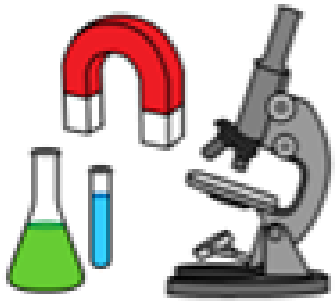
Stoneferry Science

Planning Document

Year 6



Autumn Modules

Nature Library	Our Changing World	Body Pump
Key Concepts Delivered - **Biology** • Organisms require a supply of energy and materials. • Genetic information. • Evolution.	Key Concepts Delivered - **Biology** •	Key Concepts Delivered - **Biology** • Organisms require a supply of energy and materials.
National Curriculum Objectives **Pupils should be taught to:** • 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	**National Curriculum Objectives** **Pupils should be taught to:** • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	**National Curriculum Objectives** **Pupils should be taught to:** • identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood • describe the ways in which nutrients and water are transported within animals, including humans
Relevant Prior Learning In Year 5 children will have sorted materials based on their properties. In Year 5 the children will have learn about reproduction of animals and plants and explored their life cycles.	**Relevant Prior Learning** Children will have explored how plants change within the environment through the different seasons.	**Relevant Prior Learning** In Key Stage 1 the children will have learnt about the human body and the basic requirements for survival: water, air and food. In lower KS2 they learnt about the muscular, skeletal and digestive systems and should be familiar with these terms.
Expected Outcomes The children will know that living things include: animals, plants and micro-organisms. They will know how to classify these into broad groups and be able to explain their reasons They will cultivate micro-organisms over time.	**Expected outcome** The children will know about examples of animal behaviour throughout the year within the local environment	**Expected outcome** The children will know the components of the circulatory system. They will be familiar with the relevant vocabulary. They will know the make up of blood and the role of blood in the body> Children will describe and explain the functions of valves, arteries and veins in the transportation of blood.

Autumn term - Nature Library

Module	Snap Science recommended lessons	National Curriculum Objectives	Expected outcome	Vocabulary	Suggested Resources
The nature library	**Lesson 1** **Can you sort this mess?**	**Enquiry Type -** Grouping and classifying **LO:** 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. **Working Scientifically:** Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs.	Children have a clear understanding of the process of classification	identify, identification, classify, classification, reason, common characteristics, distinguishing characteristics	A large selection of different types of sweets (toffees, chocolates, marshmallows, peppermint creams, liquorice allsorts – some of the selections produced by various manufacturers would be suitable), marker pens, flip chart paper, hoops of different sizes (alternatively, different lengths of string that can be tied to form loops of different sizes.
The nature library	**Lesson 2** **Garden Centre Challenge**	**Enquiry Type -** Grouping and classifying **LO:** 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 **Working Scientifically:** Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs.	Children can apply the process of classification to plants	identify, identification, classify, classification, leaves, plant, shape, size, colour, flowering plants, conifers, ferns, mosses, algae, kingdom, division, species	Examples of different types of plants to include at least one moss, one fern, a conifer and a fl owering plant, with photographs to increase the variety; sticky notes, mini whiteboards.
The nature library	**Lesson 3** **Grouping vertebrates**	**Enquiry Type -** Grouping and classifying **LO:** Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including animals; **L.O.** to give reasons for classifying animals based on specific characteristics. **Working Scientifically:** 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.	Children will explore the classification of animals and recognise the main groups of vertebrates	identify, classify, vertebrates, invertebrates, backbone, fish, amphibians, mammals, birds, reptiles	Internet access, secondary reference resources.

