Science Medium Term Plan Year A and Year B

Blue – Practical scientific methods, processes and transferable scientific skills

RED – Key vocabulary

Emerald Class

Differentiation by input **see the weekly planning and activities - ensure SEND pupils' targets are being used to support pupils in every lesson**
-*Key vocab* for each learning objective is in red font
-*Resources* -**see the weekly planning** Ensure the resources extend the context they are learning through and supports their enjoyment of science.
-*Minimum Assessment for Learning strategies* for all topics = Peer Talk; targeted questioning, attainment of transferable skills
- Long term memory development strategies= Recapping pervious learning at the start of each new topic / Long term memory strategy linked to the objectives on this sheet for each week
-Scientific_Cultural Capital = Understanding of order in teaching/learning of science in order to build on skills and knowledge

Emerald Year 5 & 6 Year A	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Ruby Class EYFS • Communication and Language • Personal, Social and Emotional Development • Understanding the World			Listening, Attention and Understanding Managing Self The Natural World	Make comments about what they have heard and ask questions to clarify their understanding Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. 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.				
Autumn 1 **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 impact of diet and exercise on human health in which nutrients and water are transported within animals, including humans.	N.C. Links: Recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function 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 **BODY HEALTH (Collins)** **What does being healthy mean?** L.O: To describe the impact of diet and exercise on human health. Key vocabulary: diet, food, exercise, healthy lifestyle, impact, nutrients, water, oxygen, carbohydrates, fats, proteins, minerals, essential, healthy, vitamins, regular, calories, balanced	N.C. Links: Identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs **BODY PUMP (Collins)** **What does my circulatory system do?** L.O. To describe how the human circulatory system works Key Vocabulary: heart, blood vessels, veins, arteries, blood, system, lungs, circulatory system, skeletal system, muscular system, digestive system, oxygenated blood, deoxygenated blood, nutrients, water	N.C. Links: Identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood, valves, veins, arteries and capillaries 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. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs. Identifying scientific evidence that has been used to support or refute ideas or arguments **BODY PUMP (Collins)** **What is in blood?** L.O. To explain the function of blood **What is blood?** L.O. To identify the contents of blood and describe their function. **What do valves and blood vessels do?** L.O. To identify and name the main parts of the human circulatory system and describe the functions of the heart, blood vessels and blood. L.O. To pose and answer a range of relevant questions about how blood transports gases round the body Key Vocabulary: blood, vessel, artery, vein, valve, red blood cell, plasma, oxygen, carbon dioxide, waste gases, capillaries, aorta, vena cava, oxygenated blood, deoxygenated blood blood, platelets, nutrients, digestive tract, white blood cells,	N.C. Links: Recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function Identifying scientific evidence that has been used to support or refute ideas or arguments. Grouping and classifying thing **BODY HEALTH (Collins)** **How is food divided into different groups?** L.O. To evaluate healthy eating guidance Key vocabulary: 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	N.C. Links: Describe the ways in which nutrients and water are transported within animals, including humans. Identify and name the main parts of the human circulatory system and explain the functions of the heart, blood vessels and blood; to describe the ways in which nutrients and water are transported within animals, including humans 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. **BODY PUMP (Collins)** **What happens to water in our bodies?** L.O. To explain how water helps humans' and other animals' bodies to function **What does the road around our body look like?** L.O. To create a game to demonstrate knowledge of the human circulatory system Key vocabulary: water, transport, humans, waste, nutrition, animals, cells, body temperature, hydration, lubricant, circulatory system, heart, lungs, rest of body, blood, veins, arteries, vessels, capillaries, valves, oxygen, nutrients, health,	N.C. Links: Recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function. 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 **BODY HEALTH (Collins)** **How is pulse rate affected by exercise?** L.O. To investigate variables that affect pulse rate **What are the benefits of sports and exercise?** L.O. To identify the impact exercise has on the way the body functions Key vocabulary: pulse rate, beats per minute (bpm), resting rate, stopwatch, heart, norm, recovery rate exercise, impact, healthy lifestyle, sport, heart rate, pulse rate, participation, persuade, training, motivation, physical benefits, mental benefits,	N.C. Links: Recognise the impact of diet, exercise, drugs and lifestyle on the way bodies function. Presenting findings including causal relationships in oral and written forms **BODY HEALTH (Collins)** **How do drugs affect the body over time?** L.O. To identify and present the long-term effects on the body of drug use **How does smoking affect the body?** L.O. To describe the long-term effects on the body of smoking Key vocabulary: drugs, medicine, illegal, legal, alcohol, caffeine, solvents, short-term effects, long-term effects, consequences, smoking, tobacco, cigarettes, lungs, cancer, breathing, asthma, passive smoking, peer pressure **Key information: Ideally this lesson should be taught as part of a wider drugs education program for children at your school and should be tailored accordingly.**
Autumn 2 **Electricity** Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit	N.C. Links: Use recognised symbols when representing a simple circuit in a diagram Recording data and results of increasing complexity using scientific diagrams and labels,	N.C. Links: 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	N.C. Links 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	N.C. Links: There are no direct links to the three statements in the science national curriculum, as these two lessons involve carrying out research and constructing reports about electricity in everyday use	N.C. Links: 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	N.C. Links: 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	**Assessment and Review**

