)						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Animals, including humans	Sound	States of matter	Living things and their habitats	Electricity	Electricity
Prior learning	Y1, 2, 3 - Animals, including humans	N ,R – Sound Y1 - Animals, including humans	Y1 - Everyday materials Y2 - Uses of everyday materials	Y1 – Plants Y1 - Animals including humans Y2 - Living things and their habitats	N - Electricity	
National Curriculum Substantive Knowledge	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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. 	
Vocabulary	digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, large intestine, rectum, anus, incisor, canine, molar, premolar, herbivore, carnivore, omnivore, producer, predator, prey	sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, quiet, loud, insulation	solid, liquid, gas, heating, cooling, state change, melting, freezing, melting point, boiling, boiling point, evaporation, condensation, temperature, water cycle	classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate	electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol	
Enquiry type focus	Comparative and fair testing Research using secondary sources Observing over time	Pattern seeking (Compare and find patterns in the pitch of a sound) Comparative and fair testing Research using secondary sources	Identifying, classifying and grouping Comparative and fair testing Observing over time	Identifying, classifying and grouping Research using secondary sources	Pattern seeking Comparative and fair testing Research using secondary sources	
Rationale / local context / links to topics / enrichment	Links to literacy – explanation text	Links to music – volume and pitch	Links to geography and literacy – rivers and the water cycle	SCIENCE WEEK	Links to DT (night lights) and Computing (microbits) Biography of Nikola Tesla	






SEE TEACHER'S WEEKLY PLANS FOR SKILLS, CORE KNOWLEDGE AND ACTIVITY DETAILS







Year 5						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Friction and Forces	Earth and Space	Properties and Changes of Materials		Living Things and Their Habitats / Animals Including Humans	Animals Including Humans
Prior learning	Y3 - Forces and magnets	R – Earth and space Y1 - Seasonal changes	Y2 - Uses of everyday materials Y3 - Forces and magnets Y4 - States of matter		Y2 - Animals, including humans Y3 - Plants	Y2 - Animals, including humans
National Curriculum Substantive Knowledge	<ul style="list-style-type: none"> Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. - Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. – Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Demonstrate that dissolving, mixing and changes of state are reversible changes. Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. 		<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Describe the changes as humans develop to old age.
Vocabulary	force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears	Sun, Moon, Earth, planets (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, Solar System, rotate, star, orbit	thermal insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material		life cycle, reproduce, sexual, fertilises, asexual, plantlets, runners, tubers, cuttings, sperm, egg, live young, metamorphosis, asexual, plantlets	puberty, the vocabulary to describe sexual characteristics in line with the school's RSE policy life cycle, foetus, baby, child, adolescent, adult, reproduce, sexual, sperm, fertilises, egg, live young
Enquiry type focus	Comparative and fair testing Pattern seeking Research using secondary sources	Research using secondary sources Observing over time Pattern seeking	Identifying, classifying and grouping Comparative and fair testing Observing over time Pattern seeking	Observing over time Research using secondary sources Identifying, classifying and grouping	Research using secondary sources Identifying, classifying and grouping Pattern seeking	Identifying, classifying and grouping Pattern seeking Research using secondary sources Comparative and fair testing
Rationale / local context / links to topics / enrichment	Bikeability (Spring Term 2) DT - Moving Mechanisms (Autumn 2)	Taught in the Autumn Term due to length of days and observation of the Sun's movement Mars transmission – journal writing		SCIENCE WEEK	Geography - sow, grow and farm DT – eat the seasons Literacy –biographies (inc. David Attenborough and Jane Goodall) Art – nature's art (S2) Scampston Hall visit: life cycles, process of reproduction in plants and animals	PSHE/SRE – the changing body Summer – opportunities to measure shadows







