Science Curriculum Map

John Clifford School

Autumn 1

FS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Seasons Life cycles Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world. Can talk about some of the things they have observed such as plants, animals, natural and found objects. Talks about why things happen and how things work. Shows care and concern for living things and the environment. Looks closely at similarities, differences, patterns and change.	**Animals, including humans** Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense (head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth and teeth). **Seasonal changes** Observe changes across the four seasons. (To be ongoing throughout the year)	**Uses of everyday materials** Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.	**Animals, including humans** 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.	**Animals, including humans** 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.	**Living things and their habitats** Describe the difference in life cycles of a mammal, an amphibian, an insect and a bird (Draw classification charts). Describe the life process of reproduction in some plants. Sexual and asexual reproduction in plants – grow new plants from cuttings.	**Animals, including humans** 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.

Scientists linked to each unit:						
					Do research or a comprehension about Jane Goodall.	
Vocabulary to be taught:						
	Bird, fish, amphibian, reptile, mammal, skeleton, habitat, life cycle, vertebrate, skull, bone, teeth, swim, fly, feathers, scales, fur, skin, diet, nocturnal, pet	Materials, properties, wood, plastic, glass, metal, rock, uses, objects, waterproof absorbent, strength structures, brick, paper, elastic, natural, man-made, shiny, dull, smooth, rough, stretchy, stiff, opaque, transparent, hard, soft	Nutrition, diet, food, protein, carbohydrate, fibre, minerals, vitamins, fats, sugars, salts, balanced diet, carnivore, herbivore, omnivore	Stomach, intestines, Gullet, anus, mouth, liver, canine, molar, premolar, incisor, saliva, digest	Bird, fish, amphibian reptile, mammal, invertebrate, carnivore, herbivore, omnivore, life cycle, reproduction, movement, respiration, sensitivity, growth, nutrition, gestation, birth, fertilization, germination, pollination, seed, dispersal, predator, prey	Circulatory system, heart, blood vessel, veins, capillaries, lungs, oxygenated, de- oxygenated, respiration, pulse, ventricle, aorta, atrium, arteries, oxygen, carbon dioxide
Topic links to:						
			Design and Technology – Pizza making			
Texts that link to the topic:						
One Year with Kipper – Mick Inkpen						**Pig Heart Boy –** Malorie Blackman

Autumn 2

FS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Changing states Can talk about some of the things they have observed such as plants, animals, natural and found objects. Talks about why things happen and how things work. Shows care and concern for living things and the environment. Looks closely at similarities, differences, patterns and change.	**Plants** Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identify and describe the basic structure of common flowering plants, including trees (leaf, flower, petal, blossom, fruit, trunk, branch, stem, roots, bulb, seed). **Seasonal changes** Observe changes across the four seasons. (To be ongoing throughout the year)	**Uses of everyday materials** Find out how the shape of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	**Rocks** Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.	**Electricity** Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, bulbs, switches and buzzers. Identify whether or not a lamp will light in a simple series circuit, 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.	**Earth and Space** Describe the movement of the Earth, and other planets, relative to the sun in the solar system. Describe the movement of the Moon relative to the Earth. Describe the sun, Earth and Moon as approximately spherical bodies. Understand and explain the Earth's rotation to explain day and night.	**Light** Recognise that light appears to travel in straight lines. Know 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 sources to our eyes or from light sources to objects and then to our eyes. Know that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
Scientists linked to each unit:						
			Mary Anning			
Vocabulary to be taught:						