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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.	classification keys, tables, scatter graphs, bar and line graphs **DANGER! LOW VOLTAGE (Collins)** **How many simple circuits can you make?** L. O. To represent a simple circuit in a diagram and describe how it works Key vocabulary: cell, battery, lamp, wire, buzzer, motor, circuit, current, filament, electrical insulator, electrical conductor, mains electricity, switch, terminal, electrons	buzzers and the on/off position of switches, and use recognised symbols when representing a simple circuit in a diagram Recording data and results of increasing complexity using scientific diagrams, classification keys, tables, scatter graphs, bar and line graphs **DANGER! LOW VOLTAGE (Collins)** **Do you know your circuit diagrams and can you construct working circuits for them?** **L.O.** To demonstrate how circuits can be represented in, and constructed from, diagrams**.** Key vocabulary: 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	recognised symbols when representing a simple circuit in a diagram Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. 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 **DANGER! LOW VOLTAGE (Collins)** **What does a switch do?** L.O. To use a switch in a simple circuit, show it in a diagram and describe how it works **How strong is your resistance?** L.O. To demonstrate the effects of changing the current flowing through components in a circuit Key vocabulary: 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, series circuit, resistance, resistor,	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 Identifying scientific evidence that has been used to support or refute ideas or arguments. **DANGER! LOW VOLTAGE (Collins)** **Will the lights stay on? (part 1 & 2)** L.O. To research how electricity is generated and transmitted to the classroom, and discuss electricity generation in the future **L.O.** To present information on how electricity is generated and transmitted to the classroom, and to discuss its generation in the future Key vocabulary: 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	buzzers and the on/off position of switches, and use recognised symbols when representing a simple circuit in a diagram Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graph and/or bar and line graphs **DANGER! LOW VOLTAGE (Collins)** **Are you all wired up? (part 1)** L.O. To demonstrate and apply learning about adding and changing components in circuits Key vocabulary: cell, battery, lamp, wire, buzzer, motor, circuit, current, filament, electrical insulator, electrical conductor, mains electricity, switch, terminal, circuit diagram, recognised symbols	buzzers and the on/off position of switches, and use recognised symbols when representing a simple circuit in a diagram 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 **DANGER! LOW VOLTAGE (Collins)** **Are you all wired up? (part 2)** L.O. To explain and evaluate the design of and construct different circuits and discuss their practicability Key vocabulary: cell, battery, lamp, wire, buzzer, motor, circuit, current, filament, electrical insulator, electrical conductor, mains electricity, switch, terminal, circuit diagram, recognised symbols	
Spring 1 **Evolution and inheritance** 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. Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago	N.C. Links: Recognise that living things produce offspring of the same kind, but that offspring normally vary and are not identical to their parents Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and/or bar and line graphs **EVERYTHING CHANGES (Collins)** **Why do living things vary?** L.O. To identify ways in which living things of the same kind vary and to begin to think about why these variations exist Key vocabulary: variation, characteristic, environment, inherited, measurement, data, compare and contrast	N.C. Links: Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution Planning different types of scientific enquiries to answer questions, including recognising and controlling variables **EVERYTHING CHANGES (Collins)** **How does the environment affect plants?** L.O. To observe the effects of the environment on plants and design an experiment to investigate some of these effects **How do environmental variables affect plants?** L.O. To investigate the effect of environmental variables on plants and interpret the results Key vocabulary: population, variation, environment, observation, variable, respond	N.C. Links: Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations Identifying scientific evidence that has been used to support or refute ideas or arguments. **EVERYTHING CHANGES (Collins)** **How do living things survive?** L.O. To explore ways in which living things are adapted to suit the environments in which they live and to help them survive **Why do living things become extinct?** L.O. To evaluate variables that contribute to the extinction of living things Key vocabulary: environment, survival, habitat, temperature, predator, prey, adaptation, natural selection, extinction, population	N.C. Links: Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution 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 **EVERYTHING CHANGES (Collins)** **What does it take to survive?** L.O. To describe animal and plant adaptations and explain how the characteristics of the individuals in populations can change over time Key vocabulary: adaptation, environment, evolution, natural selection, inheritance, variation, characteristic, population	N.C. Links: Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago Identifying scientific evidence that has been used to support or refute ideas or arguments **EVERYTHING CHANGES (Collins)** **What evidence is there that living things have changed over time?** L.O. To recognise that fossils allow us to study things that have lived in the past and provide evidence of evolution Key vocabulary: fossils, characteristics, environment, adaptation, evolution	N.C. Links: Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago Identifying scientific evidence that has been used to support and refute ideas or arguments **EVERYTHING CHANGES (Collins)** **How does natural selection work?** L.O. To describe the process of natural selection Key vocabulary: environment, adaptation, variation, survival, breeding, generation, population, natural selection, evolution	**Assessment and Review**
Spring 2 **Evolution and inheritance** Recognise that living things produce offspring of the same kind, but normally offspring vary and	N.C. Links: Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution Recording data and results of increasing complexity using scientific diagrams and labels,	N.C. Links: Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird; identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution Recording data and results of increasing complexity using scientific	N.C. Links: Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs	N.C. Links: Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird; identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution Reporting and presenting findings from enquiries, including	N.C. Links**:** Describe how living things are classified into broad groups according to common observable characteristics, similarities and differences, including micro-organisms, plants and animals; identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	N.C. Links: 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. Recognise that living things have changed over time and that fossils	**Assessment and Review**