Autumn term - Nature Library

Module	Snap Science recommended lessons	National Curriculum Objectives	Expected outcome	Vocabulary	Suggested Resources
The nature library	**Lesson 4** **Grouping invertebrates**	**Enquiry Type -** Grouping and classifying **LO:** Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. **L.O.** to give reasons for classifying animals based on specific characteristics. **Working Scientifically:** 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.	Children can classify the main groups of invertebrates	invertebrates, wings, jointed legs, cased, transparent, antennae, shell, segments, classify, identify, molluscs, annelids, arachnids, insects, arthropods	Internet access, secondary reference resources.
The nature library	**Lesson 5** **Where do things fit?**	**Enquiry Type -** Grouping and classifying **LO:** Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals **L.O.** to give reasons for classifying animals based on specific characteristics. **Working Scientifically:** Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs.	Children can apply the process of classification to living things in the school grounds	identify, classify, living things, plants, mosses, ferns, conifers, flowering plants, leaves, animals, vertebrates, fish, amphibians, birds, mammals, reptiles, birds, invertebrates, arachnids, annelids, molluscs, insects	Recording materials, such as collection pots, paintbrushes (as tickling sticks to encourage small living things into the collection pots for classification), magnifying glasses, identification keys, whiteboards and pens, clipboards and pencils, digital cameras or iPads, a Google map of the school grounds (optional), identification resources from http:// www.naturedetectives. org.uk/download/ index/ and http:// gatekeepersgaffy. co.uk/?page_id=907
The nature library	**Lesson 6** What else lives besides plants and animals?	**Enquiry Type -** Grouping and classifying **LO:** Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including animals; **L.O.** to give reasons for classifying animals based on specific characteristics. **Working Scientifically:** Identifying scientific evidence that has been used to support or refute ideas or arguments.	Children will recognise that micro-organisms are groups of living things and explain what they are	identify, classify, explain, group, micro-organisms (microbes) small, harmful, beneficial (helpful), bacteria, fungi, protista	Microscopes (ideally with greater than x8 or x10 zoom, possibly digital), mushrooms

Autumn term—Nature Library

Module	Snap Science recommended lessons	National Curriculum Objectives	Expected outcome	Vocabulary	Suggested Resources
The nature library	**Lesson 7** **Grow your own micro-organism**	**Enquiry Type -** Observing changes over different periods of time **LO:** Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals. **Working Scientifically:** Planning different types of enquiries to answer questions including recognising and controlling variables where necessary	Children will investigate the growth of microorganisms	plan, do, review, risk, micro-organisms, multiply, colony, colonies, mould	Petri dishes (at least four per group), trays (one per group), fresh sliced white bread, stale white sliced bread, brown bread, granary bread, sealable transparent plastic bags, sticky tape, labels, cameras

Autumn Term - Body Pump

Module	Snap Science recommended lessons	National Curriculum Objectives	Expected outcome	Vocabulary	Suggested Resources
Body pump	Lesson 1 What does the circulatory system do?	**Enquiry Type:** Finding things out using a wide range of secondary sources of information **LO:** Identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood. Working Scientifically: Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs.	Children will explain how the human circulatory system works	heart, blood vessels, veins, arteries, blood, system, lungs, circulatory system, skeletal system, muscular system, digestive system, oxygenated blood, deoxygenated blood, nutrients, water	Chalk or masking tape, three tabard style sports bibs, bicycle or foot pump, stethoscopes or cardboard tubes, sheets of red and blue paper stuck back to back
Body pump	Lesson 2 What is the heart and what does it do?	**Enquiry Type:** Finding things out using a wide range of secondary sources of information LO: Identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood. WS: 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.	Children will name and explain the main functions of the heart	aorta, artery, atrium, blood, capillaries, chamber, circulation, heart, heart valves, vein, ventricle, vessel, pump, oxygen, lungs, rest of body, chest cavity, circulatory system	Different coloured modelling clay (enough for children to work in pairs), scissors, base boards, digital camera(s) and cocktail sticks (optional), access to secondary sources of information about the heart, children's labelled diagrams of circulatory system from Lesson 1
Body pump	Lesson 3 and 4 (Combined) Blood	Enquiry type: Identifying scientific evidence that has been used to support or refute ideas or arguments LO: Identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood WS: 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.	Children will know what blood is and what its function is.	blood, vessel, artery, vein, valve, red blood cell, plasma, oxygen, carbon dioxide, waste gases	Plasma – yellowy liquid such as weak orange squash (one cup per soup); red blood cells – lots of small red jelly sweets or chopped up pieces of a raspberry jelly cube; white blood cells – a few small white marshmallows; platelets – small amounts of white rice; one sealable plastic bag per person or group making blood soup, children's diagrams from Lesson 1
Body pump	Lesson 5 Valves and blood vessels	Enquiry Type: Finding things out using a wide range of secondary sources of information LO: Identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood. WS: Recording data and results of increasing complexity using scientific diagrams and labels,	Children will know what valves do, and the roles of veins, arteries and capillaries	blood, blood vessels, valves, veins, arteries, capillaries, aorta, vena cava, oxygenated blood, deoxygenated blood	Access to secondary sources such as reference books and the internet, scissors and glue