	Root, stem, leaf, flower, air, sunlight, water, nutrient, soil pollination, seed, growth, deciduous, evergreen, habitat, petal, wild, fruit, bulb, branch, trunk, blossom, bud, plant, oak, holly, birch, beech	Materials, shape, suitability, solid, changes, properties, heat, insulators, conductors, forces squashing, bending twisting, stretching, reflective, similarities, differences, wood, metal, plastic, glass, brick, rock, paper, cardboard, uses	Waterproof, strong, hard, opaque, heavy, sedimentary, igneous, metamorphic, porous, fossil, layers, erosion, soil, inner core, outer core, mantle, crust, earthquake, volcano, pebble, boulder, crystal, weathering	Conductor, insulator, switch, lamp, circuit, electricity, buzzer, brightness, dim, metal, plastic, cells, wires, fuse, shock, safety	Gravity, star, planet, hemisphere, attract, attraction, weight, moon, orbit, revolve, rotation, axis, equator, season, winter, autumn, mass, solar system, geocentric, heliocentric, sphere, ellipse, phases, shadow, temperature, distance	Reflect, reflection, shadow, light ray, transmit, opaque, transparent, translucent, emit, absorb, dispersion, prism, pupil, retina, iris, optic nerve, lens, image, cornea, refraction, mirror, convex, concave
Topic links to:						
			Reading – ERIC **History –** rock formation **Geography –** Jurassic coast			
Texts that link to the topic:						
			The Peddle in my Pocket – Meredith Hooper **Stone Girl, Bone Girl –** Laurence Anholt			

Spring 1

FS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Everyday materials Floating sinking Talks about why things happen and how things work. Looks closely at similarities, differences, patterns and change.	**Animals, including humans** Know that animals, including humans, have offspring which grown into adults. Describe the basic needs of animals, including humans, for survival (water, food and air) **Seasonal changes** Observe changes across the four seasons. (To be ongoing throughout the year)	**Plants** Identify and describe the functions of different parts of flowering plants: roots, stem/trunk and flowers. Explore the requirements of plants for life 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 and seed dispersal.	**Animals, including humans** Identify that humans and some other animals have skeletons and muscles for support, protection and movement. **Rocks** 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.	**States of Matter** 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 temperature.	**Properties and changes of materials** Know that some materials will dissolve in a liquid to form a solution and describe how to recover a substance from a solution. Know how to separate liquids, solids and gases using methods such as filtering, sieving and evaporating.	**Evolution and inheritance** 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 adapt to suit their environment in different ways and that adaptation may lead to evolution.
Scientists linked to each unit:						
						Research or comprehension about Charles Darwin and Alfred Wallace
Vocabulary to be taught:						
	Bird, fish, amphibian, reptile, mammal, skeleton, habitat, life cycle, vertebrate, skull, bone, teeth, swim, fly,	Plants, seeds, bulbs, mature, water, light, healthy, temperature, germinate, growth, reproduce, roots,	skeleton, skull, spine, vertebrate, invertebrate, calcium, muscle, contract, relax, pairs, movement,	Solid, liquid, gas, state, melting, boiling, evaporation, condensation, water cycle, temperature,	Property, transparent, opaque, soluble, insoluble, solute, solution, solvent, conduct, insulate,	Natural selection, characteristics, evidence, fossils, parent, offspring, inherit, inherited,

	feathers, scales, fur, skin, diet, nocturnal, pet	flowers, petal, stem, insects, pollen, leaves, Sun	waterproof, strong, hard, opaque, heavy, sedimentary, igneous, metamorphic, porous, fossil, layers, erosion, soil, inner core, outer core, mantle, crust, earthquake, volcano, pebble, boulder, crystal, weathering	thermometer, degrees Celsius (°C)	thermal, magnetic, filter, filtrate, evaporate, gas, solid, liquid, distillation, chromatography, state, burning, oxygen, particles	characteristic, environmental characteristic, adapt, adaptation, evolve, environment, species, breed
Topic links to:						
			History – Ancient Egyptians			
Texts that link to the topic:						

Spring 2

FS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Bodies and healthy eating Can talk about some of the things they have observed such as plants, animals, natural and found objects. Talks about why things happen and how things work. Looks closely at similarities, differences, patterns and change.	**Everyday materials** Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. **Seasonal changes** Observe changes across the four seasons. (To be ongoing throughout the year)	**Plants** Identify and describe the functions of different parts of flowering plants: roots, stem/trunk and flowers. Explore the requirements of plants for life 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 and seed dispersal.	**Forces and Magnets** Compare how things move on different surfaces. Notice that some forces need contact between two objects but magnets 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 can predict whether two magnets will attract or repel each other, depending on which poles are facing.	**Sound** Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. Find patterns between the pitch of a sound and the strength of the vibrations that produced it. Recognise that sounds get fainter as the distance from the sound source increases.	**Forces** Understand and explain that unsupported objects fall to Earth because of the force of gravity. Identify the effects of air resistance, water resistance and friction, that act between a moving surface. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	**Electricity** To recognise and use symbols in a circuit diagram. To 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.
Scientists linked to each unit:						