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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. Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago	classification keys, tables, scatter graphs, and bar and line graphs **OUR CHANGING WORLD (Collins)** **How do animals behave at different times during the year?** L.O. To identify, observe and give examples of animal behaviour throughout the year within the local environment Key vocabulary: mammal, amphibian, insect, bird, metamorphosis, tadpole, nymph, pupae, chrysalis, caterpillar, migrate, hibernate, courtship, plumage, habitat, adaptation, behaviour	diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs **OUR CHANGING WORLD (Collins)** **How can we observe animals when we are not there?** L.O. To make detailed observations of animal behaviour, making comparisons and suggesting reasons for the similarities and differences observed Key vocabulary: mammal, amphibian, insect, bird, metamorphosis, young, chick, plumage, habitat	**OUR CHANGING WORLD (Collins)** **How can we observe the life cycles of specific animals more closely?** L.O. To identify, observe and give examples of animal behaviour throughout the year within the local environment Key vocabulary: mammal, amphibian, insect, bird, metamorphosis, tadpole, nymph, pupae, chrysalis, caterpillar, migrate, hibernate, courtship, plumage, habitat, adaptation, behaviour	conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations **OUR CHANGING WORLD (Collins)** **How does the number, type and behaviour of birds found around our school change during the year?** L.O. To identify and make detailed observations of bird life in the local environment, looking for patterns in evidence collected over time Key vocabulary: nest, brood, fledgling, chick, young bird, juvenile, plumage, habitat, diet, migrate, migration, resident	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 **OUR CHANGING WORLD (Collins)** **What happens to invertebrates during the year?** L.O. To extend understanding of different types of invertebrates, with particular reference to the ways in which they are suited to the environments in which they live Key vocabulary: invertebrate, justify, analyse, adaptation, predator, prey, survival, habitat, mollusc, worm, snail, woodlouse, centipede, millipede, shield bug, beetle, fly, aphid, names of other invertebrates identified during the lesson	provide information about living things that inhabited the Earth millions of years ago Using observations and ideas to suggest answers to questions. **Independent research** L.O. To use independent research to extend own knowledge of the topic Previous key vocabulary	
Summer 1 **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 characteristics	N.C. Links: 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 Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs **THE NATURE LIBRARY (Collins)** **Can you sort this mess?** L.O. To demonstrate understanding of the process of classification**s)** Key vocabulary: identify, identification, classify, classification, reason, common characteristics, distinguishing characteristics	N.C. Links: Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including animals; to give reasons for classifying animals based on specific characteristics 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 **THE NATURE LIBRARY (Collins)** **How are vertebrates grouped together?** L.O. To explore the classification of animals and recognise the main groups of vertebrates Key vocabulary: identify, classify, vertebrates, invertebrates, backbone, fish, amphibians, mammals, birds, reptiles	N.C. Links: 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 animals based on specific characteristics 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 Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs **THE NATURE LIBRARY (Collins)** **How are invertebrates grouped together?** L.O. To explore the classification of the main groups of invertebrates **Where do things fit?** Learning intention: To apply classification concepts to living things in the school grounds Key vocabulary: invertebrates, wings, jointed legs, cased, transparent, antennae, shell, segments, classify, identify, molluscs, annelids, arachnids, insects, arthropods, living things, plants, mosses, ferns, conifers, flowering plants, leaves, animals, vertebrates, fish, amphibians, birds, mammals, reptiles	N.C. Links: 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 Identifying scientific evidence that has been used to support or refute ideas or arguments. Planning different types of enquiries to answer questions including recognising and controlling variables where necessary **THE NATURE LIBRARY (Collins)** **What else is living besides plants and animals?** L.O. To recognise that micro-organisms are groups of living things and explain what they are **How can you grow your own micro-organism?** L.O. To investigate the growth of micro-organisms Key vocabulary: identify, classify, explain, group, micro-organisms (microbes) small, harmful bacteria, fungi, plan, do, review, risk, multiply, colony, colonies, mould	N.C. Links 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 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 or other presentations; identifying scientific evidence that has been used to support or refute ideas **THE NATURE LIBRARY (Collins)** **Was it always this way?** L.O. To recognise that the classification system for living things has changed through history and is still changing **What happens when scientists disagree?** L.O. To explore, using the example of plant classification and children's own classification of seeds, how scientists handle disagreements in science Key vocabulary: historically, grouping, classifying, Aristotle, Carl Linnaeus, kingdom, Animalia, Plantae, Fungi, Protista and Monera Phillip Miller, John Ray, botany, conventions	N.C. Links: Give reasons for classifying plants and animals based on specific characteristics Presenting findings from enquiries in oral and written forms such as displays or other presentations **THE NATURE LIBRARY (Collins)** **What should we call it?** L.O. To use evidence and apply existing knowledge to classify and name an unknown animal or plant Key vocabulary: historically, grouping, classifying, characteristics, genus and species	**Assessment and Review**
Summer 2 **Light** Recognise that light appears to travel in straight lines Use the idea that light travels in straight lines to	N. C. Links: 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 Identifying scientific evidence that has been used to support or refute ideas or arguments	N. C. Links: 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 Using test results to make predictions to set up further comparative and fair tests Recording data and results of increasing complexity using scientific	N. C. Links: Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Recording data and	N. C Links: Recognise that light appears to travel in straight lines Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs; using test results to	N. C. Links: Recognise that light appears to travel in straight lines Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs	N. C. Links: 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	**Assessment and Review**

