Year 6 Science Curriculum

	Autumn
Curriculum focus/links	Evolution and Inheritance
Scientist/Inventor Study	**Charles Darwin:** a naturalist, geologist, and biologist, widely known for his contributions to evolutionary biology.
Key Vocabulary	**Evolution and inheritance:** evolve, adaptation, inherit, natural selection, adaptive traits, inherited traits, mutations, theory of evolution, ancestors, biological parent, chromosomes, genes, Charles Darwin. **Other:** selective breeding, artificial selection, breed, cross breeding, genetically modified food, cloning, DNA. **Previously introduced vocabulary:** classification, offspring, characteristics, habitat, environment, adapt, variations, human, fossil, suited, cells, names of different habitats, names of animals and their body parts, species, sedimentary rock, lava, igneous rock, metamorphic rock, magma, heat, fossilisation.
Substantive Concepts	•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.
Scientific Enquiry	**DO** make systematic, careful and detailed observations use a wide range of secondary sources for researching answers to questions, deciding which sources will be most useful and reliable, and understanding the difference between fact and opinion. identify, group, classify and describe a wide range of living things and materials, using their scientific knowledge to justify their choices use and develop keys and other information records of increasing complexity to identify, classify, group and describe living things and materials **Record** gather, record and present findings of increasing complexity from their research (such as from secondary sources) in a variety of ways, e.g. fact files, answers to questions or giving explanations record classification tasks in a variety of ways to help answer questions, e.g. classification keys **Review** notice patterns in their results (including those found in the natural environment) read, spell and pronounce scientific vocabulary correctly report and present their results and conclusions to others in oral and written forms with confidence talk about how scientific ideas have developed over time, with reference to scientific evidence that has been used to support or refute ideas or arguments

Year 6 Science Curriculum

	Spring	
Curriculum focus/links	**Animals Including Humans**	**Electricity**
Scientist / Inventor Study	**Dr Marie Maynard:** a biochemist famous for discovering the link between cholesterol and cardiovascular health.	**Thomas Edison:** an inventor known for inventions such as the incandescent light bulb, the phonograph, and the motion picture camera, as well as improving the telegraph and telephone.
Key Vocabulary	**Circulatory system:** circulation, heart, pulse, heartbeat, heart rate, lungs, breathing, blood vessels, blood, pump, transported, oxygenated blood, deoxygenated blood, oxygen, arteries, veins, capillaries, chambers, plasma, platelets, white blood cells, red blood cells. **Lifestyle:** drug, alcohol, smoking, disease, calorie, energy input, energy output. **Other:** water transportation, nutrient transportation, waste products. **Previously introduced vocabulary:** carbon dioxide	**Flow and measure of electricity:** voltage, amps, resistance, electrons, volts (V), current. **Circuits**: symbol, circuit diagram, component, function, filament. **Variations**: dimmer, brighter, louder, quieter. **Types of electricity:** natural electricity, human-made electricity, solar panels, power station. **Other:** positive, negative.
Substantive Concepts	• identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood; •recognise the impact of diet, •exercise, drugs and lifestyle on the way their bodies function; •describe the ways in which nutrients and water are transported within animals, including humans.	• 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.
Scientific Enquiry	**Plan** make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions **DO** take measurements, using a range of scientific equipment, with increasing accuracy and precision set up and carry out enquires that involve observing over time, including changes over different periods of time use a wide range of secondary sources for researching answers to questions, deciding which sources will be most useful and reliable, and understanding the difference between fact and opinion.	**Plan** explore and talk about their ideas and scientific experiences to raise enquiry questions about scientific phenomena make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions make their own decisions about what observations to make, the most appropriate equipment to use, what measurements to take and for how long, and whether to repeat them recognise variables in comparative and fair tests and plan how they will control them decide how to record data from a choice of familiar approaches **DO** make systematic, careful and detailed observations