Vocabulary to be taught:						
	Materials, properties, wood, plastic, glass, metal, rock, uses, objects, waterproof, absorbent, strength, structures, brick, paper, elastic, natural, man-made, shiny, dull, smooth, rough, stretchy, stiff, opaque, transparent, hard, soft	Plants, seeds, bulbs, mature, water, light, healthy, temperature, germinate, growth, reproduce, roots, flowers, petal, stem, insects, pollen, leaves, Sun	Force, surface, magnet, magnetic, force, attract, repel, magnetic material, poles, bar magnet, horseshoe magnet, materials, contact, contact, north pole, south pole, magnetic field, iron, iron filings	Vibration, pitch, sound, wave, volume, frequency, medium, auditory, particle, sound source, ear drum, vibrate, cochlea, hammer, anvil, stirrup, auditory nerve, brain, amplitude, transmit, absorb	Gravity, star, plane, hemisphere, attract, attraction, weight, moon, orbit, revolve, rotation, axis, equator, season, winter, autumn, spring, summer, mass, solar system, geocentric, heliocentric, sphere, ellipse, phases, shadow, temperature, distance	Conductor, insulator, battery, cell, lamp, switch, circuit, component, buzzer, motor, voltage, function, brightness, volume, symbols, wire, graphite, series, parallel, plastic, metal
Topic links to:						
			The Iron Man –Ted Hughes			

Summer 1

FS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants Growth and decay, Identify parts of a plan Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world. Developing an understanding of growth, decay and changes over time.	**Animals, including humans** Understand the importance for humans of exercise, eating the right amounts of different types of food and hygiene. **Seasonal changes** Observe changes across the four seasons. (To be ongoing throughout the year	**Living things and their habitats** Identify and name a variety of plants and animals in their habitats, including micro-habitats. Know 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.	**Light** Recognise that light is needed in order to see things. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous. Recognise that shadows are formed when the light from a light source is blocked by a solid object. Find patterns in the way that the size of shadows change.	**Animals including humans** Construct and interpret a variety of food chains, identifying producers, predators and prey.	**Animals including humans** describe the changes as humans develop to old age	**Living things and their habitats** 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 characteristic.
Scientists linked to each unit:						
Vocabulary to be taught:						
	Bird, fish, amphibian, reptile, mammal, skeleton, habitat, life cycle, vertebrate, skull, bone, teeth, swim, fly, feathers, scales, fur, skin, diet, nocturnal, pet	Animal, human, adult, parent, young, offspring, water, food, air, exercise, hygiene, environment, fossil, skeleton, body, organs, healthy, diet, height, growth, weight, carnivore, herbivore, omnivore	Light, dark, absence, reflection, surface, natural, man-made, light source, shadow, blocked, bright, dim, mirror, absorb, plane mirror, concave mirror, convex mirror, image, opaque, translucent, transparent	Producer, predator, prey, decay, food chain, food web	Puberty, life cycle, gestation, womb, growth, asexual reproduction, sexual reproduction, reproduce, sperm, egg, foetus, baby, birth, fertilisation	Mammal, reptile, amphibians, habitat, micro-organism, adapt, adaptation, characteristics, classify, fungi, virus, bacteria, movement, respiration, reproduction, growth, nutrition, excretion, sensitivity, vertebrate, invertebrates, species,

						kingdoms, mosses, ferns, woody flowering plants, non-woody flowering plants
Topic links to:						
			PSHE - safety			
Texts that link to the topic:						
The Very Hungry Caterpillar Jasper's Beanstalk The Very Lazy Ladybird			**Letters from the Lighthouse** (Emma Carroll) **The Lighthouse Keeper's Cat** (Ronda Armitage, David Armitage)	**Beetle Boy -** M. G. Leonard		