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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	**LIGHT UP YOUR WORLD (Collins)** **What is light and what does it do?** L.O. To consolidate the key ideas from Year 3 about the behaviour of light, including light sources and shadows Key vocabulary: bright, dark, dim, dull, eye, light, mirror, opaque, reflect, shadow, shiny, translucent, transparent	diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs **LIGHT UP YOUR WORLD (Collins)** **Can you see more than just your face in a mirror?** L.O. To describe how a mirror reflects an image of an object **Can light go around corners?** L.O. To apply understanding of how light travels to explain how a periscope and other applications of mirrors work Key vocabulary: light, mirror, reflect, image, reverse, backwards, upside down, inverted, periscope	results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs **LIGHT UP YOUR WORLD (Collins)** **How can you measure a shadow?** L.O. To identify the variables that affect the size of a shadow, and plan a fair test to investigate one of them **What do we know about changing shadow sizes?** L.O. To carry out a fair test to investigate the relationship between shadow size and an independent variable Key vocabulary: shadow, opaque, predict, variable, accurate, reliable	make predictions to set up further comparative and fair tests **LIGHT UP YOUR WORLD (Collins)** **Can light change direction without a mirror?** L. O. To recognise that whilst light does travel in straight lines, sometimes it changes direction when travelling from one thing into another Key vocabulary: refract, refraction, medium	**LIGHT UP YOUR WORLD (Collins)** **How many ways can you make a rainbow?** L.O. To understand that white light is made of many colours and these can be separated out Key vocabulary: refract, refraction, medium, dispersion, reflect, spectrum	sources to objects and then to our eyes Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs **LIGHT UP YOUR WORLD (Collins)** **Can you make a camera with a box, paper and a pin?** L.O. To understand how a pinhole camera works and, using suitable representations, show how this helps us to understand how we see things Working scientifically links: Key vocabulary: light, mirror, reflect, reverse, backwards, inverted, upside down, periscope, ray diagram	

During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Using test results to make predictions to set up further comparative and fair tests
- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- Identifying scientific evidence that has been used to support or refute ideas or arguments.

Collins is the scheme of work followed but other resources can be used to supplement and complement the planning process and learning objectives

Enrichment Science Activities:

- **Townies science challenge**
- **Science week**
- **Outdoor Learning**

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Differentiation by input **see the weekly planning and activities - ensure SEND pupils' targets are being used to support pupils in every lesson**
-*Key vocab* for each learning objective is in red font
-*Resources* -**see the weekly planning** Ensure the resources extend the context they are learning through and supports their enjoyment of science.
-*Minimum Assessment for Learning strategies* for all topics = Peer Talk; targeted questioning, attainment of transferable skills
- Long term memory development strategies= Recapping pervious learning at the start of each new topic / Long term memory strategy linked to the objectives on this sheet for each week
-Scientific Cultural Capital = Understanding of order in teaching/learning of science in order to build on skills and knowledge

Ruby Class EYFS

- Communication and Language
- Personal, Social and Emotional Development
- Understanding the World

Listening, Attention and Understanding
Managing Self
The Natural World

Make comments about what they have heard and ask questions to clarify their understanding
Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.
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.