SEE TEACHER'S WEEKLY PLANS FOR SKILLS, CORE KNOWLEDGE AND ACTIVITYDETAILS

Year 6						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Animals, including humans	Animals, including humans	Living things and their habitats	Electricity	Light	Evolution and inheritance
Prior learning	Y2,3,4 - Animals, including humans		Y4, 5 - Living things and their habitats	Y4 - Electricity	Y3 – Light Y5 - Properties and changes of materials	Y2 - Living things and their habitats Y3 – Plants, Rocks Y4,5 - Living things and their habitats
National Curriculum Substantive Knowledge	<ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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.
Vocabulary	heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, cycle, circulatory system, diet, drugs, lifestyle		vertebrates, fish, amphibians, reptiles, birds, mammals, warm-blooded, cold-blooded, invertebrates, insects, spiders, snails, worms, flowering, non-flowering, mosses, ferns, conifers	circuit diagram, circuit symbol, voltage	straight lines, light rays	offspring, sexual reproduction, vary, characteristics, adapted, inherited, species, evolve, evolution
Enquiry type focus	Comparative and fair testing Research using secondary sources Observing over time Pattern seeking Identifying, classifying and grouping		Research using secondary sources Identifying, classifying and grouping	Comparative and fair testing Research using secondary sources Pattern seeking Identifying, classifying and grouping	Comparative and fair testing Research using secondary sources Observing over time Pattern seeking	Comparative and fair testing Research using secondary sources Pattern seeking Identifying, classifying and grouping
Rationale / local context / links to topics / enrichment	PSHE – healthy lifestyles	Pig's heart dissection	Whitby museum – animal classification	SCIENCE WEEK		Literacy link – Charles Darwin Whitby museum – animal adaptations
<i>SEE TEACHER'S WEEKLY PLANS FOR SKILLS, CORE KNOWLEDGE AND ACTIVITY DETAILS</i>						

EYFS Development Matters		
Three and Four-Year-Olds (Butterflies)		
Communication and Language	Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"	
Personal, Social and Emotional Development	Make healthy choices about food, drink, activity and toothbrushing.	
Understanding the World	<ul style="list-style-type: none"> • 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 (Ladybirds)		
Communication and Language	<ul style="list-style-type: none"> • 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 help work out problems and organise thinking and activities, and to explain how things work and why they might happen. • Use new vocabulary in different contexts 	
Personal, Social and Emotional Development	<p>Know and talk about the different factors that support their overall health and wellbeing:</p> <ul style="list-style-type: none"> - regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian 	
Understanding the World	<ul style="list-style-type: none"> • 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. 	
Early Learning Goals		
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	<ul style="list-style-type: none"> • 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.

Year 1 and 2 National Curriculum Disciplinary Knowledge		
Asking questions and recognising that they can be answered in different ways		Asking simple questions and recognising that they can be answered in different ways <ul style="list-style-type: none"> • While exploring the world, the children develop their ability to ask questions (such as what something is, how things are similar and different, the ways things work, which alternative is better, how things change and how they happen). Where appropriate, they answer these questions. • The children answer questions developed with the teacher often through a scenario. • The children are involved in planning how to use resources provided to answer the questions using different types of enquiry, helping them to recognise that there are different ways in which questions can be answered.
Making observations and taking measurements		Observing closely, using simple equipment <ul style="list-style-type: none"> • Children explore the world around them. They make careful observations to support identification, comparison and noticing change. They use appropriate senses, aided by equipment such as magnifying glasses or digital microscopes, to make their observations. • They begin to take measurements, initially by comparisons, then using non-standard units.
Engaging in practical enquiry to answer questions		Performing simple tests <ul style="list-style-type: none"> • The children use practical resources provided to gather evidence to answer questions generated by themselves or the teacher. They carry out: tests to classify; comparative tests; pattern seeking enquiries; and make observations over time. Identifying and classifying <ul style="list-style-type: none"> • Children use their observations and testing to compare objects, materials and living things. They sort and group these things, identifying their own criteria for sorting. • They use simple secondary sources (such as identification sheets) to name living things. They describe the characteristics they used to identify a living thing.
Recording and presenting evidence		Gathering and recording data to help in answering questions <ul style="list-style-type: none"> • The children record their observations e.g. using photographs, videos, drawings, labelled diagrams or in writing. • They record their measurements e.g. using prepared tables, pictograms, tally charts and block graphs. • They classify using simple prepared tables and sorting rings.
Answering questions and concluding		Using their observations and ideas to suggest answers to questions <ul style="list-style-type: none"> • Children use their experiences of the world around them to suggest appropriate answers to questions. They are supported to relate these to their evidence e.g. observations they have made, measurements they have taken or information they have gained from secondary sources. Using their observations and ideas to suggest answers to questions <ul style="list-style-type: none"> • The children recognise 'biggest and smallest', 'best and worst' etc. from their data.

