Kingswood Science Curriculum Overview

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	**Know Me to Teach Me**	**Celebrations**	**People Who Help Us!**	**Once Upon a Time**	**Our Wonderful World - Minibeasts**	**Our Wonderful Word – Caring for the natural world**
	The Natural World: • I can talk about the differences and similarities of different materials • I am beginning to understand the life cycle of plants and animals	**The Natural World:** • I know that the world needs to be looked after • I know that not all environments are the same • I can talk about the seasons and how the weather changes	**The Natural World:** • I can talk about why things happen and how things work • I can make comments and ask questions about aspects of the natural world • I can make observations about how things change • I can make comments and ask questions about aspects of the natural world • I know that the world is made up of lots of different countries		**The Natural World:** • Explore the natural world around them, making observations and drawing pictures of animals and plants • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter	
Year 1	**Forces and space: Seasonal changes**	**Materials: Everyday materials**	**Animals: Sensitive bodies**	**Animals: Comparing animals**	**Plants: Introduction to plants**	**Making connections: Investigating science through stories**
	Reflecting on their own experiences, children learn about the four seasons and the weather associated with each. Pupils explore how seasonal changes affect trees, daylight hours and clothing choices. They plan and carry out their own weather reports, considering the knowledge required for this job.	Identifying and naming objects and the materials from which they are made. Pupils compare and group materials based on how they look and feel and carry out tests to sort materials based on unobservable properties.	Identifying and naming body parts and conducting practical activities with the senses to spot patterns and answer questions.	Comparing and grouping animals based on similarities and differences in their characteristics, physical features and diets.	Venturing outside, children identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. They use magnifying glasses to observe and name plant parts and sort leaves into groups based on appearance. Pupils investigate if beans need water for growth and identify edible plant parts	Using picture books as inspiration, children broaden their understanding of plants and animals. They gather and record data to find out if taller trees have larger trunks and recap the features of different animal groups. They build waterproof animal homes with natural materials and sort birds according to their diet
Vocabulary	Conclusion, data, deciduous, tree, evergreen tree, pictogram, predict, record, season, sunrise, sunset, symbol, temperature, thermometer, weather	Absorbent, data, fabric, glass, group, material, metal, object, opaque, plastic, property, rock, tough, transparent, waterproof, wood	Action, bitter, blind, body, compare, data, direction, distance, feeling, group, hearing, investigation, loud, obstacle, pattern, quiet, research, salty, sense, senses, sensitive, sight, smell, sour, sweet, taste, touch, volume	Amphibian, bird, block chart, body, carnivore, compare, data, diet, differences, feature, fish, group, herbivore, hunt, mammal, observe, omnivore, pet, record, reptile, research, scientist, similarities, tally	Data, deciduous, diagram, edible, evergreen, feature, fruit, flower, garden plants, grouping, growth, investigation, leaf, measure, observe, plant, prediction, roots, research, seed, shoot, stem, trunk, wild plant	Amphibian, bird, carnivore, compare, data, diet, difference Feature, fish, group, herbivore, hunt, life cycle, mammal, material, measure, natural, object, omnivore, pattern, predict, property, reptile, season, similarity, test, trunk Waterproof, weather
Year 2	**Living things: Habitats**	**Living things: Microhabitats**	**Materials: Uses of everyday materials**	**Animals: Life cycles and health**	**Plants: Plant growth**	**Making connections: Plant-based materials**