Emerald Year 5 & 6 Year B	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1 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 Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky	N. C. Links: Describe the movement of the Earth and other planets in the solar system relative to the Sun Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs **THE EARTH AND BEYOND (Collins)** **What's in space?** L.O. To describe the shapes, positions and movement of the planets in the solar system and some of the differences between these and stars Key vocabulary: asteroid, crescent, Earth, galaxy, Jupiter, Mars, Mercury, Milky Way, Moon, orbit, planet, Saturn, solar system, star, Sun, sunrise, sunset, Neptune, telescope, Uranus, Venus	N. C. Links: Describe the movement of the Earth and other planets in the solar system relative to the Sun. Use the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky Reporting and presenting findings from enquiries, including conclusions, causal relationships of and degree of trust in results, in oral and written forms such as displays and other presentations **THE EARTH AND BEYOND (Collins)** **What is a year?** L.O. To use a model to describe and compare the movements of different planets in space **What is a day? (Collins)** L.O. To use a model or diagram to explain the effect of the Earth's rotation in space. Key vocabulary: Earth, fixed stars, galaxy, Jupiter, leap year, Mars, Mercury, Milky Way, nebula, orbit, planet, Saturn, solar system, star, Sun, Neptune, Uranus, Venus, year axis, dawn, dusk, horizon, rotate, spin, Sun, sunrise, sunset	N. C. Links: Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, and taking repeat readings when appropriate. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs **THE EARTH AND BEYOND (Collins)** **How does the sun help us to measure time?** L.O. To make a shadow clock and test its accuracy **What time is it around the world? (Collins)** L.O. To use a model to explain why sunrise and sunset occur at different moments in time in different parts of the world Key vocabulary: compass, British Summer Time, dawn, dusk, sunrise, sunset, degrees, International Date Line, longitude, meridian, rotation, time zone	N. C. Links: Describe the movement of the Earth, and other planets, relative to the Sun in the solar system Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs **THE EARTH AND BEYOND (Collins)** **Why do we have seasons?** L.O. To explain how the Earth's tilt leads to seasonal changes Working scientifically links: Key vocabulary: autumn, axis, equinox, hemisphere, northern, North Pole, orbit, rotation, solstice, southern, South Pole, spring, summer, sunrise, sunset, temperature, tilt, winter	N. C. Links: Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky Identifying scientific evidence that has been used to support or refute ideas or arguments **THE EARTH AND BEYOND (Collins)** **What are our conclusions about sunrise and sunset times?** L.O. To be able to explain how the Earth's tilt affects the times of sunrise and sunset in different places at different times of the year Key vocabulary: Arctic, Antarctic, autumn, axis, equator, equinox, hemisphere, northern, North Pole, orbit, rotation, solstice, southern, South Pole, spring, summer, sunrise, sunset, temperature, tilt, winter	N.C. Links: Describe the movement of the Moon relative to the Earth Using test results to make predictions to set up further comparative and fair tests **THE EARTH AND BEYOND (Collins)** **Why does the moon change shape?** L.O. To identify the phases of the Moon and explain why these occur Key vocabulary: crescent, gibbous, orbit, the Earth, Full Moon, illuminate, lunar month, Moon, New Moon, reflect, waning, waxing	**Assessment and Review**
Autumn 2 Forces 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	N. C. Links: Identify the effects of air resistance, water resistance and friction, which act between moving surfaces Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, including taking repeat readings when appropriate **FEEL THE FORCE (Collins)** **How can we measure forces?** L.O. To measure, using appropriate units, friction between moving surfaces as part of an investigation into how the surface area and materials affect friction	N.C. Links: Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object, and identify the effects of air resistance, water resistance and friction, which act between moving surfaces Identifying scientific evidence that has been used to support or refute ideas or arguments. Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary **FEEL THE FORCE (Collins)** **Why does an object fall?**	N.C. Links: Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object, and identify the effects of air resistance, water resistance and friction, which act between moving surfaces Using test results to make predictions to set up further comparative and fair tests **FEEL THE FORCE (Collins)** **How can we slow down falling objects?** L.O. To use test results about air resistance as a starting point for further investigative work	N.C. Links: Identify the effects of air resistance, water resistance and friction, which act between moving surfaces Identify scientific evidence that has been used to support or refute ideas or arguments. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. **FEEL THE FORCE (Collins)** **Does the shape of an object affect its movement in a liquid?** L.O. To measure the effects of water resistance	N.C. Links: Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect Taking measurements, using a range of scientific equipment with increasing accuracy and precision, including taking repeat readings when appropriate **FEEL THE FORCE (Collins)** **How can we use levers to help us?** L.O. To demonstrate how levers work and how they reduce the force required to move objects	N.C. Links: Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs and bar and line graphs **FEEL THE FORCE (Collins)** **How can we lift a heavy load?** L.O. To explain why pulleys make lifting objects easier **Can a wheel with teeth make work easier?**	**Assessment and Review**