Year 3 and 4 National Curriculum Disciplinary Knowledge		
Asking questions and recognising that they can be answered in different ways		<p>Asking relevant questions and using different types of scientific enquiries to answer them</p> <ul style="list-style-type: none"> • The children consider their prior knowledge when asking questions. They independently use a range of question stems. Where appropriate, they answer these questions. • The children answer questions posed by the teacher. • Given a range of resources, the children decide for themselves how to gather evidence to answer the question. They recognise when secondary sources can be used to answer questions that cannot be answered through practical work. They identify the type of enquiry that they have chosen to answer their question.
Making observations and taking measurements		<p>Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <ul style="list-style-type: none"> • The children make systematic and careful observations. • They use a range of equipment for measuring length, time, temperature and capacity. They use standard units for their measurements.
Engaging in practical enquiry to answer questions		<p>Setting up simple practical enquiries, comparative and fair tests</p> <ul style="list-style-type: none"> • The children select from a range of practical resources to gather evidence to answer questions generated by themselves or the teacher. • They follow their plan to carry out: observations and tests to classify; comparative and simple fair tests; observations over time; and pattern seeking.
Recording and presenting evidence		<p>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</p> <ul style="list-style-type: none"> • The children sometimes decide how to record and present evidence. They record their observation e.g. using photographs, videos, pictures, labelled diagrams or writing. They record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings). They record classifications e.g. using tables, Venn diagrams, Carroll diagrams. • Children are supported to present the same data in different ways in order to help with answering the question.
Answering questions and concluding		<p>Using straightforward scientific evidence to answer questions or to support their findings</p> <ul style="list-style-type: none"> • Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. The answers are consistent with the evidence. <p>Identifying differences, similarities or changes related to simple scientific ideas and processes</p> <ul style="list-style-type: none"> • Children interpret their data to generate simple comparative statements based on their evidence. They begin to identify naturally occurring patterns and causal relationships. <p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <ul style="list-style-type: none"> • They draw conclusions based on their evidence and current subject knowledge.
Evaluating and raising further questions and predictions		<p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <ul style="list-style-type: none"> • They identify ways in which they adapted their method as they progressed or how they would do it differently if they repeated the enquiry. <p>Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p> <ul style="list-style-type: none"> • Children use their evidence to suggest values for different items tested using the same method e.g. the distance travelled by a car on an additional surface. • Following a scientific experience, the children ask further questions which can be answered by extending the same enquiry.
Communicating findings		<p>Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <ul style="list-style-type: none"> • They communicate their findings to an audience both orally and in writing, using appropriate scientific vocabulary.

Year 5 and 6 National Curriculum Disciplinary Knowledge		
Asking questions and recognising that they can be answered in different ways		<p>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <ul style="list-style-type: none"> • Children independently ask scientific questions. This may be stimulated by a scientific experience or involve asking further questions based on their developed understanding following an enquiry. • Given a wide range of resources the children decide for themselves how to gather evidence to answer a scientific question. They choose a type of enquiry to carry out and justify their choice. They recognise how secondary sources can be used to answer questions that cannot be answered through practical work.
Making observations and taking measurements		<p>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <ul style="list-style-type: none"> • The children select measuring equipment to give the most precise results e.g. ruler, tape measure or trundle wheel, force meter with a suitable scale. • During an enquiry, they make decisions e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking); adjust the observation period and frequency (observing over time); or check further secondary sources (researching); in order to get accurate data (closer to the true value).
Engaging in practical enquiry to answer questions		<p>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <ul style="list-style-type: none"> • The children select from a range of practical resources to gather evidence to answer their questions. They carry out fair tests, recognising and controlling variables. They decide what observations or measurements to make over time and for how long. They look for patterns and relationships using a suitable sample.
Recording and presenting evidence		<p>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <ul style="list-style-type: none"> • The children decide how to record and present evidence. They record observations e.g. using annotated photographs, videos, labelled diagrams, observational drawings, labelled scientific diagrams or writing. They record measurements e.g. using tables, tally charts, bar charts, line graphs and scatter graphs. They record classifications e.g. using tables, Venn diagrams, Carroll diagrams and classification keys. • Children present the same data in different ways in order to help with answering the question.
Answering questions and concluding		<p>Identifying scientific evidence that has been used to support or refute ideas or arguments</p> <ul style="list-style-type: none"> • Children answer their own and others' questions based on observations they have made, measurements they have taken or information they have gained from secondary sources. When doing this, they discuss whether other evidence e.g. from other groups, secondary sources and their scientific understanding, supports or refutes their answer. • They talk about how their scientific ideas change due to new evidence that they have gathered. • They talk about how new discoveries change scientific understanding. <p>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</p> <ul style="list-style-type: none"> • In their conclusions, children: identify causal relationships and patterns in the natural world from their evidence; identify results that do not fit the overall pattern; and explain their findings using their subject knowledge
Evaluating and raising further questions and predictions		<p>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</p> <ul style="list-style-type: none"> • They evaluate, for example, the choice of method used, the control of variables, the precision and accuracy of measurements and the credibility of secondary sources used. • They identify any limitations that reduce the trust they have in their data <p>Using test results to make predictions to set up further comparative and fair tests</p> <ul style="list-style-type: none"> • Children use the scientific knowledge gained from enquiry work to make predictions they can investigate using comparative and fair tests
Communicating findings		<p>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</p> <ul style="list-style-type: none"> • They communicate their findings to an audience using relevant scientific language and illustrations.