	Considering the life processes that all living things have in common, pupils classify objects into alive, was once alive or has never been alive. They name plants and animals in a range of habitats and recognise how living things depend on each other. Pupils create food chains to show the sequence that living things eat each other.	Building on their knowledge of habitats, pupils discover that microhabitats provide what minibeasts need to survive. They learn that scientists use a range of skills to answer questions and plan and carry out an experiment to find out the conditions woodlice prefer.	Recognising that materials are suitable for specific purposes and understanding their properties, exploring how actions such as stretching and bending affect the shape of solid objects and comparing the suitability of materials by carrying out tests and recording data.	Identifying and describing the different stages of animal life cycles, including that of humans, recording and interpreting data to show growth in humans and explaining how to keep healthy.	Carrying out comparative tests, pupils discover the conditions required for seed germination. They use rulers to measure stem height and record data in a results table. Through practical investigation, pupils learn that plants need water, light and a suitable temperature to grow and stay healthy	Children identify ways to reduce, reuse and recycle and draw on their knowledge of properties to invent unusual and creative uses for old objects. They discover some natural materials are derived from plants and look at the processes involved in making paper. Using their observational skills, they conduct simple tests to choose the most suitable material for

						making homemade plant pots, venturing outdoors to find natural materials to decorate them
Vocabulary	Alive, analyse, camouflage, carnivore, classify, coastal, dead, depend, diet, energy, excretion, food chain, growth, habitat, herbivore, life process, mammal, movement, nutrition, ocean, omnivore, predator, prey, producer, rainforest, reproduction, sensitivity, shelter, woodland	Botanist, camouflage, characteristics, classification key, classify, comparative/fair test, conclusion, criteria, data, food chain, identify, invertebrate, method, microhabitat, minibeast, research, results, species, survey, tally, test	Bend, block graph, elastic, fabric, flexible, glass, material, metal, object, plastic, property, pull, push, record, rock, squash, stretch, suitable, twist, wood	Adult, air, baby, basic needs, butterfly, child, carbohydrates, caterpillar, dairy, egg, exercise, fitness, food, frog, froglet, fruit, germs, growth, health, height, hygiene, lamb, life cycle, live, young, measure, offspring, oils, proteins, pupa, sheep, spawn, spreads, stage, survive, tadpole, teenager, toddler, vegetables, water	Bulb, comparative test, conclusion, condition, diagram, energy, flower, germinate, growth, leaf, life-cycle, measure, nutrient, observe, plant, shoot, seed, seedling, seed coat, stem, wilt	Alive, bubble wrap, eco-friendly, dead, excretion, fabric, flexible, germinate, growth, human-made, life process, material, movement Natural, nutrition, paper, plastic, property, recycle, reduce, reproduction, reuse Seed, sensitivity, soil, strong, suitable, sunlight, tin foil, warmth, water, waterproof, wood
Year 3	**Animals: Movement and nutrition**	**Forces and space: Forces and magnets**	**Materials: Rocks and soil**	**Energy: Light and shadows**	**Plants: Plant reproduction**	**Making connections: Does hand span affect grip strength?**
	Studying the human skeleton, children identify key bones and explore how muscle changes result in movement. They learn about how the body uses energy, what constitutes a balanced diet in humans and how research contributes to nutritionist expertise.	By investigating motion on different surfaces, children learn about friction and compare its uses and disadvantages. They broaden their experience in working scientifically as they investigate contact and non-contact forces. Pupils explore the properties of different magnets and apply this to understand their uses.	Observing the appearance and physical properties of rocks, children compare and group different rock samples. They learn about how fossils and soils are formed and record soil drainage rates in a bar chart.	Identifying examples of light sources, children learn that light is needed to see and how its absence causes darkness. Children investigate reflection and shadow formation, including how different factors change the shadows observed. They explore how shadows can be used to entertain in the arts and create shadow puppets to recount how different people work or experiment with light.	Explaining how plants reproduce in the context of the life cycle of a flowering plant, gathering data on plant growth and investigating the structure and function of the parts of a flowering plant	Exploring the relationship between hand span and grip strength through scientific enquiry. They apply their understanding of friction to make predictions and plan and carry out an enquiry.