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levers, pulleys and gears, allow a smaller force to have a greater effect.	Key vocabulary: mass, gravity, Newton meter, friction, smooth, rough, movement	L.O. To use evidence to explain how objects fall through the air **What makes things move?** L.O. To use arrows to represent forces that make objects move in different directions Key vocabulary: gravity, falling, surface area, weight, mass, air resistance, friction, fast, slow, start, stop, change direction, fall, rotate, contact force, non-contact force, reaction force, balanced	Key vocabulary: air resistance, force, gravity, surface area, mass, weight, pull, measurement, test, variables, time, fall	**Do all heavy things sink?** L.O. To identify and explain the effect of up thrust on objects in water Key vocabulary: water resistance, water, floating, ripples, drag, streamlined, surface area, float, sink, pull, force, gravity, heavy, light, push, Newton meter, Newtons, drag, weight, mass, up thrust	Key vocabulary: lever, pivot, push, pull, mechanism, machine, force, fulcrum	L.O. To explain how gears allow a smaller force to have a greater effect Key vocabulary: pull, lift, force, effort, mechanism, machine, pulley, gears, cogs, wheels, teeth	
Spring 1 Properties and changes in materials 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 Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic	N.C. Links: Compare and group together everyday materials based on evidence from comparative and fair tests, including hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs **GET SORTED (Collins)** **How can we compare and group materials?** L.O. To classify a variety of materials according to their properties **Is a solid always hard?** L.O. To compare and contrast different solids according to their properties, including their hardness **Is a liquid always runny?** **L.O.** To compare and contrast the properties of different liquids, including viscosity**.** Key vocabulary: properties, material, compare, contrast, group, organise, criteria, hardness, soluble, insoluble, transparent, opaque, electrical conductor/insulator, thermal conductor/ insulator, magnetic, non-magnetic, attract, repel brittle, permeable, impermeable, permeability, viscosity, viscous,	N.C Links: Compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets Identifying scientific evidence that has been used to support or refute ideas. Recognising and controlling variables where necessary. **GET SORTED (Collins)** **Are all metals the same?** L.O. To identify the properties of different metals and describe how these properties make them suitable for particular uses **Are all plastics the same?** **L.O.** To identify the properties of different plastics and explain how these make them suitable for particular purposes Key vocabulary: properties, material, compare, contrast, hardness, strength, rigidity, flexibility, ductile (can be drawn into wires), electrical conductor, thermal conductor, magnetic, non-magnetic, attract, repel, oxidises, rusts, polyester, nylon, polythene, PVC, polystyrene, acrylic, recycle, reuse, biodegradable, environmentally friendly	N.C. Links**:** Compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary **GET SORTED (Collins)** **To bounce or not to bounce: why are sports balls so different?** **L.O.** To investigate the properties of materials and their uses by planning and carrying out a fair test enquiry using different types of balls Key vocabulary: properties, characteristics, material, compare, contrast, group, organise, criteria, hardness, fl exibility, stretchable, bouncy, elastic, elasticity, fair test, variables, independent, dependent, control	N.C. Links: Give reasons, based on evidence from comparative and fair tests, for specific uses of everyday materials, including metals, wood and plastic 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. Grouping and classifying **EVERYDAY MATERIALS (Collins)** **Which materials are used in our school building, what for and why?** L.O. To recognise that materials are used in many different ways and for particular purposes within buildings Key vocabulary: properties, material, building, construction, structure, organic, natural, manufactured, man-made, weathering, decay, decompose, break down, brittle, fragile, metal, durable, durability, plastic, wood, ceramic, concrete, insulate, insulation	N.C. Links: Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Planning different types of science enquiries to answer questions, including recognising and controlling variables where necessary **EVERYDAY MATERIALS (Collins)** **Weighty problem: which is the best carrier bag?** L.O. To plan a fair test to investigate different carrier bags and collect evidence to make recommendations regarding their use **Which is the best type of plate to use?** L.O. To plan and carry out comparative tests to find out which material is best for picnic plates Key vocabulary: properties, material, compare, contrast, strength, weakness, durability, wear, tear, stretch, flexibility, weight, mass, plastic waterproof, washable, stain resistant, reusable, ovenproof, heat, temperature, thermal conductor, manufacture	N.C. Links: Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, and taking repeat readings when appropriate Carrying out comparative and fair tests **EVERYDAY MATERIALS (Collins)** **Mystery material: what will happen if we add water to the material?** L.O. To observe, measure, describe and explain the changes that happen to a mystery material when water is added **Nappy ending: what's the best brand of nappy?** L.O. To present findings from a comparative test of nappies as a recommendation for parents of babies Key vocabulary: properties, material, compare, contrast, absorb, absorbency, gel saturated, material, particle, polymer, volume, quantity	**Assessment and Review**
Spring 2 Properties and changes in materials 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	N.C. Links**:** Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary **MARVELLOUS MIXTURES (Collins)** **How can we separate mixtures?** L.O. To explain that materials can mix and to demonstrate that mixtures of solid materials can be	N.C. Links: Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution Grouping and classifying. Using test results to make predictions to set up further comparative and fair tests **MARVELLOUS MIXTURES (Collins)** **What happens when we mix liquids and solids?** L.O. To identify through investigation some solids that dissolve and others that do not, and describe how to tell that a solid has dissolved	N.C. Links: Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Planning different types of scientific enquiries to answer questions, including recognising and controlling variables **MARVELLOUS MIXTURES (Collins)** **How can we get drinkable water from seawater?** L.O. To explain the processes of evaporation and condensation and how these might help to produce drinkable water from a plentiful supply of seawater	N.C. Links: 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 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	N.C. Links: 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 Using test results to make predictions to set up further comparative and fair tests **ALL CHANGE (Collins)** **How much gas can be produced by non-reversible change?** L.O. To compare the quantity of carbon dioxide produced by	N.C. Links: 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 Planning different types of scientific enquiry to answer questions, including recognising and controlling variables where necessary. Observing over time **ALL CHANGE (Collins)** **How long does it take for iron nails to rust?**	**Assessment and Review**