Autumn term - Our Changing World

Module	Lesson Structure	National Curriculum Objectives	Expected end point	Vocabulary	Resources
Our Changing World	Lesson 1 How do animals behave at different times of the year? **(This lesson will be revisited termly)**	Enquiry Type: Grouping and Classifying L.O. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution Working scientifically links: Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs	The children will know about examples of animal behaviour throughout the year within the local environment	mammal, amphibian, insect, bird, metamorphosis, tadpole, nymph, pupae, chrysalis, caterpillar, migrate, hibernate, courtship, plumage, habitat, adaptation, behaviour	Digital cameras, hand lenses, animal identification guides, binoculars, access to the school's social networking sites, if appropriate

Spring Modules

Body Health	Our Changing World	Everything Changes
Key Concepts Delivered - **Biology** • Organisms require a supply of energy and materials. • Genetic information.	Key Concepts Delivered - **Biology** •	Key Concepts Delivered - **Biology** • Evolution
National Curriculum Objectives **Pupils should be taught to:** •Recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function. give reasons for classifying plants and animals based on specific characteristics •describe the ways in which nutrients and water are transported within animals, including humans	**National Curriculum Objectives** **Pupils should be taught to:** • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	**National Curriculum Objectives** **Pupils should be taught to:** • 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
Relevant Prior Learning Children are aware of the circulatory system and have looked at Healthy lifestyles through learning in PSHE. IN Year 3 the children learnt about the food that humans and other animals need to live, and they also learnt about the functions of the skeleton and muscles in Year 3 too.	**Relevant Prior Learning** Children will have explored how plants change within the environment through the different seasons. Children have explored a series of animals within the autumn term.	**Relevant Prior Learning** Prior learning linked to this topic will be limited. Children will know that animals and plants differ and will have an understanding that over time these change in appearance. They will have learnt about fossils in Year 3.
Expected Outcomes Children will know the impact of smoking and drugs on their bodies. They will be aware of the impact also of a healthy diet and exercise on the heart and physical health of a person. They will present arguments on these areas and be able to make informed choices.	**Expected outcome** The children will know about examples of animal behaviour throughout the year within the local environment	**Expected outcome** Children will know how inherited characteristics are passed through generations and how specific characteristics in animals and plants can be engineered. They will know the impact of environment on natural selection and also identify how the creatures have changed over time through studying formation of fossils.