Vocabulary	balanced diet, bone, carbohydrate, endoskeleton, exoskeleton, fat, fibre, invertebrate, joint, mineral, movement, muscle, nutrient, protection, protein, skeleton, support, vertebrate, vitamin, water	Force, contact force, non-contact force, friction, magnetism, magnet, north pole, south pole, magnetic material, non-magnetic material, attract, repel, electromagnet	Absorbency, acid rain, bone, clay, clay soil, crystal, earthworm, era, fossil, fossil record, grain, hard, hardness, impermeable, igneous rock, imprint, lava, loam soil, magma, metamorphic rock, mineral, molten rock, organic matter, paelantologist, peaty soil, permeable, rate, rock, sandy, sandy soil, sediment, sedimentary, sedimentation, silt, soft, soil	cast a shadow, dangerous, light source, luminous, non-luminous, opaque, protect, reflect, reflection, reflective (shiny), shadow, shadow puppet, translucent, transparent	Absorb, air, animal dispersal, carrying, conclude, disperse Dropping, eating, evaluate, female, flower, fruit, germination, improve, leaves, male, nutrients, petal, pollen, pollination, roots, soil, seed, seed formation, shaking, space, stem/trunk, sunlight, support, testable, transport, water, water dispersal, wind dispersal	bar chart, bone, carbohydrate, conclusion, evaluate, fat, flower, fruit, friction, grip, strength, joint, light source, material, muscle, nutrition, opaque, predict, property, protein, seed, shadow, trustworthy, variable
Year 4	**Animals: Digestion and food**	**Energy: Electricity and circuits**	**Materials: States of matter**	**Energy: Sound and vibrations**	**Living things: Classification and changing habitats**	**Making connections: How does the flow of liquids compare?**

	Using models, children describe the function of key organs in the digestive system. Pupils identify the types of human teeth and investigate factors that impact our dental health. They compare human teeth to other animals' and take on the role of a naturalist investigating animal faeces for clues about diet, digestion and dentition.	Exploring appliances in their setting that use electricity, children learn how to work with electricity safely and build circuits. Pupils investigate electrical conductors and insulators and explore the relationship between the number of cells and bulb brightness. Real scenarios and historical discoveries inform children about scientific progression and home safety.	By investigating the properties of solids, liquids and gases, children learn about the different states of matter. They explore changes of state using relatable examples and use this to explain changes to water through the water cycle. Pupils investigate the relationship between temperature and rate of evaporation while broadening their experience of working scientifically.	Exploring different ways of producing sounds, children learn about the relationship between vibrations and what they hear. Pupils explore how pitch and volume can be altered and how sound can be insulated using different materials.	Children explore different ways living things can be grouped and make classification keys. They study ways that habitats may change over time and understand that humans can have both positive and negative effects on their surroundings.	The children explore the relationship between viscosity and the flow of liquids through experiments, data analysis and drawing conclusions. They apply their understanding of states of matter to make predictions and plan and carry out an enquiry.
Vocabulary	Absorb, canine, carnivore, digest, faeces, food chain, herbivore, incisor, large, intestine, molar, mouth, oesophagus, omnivore, predator, premolar, prey, producer, saliva, small intestine, stomach	Ammeter, appliance, battery, bulb, buzzer, cell, circuit, component, electrical conductor, electrical, insulator, electricity, hazard, mains, material, motor, power source, precaution, property, safety, series circuit, switch, wire	boiling point, climate change, compress, condensation, condensing, condensing point, drought, evaporating, evaporation rate, flood, force, freezing, freezing point, , as, gaseous, liquid, matter, melting, melting point, precipitation, rate, solid, state, steam, temperature, thermometer, the water cycle, volume, water vapour	Air, decibels (dB), decibel meter, ear, eardrum, ear protectors, gas, hertz (Hz), high pitch, insulator of sound, liquid, loud, low pitch, matter, medium, musical instrument, pitch, quiet, solid, sound, sound proofing, vibration, volume	Carroll diagram, classification, key, classify, conservation, conservationist, deforestation, earthquake, endangered, flood, flowering plants, human impact, invertebrate, observe, nature reserve, non-flowering plants, pollution, seasonal, changes, taxonomist, uprooted, vertebrate, Venn diagram, waterlogged, wildfire	bar chart, condensing, cell/battery, conclusion, evaluate, evaporating gas, insect, liquid, medicine, motor, pharmacology, pharmacologist, precipitation, predict, solid, switch, temperature, the water cycle, trustworthy, variable, viscosity, water vapour