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might be separated, including through filtering, sieving and evaporating 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.	separated by the technique of sieving Key vocabulary: material, compare, contrast, separate, mixture, sieve, filter, evaporate, solid, liquid, powder, particle	**What makes a difference to how fast sugar or salt dissolves?** L.O. To identify, through investigation, some variables that affect the rate at which salt or sugar dissolves Key vocabulary: material, mixture, compare, contrast, separate, sieve, filter, evaporate, solid, liquid, gas, powder, particle, dissolve, soluble, solution, solute, suspension, saturated, reversible, non-reversible	**How can we purify materials?** L.O. To demonstrate and explain how pure salt can be separated from a rock salt mixture, using techniques based on the properties of the materials involved Key vocabulary: material, compare, contrast, separate, mixture, sieve, filter, evaporate, solid, liquid, gas, powder, particle, dissolve, soluble, solution, suspension, reversible, non-reversible, contamination, microbes, bacteria, contaminated, impurity, pure, purity	**ALL CHANGE (Collins)** **Are the changes that happen around us reversible or non-reversible?** L.O. To describe different changes in materials when they are brought together and to be able to recognise them as reversible or non-reversible Key vocabulary: material, change, compare, contrast, solid, liquid, gas, change of state, reaction, dissolve, melt, reversible, non-reversible	combinations of solids and liquids that react chemically Key vocabulary: material, mixture, solid, liquid, gas, powder, particle, tablet, bubbles, inflate, carbon dioxide, reversible, non-reversible, change, reaction	L.O. To plan and set up an observation over time to investigate the conditions required for iron to rust **What happens when a candle burn?** L.O. To investigate the changes involved in a candle burning **How long does it take for things to rust?** L.O. To present the findings and conclusions from investigations into rusting Key vocabulary: material, compare, contrast, solid, liquid, gas, rust, oxidise, oxygen, corrode, tarnish; types of metal: iron, steel, chromium, tin, zinc; reversible, non-reversible, change of state gas, flammable, flame, melts, solidifies, candle, wick, wax	
Summer 1 **Living things and their habitats** Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird	**N.C. L**inks: Describe the life process of reproduction in some plants and animals Learning intention: To observe, record and collect evidence over time of life cycle changes to plants within the local environment Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, and bar and line graphs **OUR CHANGING WORLD (Collins)** **What signs of plant reproduction can we observe around our school?** L.O. To observe, record and collect evidence over time of life cycle changes to plants within the local environment Digital camera or iPad, magnifiers, sources of plant identification (for example, FSC resources or similar)	N. C. Links: Describe the life process of reproduction in some plants and animals Identifying scientific evidence that has been used to support or refute ideas or arguments **OUR CHANGING WORLD (Collins)** **How can we grow more plants, without using seeds?** L.O. To observe first-hand how plants are able to reproduce themselves by using different parts of the parent plant to produce new plants Key information: Depending on the time of year, different methods of propagation can be attempted. For example, stem cuttings from wood of varying hardness can be taken at different times of the year, as can leaf cuttings. Root cuttings should be taken in the winter when the plants are dormant.	N.C. Links: Describe the life process of reproduction in some plants Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Carrying out comparative and fair tests **OUR CHANGING WORLD (Collins)** **Which plants are best to plant in our growing space?** L.O. To investigate the length of a plant's life cycle, from planting to crop production, and use this information in planning and caring for our growing space **How can we ensure that plants in our growing space yield as many crops as possible?** L.O. To investigate ways in which crop yield might be improved Key vocabulary: crop, cropping, produce, yield, glut, names of fruit and vegetables being grown	N.C. Links: Explain the differences in the life cycles of a mammal, an amphibian, an insect and a bird 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 **CIRCLE OF LIFE (Collins)** **What is a life cycle?** L.O. To compare the life cycles of different animals **What do we know about the life cycles of mammals?** L.O. To define what a mammal is and describe its life cycle Key vocabulary: life cycle, birth, growth, reproduction, metamorphosis, aging, death, animal, mammal, amphibian, insect, bird, elephant, toad, bumblebee, blue tit, bat, polar bear, mountain gorilla, cubs, pups, hibernate, nocturnal, marsupial	**N.C. L**inks: Explain the differences in the life cycles of a mammal, an amphibian, an insect and a bird Identify scientific evidence that has been used to support or refute ideas or arguments **CIRCLE OF LIFE (Collins)** **What makes a successful life cycle?** L.O. To create a life cycle for an imaginary animal that will help to ensure its long-term success **How are humans helping endangered animals to complete their life cycles?** L.O. To explore and describe ways in which humans are using science to help endangered animals to complete their life cycles and increase their population numbers Key vocabulary: life cycle, mammal, amphibian, insect, bird, prey, predator, reproduce, habitat, environment, metamorphosis, caterpillar, pupa, tadpole, butterfly, endangered, threatened, extinct, extinction, evolution elephant, frog, mature, immature,	**N.C. L**inks: Explain the differences in the life cycles of a mammal, an amphibian, an insect and a bird 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. To use a wide range of secondary sources of information **CIRCLE OF LIFE (Collins)** **What do we know about the life cycles of amphibians?** L.O. To define an amphibian and describe its life cycle **What do we know about the life cycles of insects?** L.O. To define what insects are and describe the different types of life cycle, including the process of metamorphosis **What do we know about the life cycles in birds?** L.O. To define what a bird is and describe its life cycle Key vocabulary: life cycle, amphibian, toad, newt, salamander, tree frog, metamorphosis, gills, cold blooded, bird, thrush, peregrine falcon, ostrich, emperor penguin, chicken, breeding cycle	**Assessment and Review**
Summer 2 **Reproduction in plants and animals** Describe the changes as humans develop to old age.	N.C. Links: Describe the life process of reproduction in some plants and animals Grouping and classifying Identifying scientific evidence that has been used to support or refute ideas or arguments **REPRODUCTION IN PLANTS AND ANIMALS (Collins)**	N.C. Links: Describe the life process of reproduction in some plants and animals 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	N.C. Links: Describe the life process of reproduction in some plants and animals 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 **REPRODUCTION IN PLANTS AND ANIMALS (Collins)**	N.C. Links: Describe the changes as humans develop to old age Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs and bar and line graphs **REPRODUCTION IN PLANTS AND ANIMALS (Collins)**	N.C. Links: Describe the changes as humans develop to old age 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	N.C. Links: Describe the changes as humans develop to old age. Describe the life process of reproduction in some plants and animals Using observations and ideas to suggest answers to questions. **Independent research**	**Assessment and Review**