Spring term—Body Health

Module	Snap Science recommended lessons	National Curriculum Objectives	Expected outcome	Vocabulary	Suggested Resources
Body Health	**Lesson 1**	**Enquiry Type -** Finding things out using a wide range of secondary information **LO:** Recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function. **Working Scientifically:** 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	Children will know the impact of diet and exercise on human health	diet, food, exercise, healthy lifestyle, impact, nutrients, water, oxygen, carbohydrates, fats, proteins, minerals, essential, healthy, vitamins, regular, calories, balanced	Large sheets of flip chart paper, sheets of A3 paper, pens, glue, scissors, plain A4 paper, access to secondary sources, including the internet and healthy education pamphlets and posters, for all levels of challenge
Body Health	**Lesson 2** **Food groups**	**Enquiry Type -** Grouping and classifying **LO:** Recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function **Working Scientifically:** Identifying scientific evidence that has been used to support or refute ideas or arguments	Children will know what constitutes healthy eating.	carbohydrates (also referred to as starchy foods), proteins – including meat, fish, eggs and beans, fats, sugars, fibre, calories, dairy, RDA (recommended daily allowance), saturated fat, unsaturated fat, salt/sodium, eatwell plate, vitamins, minerals, roughage	Range of food packaging either sealed or clean and empty, mini whiteboards, small paper plate (one per child)
Body Health	**Lesson 4** **Changing diets**	**Enquiry Type -** **LO: R**ecognise the impact of diet, exercise, drugs and lifestyle on the way bodies function **Working Scientifically:** Identifying scientific evidence that has been used to support or refute ideas or arguments	Children will create presentations about how diets have changed over time.	scurvy, James Lind, rickets, history, health problems, poor diet, scientific idea, scientist, clinical trial, test	Access to secondary sources for all levels of challenge

Spring term—Body Health

Module	Snap Science recommended lessons	National Curriculum Objectives	Expected outcome	Vocabulary	Suggested Resources
Body Health	**Lesson 5** **The effect of exercise on pulse rate.**	**Enquiry Type -** Carrying out a fair test **LO:** Recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function. **Working Scientifically:** Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate; reporting and presenting findings from enquires, including degree of trust in results	Children will know what happens to their pulse during exercise.	heartbeat, pulse rate, beats per minute (bpm), resting rate, stopwatch, exercise, heart, norm, recovery rate	Stopwatch (one per pair)
Body Health	**Lesson 7** **How do drugs affect the body over time**	**Enquiry Type - Finding out from secondary sources** **LO:** Recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function. **Working Scientifically:** Presenting findings including causal relationships in oral and written forms	Children will know the short and long term effects of drug use, including medicines and write about tehse.	drugs, medicine, illegal, legal, alcohol, caffeine, solvents, short-term effects, long-term effects, consequences, peer pressure	Existing drugs resources your school may already have, access to secondary sources for all levels of challenge
Body Health	**Lesson 8** How does smoking affect the body	**Enquiry Type - Finding out from secondary sources** **LO:** Recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function. **Working Scientifically:** 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	Children will explain via a letter the effects of smoking on the body	smoking, tobacco, cigarettes, lungs, cancer, breathing, asthma, passive smoking, peer pressure	Two large PE hoops; access to secondary sources about smoking risks, should children wish to use them

Spring term - Our Changing World—Continued

Module	Lesson Structure	National Curriculum Objectives	Expected end point	Vocabulary	Resources
Our Changing World	Lesson 1 How do animals behave at different times of the year? **(This lesson will be revisited termly)**	Enquiry Type: Grouping and Classifying L.O. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution Working scientifically links: Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs	The children will know about examples of animal behaviour throughout the year within the local environment Diagrams and explanations of changes witnessed.	mammal, amphibian, insect, bird, metamorphosis, tadpole, nymph, pupae, chrysalis, caterpillar, migrate, hibernate, courtship, plumage, habitat, adaptation, behaviour	Digital cameras, hand lenses, animal identification guides, binoculars, access to the school's social networking sites, if appropriate