Year 5	**Materials: Mixtures and separation**	**Materials: Properties and changes**	**Forces and space: Earth and space**	**Living things and their habitats: Life cycles and reproduction**	**Forces and space: Imbalanced forces**	**Animals: Human timeline / Making connections: Does the size of an asteroid affect the diameter of its impact crater?**
	Pupils explore different types of mixtures and the different methods that can be used to separate them. They dissolve a range of substances, identify different solutions and investigate how temperature affects the time taken to dissolve. They design and create a water filter, sieve soil and evaporate solutions.	Broadening their experience of the properties of materials, children investigate hardness, transparency and conductivity and consider how these properties influence the uses of materials. They explore reversible changes, including dissolving and changes of state. Children compare these to irreversible changes, including rusting, burning and mixing vinegar and bicarbonate of soda.	Children explore the movement of the celestial bodies in our Solar System, including the Earth and other planets and the Moon. They discover how the rotation of the Earth causes night and day and how sundials work. Pupils find out about the uses of satellites and the problem with space junk.	Comparing the life cycles of plants, mammals, birds, amphibians and insects. Investigating asexual reproduction in plants and comparing sexual and asexual reproduction.	Building on their knowledge of contact and non-contact forces, children explore gravity, friction, air resistance and water resistance in more depth and consider the effect of these forces being unbalanced. They plan investigations to further their understanding of the effects of these forces. Pupils test their ideas using models and compete to build the most effective pulley system	**Animals: Human timeline** Studying human development and changes, children identify key stages and consider what data may help determine if a child is growing normally. They describe how puberty affects girls and boys and produce graphs to compare how gestation periods vary across different mammals, including humans. **Making connections: Does the size of an asteroid affect the diameter of its impact crater?** Children explore the relationship between the size of model asteroids and the diameter of the impact crater they create through experiments, data analysis, and drawing conclusions. They

						apply their understanding of gravity, air resistance and the Earth and space to make predictions and plan and carry out an enquiry.
Vocabulary	control variable, crystallising, dissolve, evaporation, evaporation method, filtering, insoluble, mixture, particle, sieve, sieving, soluble, solution, variable	Burning, change of state, circumference, condensing, conductor, dissolve, electrical conductivity, evaporating, freezing, hard, hardness, insulator, irreversible change, light intensity, light meter, melting, mixture, opaque, property, reversible change, rust, rusting, soft, states of matter, trustworthy, thermal conductivity, translucent, transparency, transparent	artificial satellite, axis, calibrate, celestial bodies, climate change, day, daytime (daylight), data, Earth, elliptical, face, first quarter moon, force, full moon, gnomon, gravity, horizon, Jupiter, last quarter moon, Mars, Mercury, midday, moon, natural satellite, Neptune, new moon, night (nighttime), phase, planet, Pluto, orbit, our Solar System, reflect, rotate, Saturn, season, shadow, Solar System, space, space junk, spherical, star, summer, sundial, sunrise, sunset, table, the Sun, the Moon, tilt, Uranus, Venus, winter, year	Adolescence, adult, amphibian, asexual reproduction, bird, birth, bulb, carnivore, characteristic, chrysalis, cocoon, cuttings, egg, estimating, extrapolating, fertilization, fledgling, flowering stage, four-legged tadpole, four-stage life cycle, frog, froglet, germination stage, gestation, gills, hatch, hatchling, herbivore, incubation, infancy, insect, juvenile, larva, leaf growing stagelife cycle, line of best fit, lungs, mammal, mating, metamorphosis, nest, nestling, newborn, nymph, offspring, ovule, pollen, pollination, pupa, reproduction, seed dispersal, seed stage, seedling stage, seed, sexual reproduction, species, tadpole, three-stage life cycle, tuber, two-legged tadpole	Aerodynamics, air resistance, amplify, balanced, contact, force, distance, effort, force, friction, gear, gravity, lever, load, machine, mass, matter, non-contact force, pivot, pulley, streamlining, surface area, unbalanced, water resistance	**Animals: Human timeline** adolescence, adolescent, adult Adulthood, child, childhood, foetus, gestation period, hormones, infant, life cycle, newborn, old age, period (menstruation), puberty, toddler **Making connections: Does the size of an asteroid affect the diameter of its impact crater?** Accurate, air resistance, asteroid, celestial bodies, conclusion, crater, diameter, evaluate, fair test, force, gravity, hardness, material, predict, property, spherical, reliable, trustworthy, variable