Summer 2

FS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Space and travel	**Seasonal changes** Observe changes across the four seasons. (To be ongoing throughout the year)	**Living things and their habitats** Identify and name a variety of plants and animals in their habitats, including micro-habitats. Know 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.	**Plants** Identify and describe the functions of different parts of flowering plants: roots, stem/trunk and flowers. Explore the requirements of plants for life 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 and seed dispersal.	**Living things and their habitats** Know that 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 environment. Recognise that environments can change and that this can sometimes pose dangers to living things. Pupils should explore examples of human impact (both positive and negative) on environments, E.g. littering, deforestation.	**Living things and their habitats.** Describe the difference in life cycles of a mammal, an amphibian, an insect and a bird (Draw classification charts). Describe the life process of reproduction in some plants. Sexual and asexual reproduction in plants – grow new plants from cuttings.	**Electricity** Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in a circuit. **Bee Project**
Scientists linked to each unit:						
					Do research or a comprehension about Jane Goodall	
Vocabulary to be taught:						
	Winter, summer, spring, autumn, temperature, daylight, hours, night, dark, Sun, Earth, Moon,	living things, plants, animals, habitats, conditions, living, dead, alive, dark, light, water, damp, dry, micro-	Plant, roots, stem, trunk, leaf/leaves, flower, stalk, veins, surface, edge, tip, food, root hair, nutrients,	Climate, weather, temperature, classify humidify, shelter conditions, adapt adaptation, species	Bird, fish, amphibian reptile, mammal invertebrate, carnivore, herbivore, omnivore life cycle, reproduction,	Mammal, reptile, amphibians, habitat micro-organism, adapt, adaptation, characteristics, classify,

	weather, rain, snow, ice, clouds, fog, wind	habitats, food, food chain, sources, food webs, producer, prey, predator, environment, local, protected, endangered, species, birds, reptiles, mammals, amphibians, fish	anchor, support, seed, germination, seedling, growth, mature plant, flowering, pollination, seed formation, bud, petal, pollen, nectar, seed, fruit	invertebrate, vertebrate, bird, reptile, mammal, amphibian, fish	movement, respiration, sensitivity, growth, nutrition, gestation, birth, fertilization, germination, pollination, seed, dispersal, predator, prey	fungi, virus, bacteria, movement, respiration, reproduction, growth, nutrition, excretion, sensitivity, vertebrate invertebrates species, kingdoms mosses, ferns, woody, flowering plants, non-woody flowering plants

Working Scientifically

FS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Ask simple questions recognising that they can be answered in different ways. Observe closely, using simple equipment. Perform simple tests. Identify and classify. Use observations and ideas to suggest answers to questions. Gather and record data to help in answering questions.		Ask relevant questions and use different types of scientific enquiries to answer them. Set up simple practical enquiries, comparative and fair tests. Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Gather, record, classify and present data in a variety of ways to help in answering questions. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Identify differences, similarities or changes related to simple scientific ideas and processes.		Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Use test results to make predictions to set up further comparative and fair tests. Report and present findings from enquiries, including conclusions, causal relationships, explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations. Identify scientific evidence that has been used to support or refute ideas or arguments.	

		Use straightforward scientific evidence to answer questions or to support in findings.	
Vocabulary to be taught:			
Similar, different, investigate, observe, explore, compare, discuss.	**Vocabulary** Biology, chemistry, physics, question, answer, observe, observing, equipment, identify, classify, sort, group, record-diagram, chart, map, data, compare, contrast	**Vocabulary** **Research** – relevant questions Scientific enquiry, comparative and fair test, systematic, careful observation, accurate measurements **Equipment –** thermometer, data logger **Data –** gather record, classify, present **Record –** drawings labelled diagrams, bar charts, tables **Oral and written explanations –** conclusion, predictions, differences, similarities, changes, evidence, improve, secondary sources **Guides, keys –** construct, interpret	**Vocabulary** **Plan –** Variables, Measurements, Accuracy, Precision, Repeat readings **Record data –** scientific diagrams, labels, classification keys, tables, scatter graphs, bar graph and line graphs, Predictions, Further comparative and fair tests **Report and present –** conclusions, causal relationships, explanations, degree of trust, oral and written display and presentation **Evidence –** support, refute ideas or arguments, Identify, classify and describe, Patterns, Systematic, Quantitative measurements