Spring term—Everything changes

Module	Snap Science recommended lessons	National Curriculum Objectives	Expected outcome	Vocabulary	Suggested Resources
Everything Changes	**Lesson 1** **Why living things vary**	**Enquiry Type -** Grouping and classifying things **LO:** Recognise that living things produce offspring of the same kind, but that offspring normally vary and are not identical to their parents **Working Scientifically:** Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and/or bar and line graphs	Children will know how living things vary and understand why these variations exist.	variation, characteristic, environment, inherited, measurement, data, compare and contrast	Rulers, metre sticks or tape measures, sticky notes, large sheets of paper (A3), access to the internet or books for further research
Everything Changes	**Lesson 2** **Dog Breeding**	**Enquiry Type -** Finding things out using a wide range of secondary sources of information **LO:** Recognise that living things produce offspring of the same kind, but that offspring normally vary and are not identical to their parents **Working Scientifically:** Identifying scientific evidence that has been used to support or refute ideas or arguments	Children will know how breeding animals can be done to select specific characteristics in offspring.	variation, breeding, inheritance, offspring, characteristics, crossbreed, generation	Secondary sources of information for further research
Everything Changes	**Lesson 4 & 5** How environmental variables affect plants	**Enquiry Type -** Carrying out comparative and fair tests **LO:** Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution **Working Scientifically:** Planning different types of scientific enquiries to answer questions, including recognising and controlling variables	Children investigate and then report on findings of differetn variables on plants	population, variation, environment, observation, variable	Access to wild plants in different habitats or photographs of wild plants in different habitats

Spring term—Everything changes

Module	Snap Science recommended lessons	National Curriculum Objectives	Expected outcome	Vocabulary	Suggested Resources
Everything Changes	**Lesson 6** **How do living things survive**	**Enquiry Type -** Finding things out using a wide range of secondary sources of information **LO:** Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution **Working Scientifically:** Reporting and presenting fi ndings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations	Children will give ways in which living things have adapted to survive in an environment	environment, survival, habitat, temperature, predator, prey, adaptation	Large pieces of paper, access to secondary sources of information, including the internet or books, for further research
Everything Changes	**Lesson 7&8** **(Combined)** **Extinction and survival**	**Enquiry Type -** Finding things out using a wide range of secondary sources of information **LO:** Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution **Working Scientifically:** Identifying scientific evidence that has been used to support or refute ideas or arguments	Children will know specific reasons for extinction And also How specific animals have adapted to promote survival which has changed the characteristics of animals or individuals over time.	adaptation, environment, evolution, natural selection, inheritance, variation, characteristic, population	Sheets of A3 paper, secondary sources of information, including the internet, for further research
Everything Changes	**Lesson 9&10** Changing over time and natural selection	**Enquiry Type -** Finding things out using a wide range of secondary sources of information **LO:** Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago **Working Scientifically:** Identifying scientific evidence that has been used to support or refute ideas or arguments	Children will know what a fossil is and how they can provide information about creatures in the past Children will know the process of natural selection and be able to give examples of this.	environment, adaptation, variation, survival, breeding, generation, population, natural selection, evolution	Collection of fossils, including a fish fossil if possible, or a selection of photographs of fossils, access to secondary sources of information, including the internet, for further research

Summer Modules

Danger Low Voltage	Our Changing World	Light Up Your World
Key Concepts Delivered - **Physics** • The universe follows unbreakable rules that are all about forces, matter and energy • **Energy:** There are many different forms of energy eg: light, sound, electricity, heat and wind	Key Concepts Delivered - **Biology** •	Key Concepts Delivered - **Physics** • The universe follows unbreakable rules that are all about forces, matter and energy • **Energy:** There are many different forms of energy eg: light, sound, electricity, heat and wind
National Curriculum Objectives **Pupils should be taught to:** • 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	**National Curriculum Objectives** **Pupils should be taught to:** •	**National Curriculum Objectives** **Pupils should be taught to:** • 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
Relevant Prior Learning In Year 4 children created simple circuits using electrical components and should understand the concept of electrical energy being stored in cells (batteries). In Year 4 also they explored sound energy and discussed how wind and waves can be also used to create energy.	**Relevant Prior Learning** Children will have explored how plants change within the environment through the different seasons. Children have explored a series of animals within the autumn term and spring term	**Relevant Prior Learning** In Year 3 children learnt about light sources and how light enables us to see and how different objects reflect light and in turn create shadows.
Expected Outcomes Children will know how to construct circuits containing increasing numbers of components. They will understand how electricity flows. They will know the correct symbols for components. Children will know how electricity is generated and transported.	**Expected outcome** The children will be able to discuss the changes in animal behaviour throughout the year and present this to an audience in a chosen format.	**Expected outcome** Children will know how mirrors work and how light is reflected and be able to apply this understanding to practical tasks. Children will know how to draw a ray diagram.. They will understand refraction and also how white light can be split through use of a prism.