Year 6	**Living things: Classifying big and small**	**Energy: Light and reflection**	**Living things: Evolution and inheritance**	**Energy: Circuits, batteries and switches**	**Animals: Circulation and Health**	**Making connections: Are some sunglasses safer than others?**
	Children broaden their knowledge of how vertebrates, invertebrates, plants and micro-organisms are grouped using shared characteristics. They discover how Carl Linnaeus developed the Linnaean and binomial systems for classifying and naming living things. Pupils use and produce branching and number classification keys to sort and identify organisms.	Proving that light travels in a straight line, children use this information to explain observations of reflection and shadows. Pupils investigate the effect of moving an object away from the surface it casts a shadow on and the relationship between the incoming and reflected rays on a mirrored surface. Exploring real uses of mirrors allow children to apply what they have learned about light throughout the unit.	Studying patterns in humans and other species, children learn about characteristics that are inherited and those that are environmental. Through the eyes of Darwin and Wallace, pupils understand how observations lead to theories. By modelling finches' variation and natural selection, they begin to explain how species evolve and the role of fossil evidence that supports this theory.	Revisiting electrical circuits, children learn to draw conventional circuit diagrams and use models to explain current, resistance and voltage. They compare different batteries and relate this to the effects on bulb brightness. Pupils apply their knowledge of switches and electrical circuits to design and produce their own practical devices.	Studying the human circulatory system, children learn about the role of the heart, blood and blood vessels and use models to demonstrate their function. They explore how lifestyle choices affect our health and use secondary sources to advise patients. Pupils devise their own investigation to look at the relationship between exercise and heart rate, applying their knowledge of variables and then analysing secondary data to understand fitness better	Exploring sun safety, children investigate the efficacy of different sunglasses. They devise enquiries to test light and UV transmission of the lenses to form a conclusion about which sunglasses are best. The children summarise their findings through presentations and advertisements
Vocabulary	Amphibian, binomial system, bird, characteristic, classify,	Cast, incoming ray, light ray, light source, luminous, mirror,	Adaptation, ancestor, characteristic, competition,	Ammeter, appliance, battery, bulb, buzzer, cell, circuit,	balanced diet, blood, bloodstream, blood vessels,	Adaptation, amphibian, bar chart, bird, bulb,

	classification key, cold-blooded, conifer, exoskeleton, fern, fish, flowering plant, insect, invertebrate, life process, Linnaean system, mammal, micro-organism, microscopic, moss, organism, reptile, snail, spider, vertebrate, warm-blooded, worm	non-luminous, opaque, periscope, pupil, ray diagram, reflected ray, reflective, shadow, straight	environmental, evidence, evolution, extinct, fossil, gene, habitat, inherit, natural selection, offspring, peer review, population, reproduce, scientific theory, selective breeding, species, specimen, survival, survival of the fittest, variation	circuit diagram, component, current, electricity, motor, power source, resistance, switch, voltage, voltmeter, wire	carbon dioxide, circulatory, system, diet, drug, exercise, fitness, health, heart, heart-rate, lifestyle, lungs, mass, nutrient, oxygen, pulse, pump (verb), rate, resting heart rate, transport, water	characteristic, circuit, circuit, diagram, classify, component, conclusion, control variable, electrical circuit, evaluate, evidence, fish, habitat, health, inherit, insect, invertebrate, lifestyle, light ray, light source, luminous, mammal, method, opaque, predict, reflection, refute, reptile, support, translucent, transparent, trustworthy, ultraviolet, unit Variable, vertebrate