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Describe the life process of reproduction in some plants and animals	**How do flowering plants reproduce?** L.O. To describe the process of sexual reproduction in many flowering plants, naming parts of the flower and explaining their importance within the process **Are all flowers on all plants the same?** L.O. To recognise that flowers are not all the same and identify how they are different **Do all plants reproduce by producing seeds?** L.O. To describe how plants can reproduce asexually, by creating new plants from different parts of the parent plant rather than by producing seeds Key vocabulary: reproduction, organ, carpel, stamen, anther, fi lament, pollen, seeds, seed head, berry, fruit, pollinator, pollination, fertilisation, sexual, asexual reproduce, propagate, stem, leaf and root cuttings, runners, tubers, bulbs and rhizomes, asexual, vegetative	**REPRODUCTION IN PLANTS AND ANIMALS (Collins)** **How do amphibians and insects reproduce?** L.O. To describe the life process of reproduction in amphibians and most insects and recognise this process as sexual reproduction Key vocabulary: reproduce, reproduction, gender, male, female, sex, sexual, asexual, metamorphosis	**REPRODUCTION IN PLANTS AND ANIMALS (Collins)** **How do mammals and birds reproduce?** L.O. To describe the life process of reproduction in mammals and birds and recognise this process as sexual reproduction Key vocabulary: reproduce, reproduction, gender, sex, mate, female, male, sexual, sperm, pregnant, give birth, young, pup, calf, foal, chick, hatch, edge, fledgling	**How does the human life cycle compare with that of other mammals?** L.O. To recognise patterns in data about the life cycles of humans and other mammals Key vocabulary: life cycle, birth, growth, reproduction, ageing, death, baby, toddler, teenager, adult, adulthood, childhood, pregnancy, gestation, puberty, sexual, mammal	**REPRODUCTION IN PLANTS AND ANIMALS (Collins)** **How do girls become women?** L.O. To describe puberty in girls **How do boys become men?** L.O. To describe puberty in boys Key vocabulary: puberty, reproduction, genitals, vagina, pubic hair, underarm hair, menstruation, period, eggs, breasts, hips, grow, shape, sweat, hygiene, spots, mood facial hair, larynx (Adam's apple), voice breaking,	L.O. To use independent research to extend own knowledge Previous key vocabulary	

During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
- Using test results to make predictions to set up further comparative and fair tests
- Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- Identifying scientific evidence that has been used to support or refute ideas or arguments.

Collins is the scheme of work followed but other resources can be used to supplement and complement the planning process and learning objectives

Enrichment Science Activities:

- **Townies science challenge**
- **Science week**
- **Outdoor Learning**