Summer term—Danger High Voltage

Module	Snap Science recommended lessons	National Curriculum Objectives	Expected outcome	Vocabulary	Suggested Resources
Danger High Voltage	**Lesson 1** **Making Simple Circuits**	**Enquiry Type -** Carrying out simple comparative and fair tests **LO:** Use recognised symbols when representing a simple circuit in a diagram **Working Scientifically:** Recording data and results of increasing complexity using scientific diagrams	Children will know how to construct a simple circuit and draw this as a diagram to explain how it works.	cell, battery, lamp, wire, buzzer, motor, circuit, current, filament, electrical insulator, electrical conductor, mains electricity, switch, terminal, electrons	Commercially produced energy stick or human circuit ball (available from primary science equipment suppliers, for example, TTS), 1.5V cells, lamps, lamp holders wire, thin tinfoil strips, cell holders, (one of each component between two), magnifiers, digital magnifier, modelling clay (which is useful to anchor a cell while the circuits are constructed), extra wire, small screwdrivers, mini whiteboards
Danger High Voltage	**Lesson 2** **Switches**	**Enquiry Type -** Carrying out simple comparative and fair tests **LO:** Compare the functions of different components, giving reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off positions of switches, and use recognised symbols when representing a simple circuit in a diagram **Working Scientifically:** Recording data and results of increasing complexity using scientific diagrams	Children will know how to make a switch, how to use in a circuit and how to draw it in a circuit diagram	cell, battery, lamp, wire, buzzer, motor, circuit, current, electrical insulator, electrical conductor, mains electricity, terminal, types of switches including toggle, push, slide, tilt, plunger, trembler, pressure	A2 paper, 1.5 V cells, lamps, wire, crocodile clips, toggle switches, slide switches, push switches, lamp holders, cell holders, small screwdrivers, wire strippers, match boxes, metal foil, paper fasteners, paper clips, film canisters, small ball bearings, card, adhesive tape or glue, hand drills, drill bit, examples of mains switches
Danger High Voltage	**Lesson 3** Electrical resistance	**Enquiry Type -** Carrying out simple comparative and fair tests **LO:** 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, and use recognised symbols when representing a simple circuit in a diagram **Working Scientifically:** Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations	Childrne will know what the effect of changing the current in a circuit is.	cell, battery, lamp, wire, buzzer, motor, circuit, series circuit, switch, resistance, resistor, electrical insulator, electrical conductor, mains electricity, terminal, current	1.5 V and 4.5 V cells, lamps, wire, crocodile clips, switches, lamp holders, cell holders, small screwdrivers, wire strippers, pencil or propelling pencil leads stuck to lollipop sticks, resistance wire and/or different thicknesses of fuse wire

Summer term—Danger High Voltage

Module	Snap Science recommended lessons	National Curriculum Objectives	Expected outcome	Vocabulary	Suggested Resources
Danger High Voltage	**Lesson 4** **Circuit Diagrams**	**Enquiry Type -** Carrying out simple comparative and fair tests **LO: Asso**ciate 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, and use recognised symbols when representing a simple circuit in a diagram **Working Scientifically:** Reporting and presenting findings from enquires, including conclusions, causal relationships and explanations of and degree of trust in results in oral and written forms such as displays and other presentations	Children will know how to construct a circuit from a circuit diagram	1.5 V cells, battery, lamp, wire, buzzer, motor, circuit, series circuit, switch, resistance, resistor, electrical insulator, electrical conductor, mains electricity, terminal, current, circuit diagram, recognised symbols	1.5 V cells, lamps, wire, crocodile clips, switches, lamp holders, cell holders, small screwdrivers, wire strippers
Danger High Voltage	**Lesson 5&6 (Combined)** **Will lights stay on**	**Enquiry Type -** Carrying out simple comparative and fair tests **LO: NA** **Working Scientifically:** Reporting and presenting findings from enquires, including conclusions, causal relationships and explanations of and degree of trust in results in oral and written forms such as displays and other presentations	Children will know how electricity is generated and transmitted to the classroom, and discuss electricity generation in the future	generate, generator, coal, gas, oil, fossil fuels, nuclear, neutrons, atoms, biomass-fired power stations, wind turbine, wave hub, tidal flow, hydro-electric, grid, pylon, transmission, transformer, solar panels	Sticky notes, A2 sheets of paper, computers, access to resources to allow children to research electricity generation and using renewable sources of electricity generation

Summer term - Our Changing World—Continued

Module	Lesson Structure	National Curriculum Objectives	Expected end point	Vocabulary	Resources
Our Changing World	Lesson 1 How do animals behave at different times of the year? **(This lesson will be revisited termly)**	Enquiry Type: Grouping and Classifying L.O. Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution Working scientifically links: Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs	The children will know about examples of animal behaviour throughout the year within the local environment Diagrams and explanations of changes witnessed.	mammal, amphibian, insect, bird, metamorphosis, tadpole, nymph, pupae, chrysalis, caterpillar, migrate, hibernate, courtship, plumage, habitat, adaptation, behaviour	Digital cameras, hand lenses, animal identification guides, binoculars, access to the school's social networking sites, if appropriate

Summer term—Light Up Your World

Module	Snap Science recommended lessons	National Curriculum Objectives	Expected outcome	Vocabulary	Suggested Resources
Light Up Your World	**Lesson 1** **What is light?**	**L.O.** 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 **Working Scientifically:** Identifying scientifi c evidence that has been used to support or refute ideas or arguments	Children will know about shadows and the behaviour of light	bright, dark, dim, dull, eye, light, mirror, opaque, reflect, shadow, shiny, translucent, transparent	Torches, sunglasses, mirrors, a collection of materials that are transparent, translucent and opaque, a light meter/data logger
Light Up Your World	**Lesson 2** **Mirrors**	**Enquiry Type - Noticing patterns** **LO:** 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 **Working Scientifically:** Using test results to make predictions to set up further comparative and fair tests	Children will know and know how to draw how light is reflected on a mirror	light, mirror, reflect, image, reverse, backwards, upside down, inverted	Plastic mirrors (one of each for each group), shiny metal spoons (ideally larger than teaspoons so a reflection of a child's face is clearly visible in them)
Light Up Your World	**Lesson 3** **REfelcting light round corners**	**LO:** 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 **Working Scientifically:** Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs	To use the principles of how light travels to design make and explain a periscope	light, mirror, reflect, reverse, backwards, upside down, image, inverted, periscope	Plastic mirrors (two for each group), a selection of torches and a small object such as a car or plastic figure (one of each for each group), cardboard, scissors and Sellotape

Summer term—Light Up Your World

Module	Snap Science recommended lessons	National Curriculum Objectives	Expected outcome	Vocabulary	Suggested Resources
Light Up Your World	**Lesson 4**	**LO:** 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 **Working Scientifically:** Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs	Children will know how a pinhole camera works and, using suitable representations, show how this helps us to understand how we see things	light, mirror, reflect, reverse, backwards, inverted, upside down, periscope, ray diagram	Plastic mirror, a bright torch, small shoe box, tracing paper, black paper or card (or kitchen foil), scissors and sticky tape, needle or drawing pin; two very large pieces of card, ideally greater than 1 m x 1 m, one with a triangle cut out of it (side length about 50 cm each side) and the other with a smaller circular hole about the size of a tennis ball cut in it; long straight piece of wooden dowel (2 m) or ball of thread, large piece of paper (bigger than A3) and thick marker pen
Light Up Your World	**Lesson 5&6 (combined)**	**Enquiry Type -** **LO:** **Working Scientifically:**			
Light Up Your World	**Lesson (7&8) (Combined)**	**Enquiry Type -** **LO:** **Working Scientifically:**			