Year 6 Science Curriculum

	identify, group, classify and describe a wide range of living things and materials, using their scientific knowledge to justify their choices **Record** gather, record and present measurements in a variety of increasingly complex ways, e.g. using tables, scatter graphs, bar graphs or line graphS gather, record and present findings of increasing complexity from their research (such as from secondary sources) in a variety of ways, e.g. fact files, answers to questions or giving explanations record classification tasks in a variety of ways to help answer questions, e.g. classification keys use and apply mathematical skills at a level consistent with their increasing maths knowledge at upper key stage 2 **Review** notice patterns in their results (including those found in the natural environment) draw increasingly complex conclusions based on their data, observations and scientific knowledge, identifying if this refutes or supports their previous ideas read, spell and pronounce scientific vocabulary correctly report and present their results and conclusions to others in oral and written forms with confidence talk about how scientific ideas have developed over time, with reference to scientific evidence that has been used to support or refute ideas or arguments	take measurements, using a range of scientific equipment, with increasing accuracy and precision take repeat readings where appropriate and understand the importance of this use a wide range of secondary sources for researching answers to questions, deciding which sources will be most useful and reliable, and understanding the difference between fact and opinion. set up and carry out comparative and fair tests, including controlling variables identify, group, classify and describe a wide range of living things and materials, using their scientific knowledge to justify their choices **Record** gather, record and present observations of increasing complexity, e.g. using scientific diagrams and labels gather, record and present measurements in a variety of increasingly complex ways, e.g. using tables, scatter graphs, bar graphs or line graphS record classification tasks in a variety of ways to help answer questions, e.g. classification keys use and apply mathematical skills at a level consistent with their increasing maths knowledge at upper key stage 2 **Review** notice patterns in their results (including those found in the natural environment) analyse results to determine and then explain causal relationships draw increasingly complex conclusions based on their data, observations and scientific knowledge, identifying if this refutes or supports their previous ideas use their test results to make predictions to set up further comparative and fair tests discuss the degree of trust they can have in a set of results, e.g. by considering measurement precision and accuracy, how variables were controlled and enquiry limitations. read, spell and pronounce scientific vocabulary correctly report and present their results and conclusions to others in oral and written forms with confidence talk about how scientific ideas have developed over time, with reference to scientific evidence that has been used to support or refute ideas or arguments

Year 6 Science Curriculum

	Summer	
Curriculum focus/links	**Living Things in Their Habitats**	**Light**
Scientist/Inventor Study		
Key Vocabulary	**Classifying:** Carl Linnaeus, Linnaean system, flowering and non-flowering plants, variation. **Microorganisms**: bacteria, single-celled, microbes, microscopic, virus, fungi, fungus, mould, antibiotic, yeast, ferment, microscope, decompose.	**Reflection:** periscope. **Seeing light:** visible spectrum, prism. **How light travels:** light waves, wavelength, straight line, refraction. **Previously introduced vocabulary:** names and properties of materials, absorb.
Substantive Concepts	•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; • give reasons for classifying plants and animals based on specific characteristics.	•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.
Scientific Enquiry	**Plan** explore and talk about their ideas and scientific experiences to raise enquiry questions about scientific phenomena make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions make their own decisions about what observations to make, the most appropriate equipment to use, what measurements to take and for how long, and whether to repeat them recognise variables in comparative and fair tests and plan how they will control them **DO** make systematic, careful and detailed observations set up and carry out enquires that involve observing over time, including changes over different periods of time use a wide range of secondary sources for researching answers to questions,	**DO** make systematic, careful and detailed observations take measurements, using a range of scientific equipment, with increasing accuracy and precision use a wide range of secondary sources for researching answers to questions, deciding which sources will be most useful and reliable, and understanding the difference between fact and opinion. set up and carry out pattern seeking enquiries, choosing a reliable sample size **Record** gather, record and present observations of increasing complexity, e.g. using scientific diagrams and labels gather, record and present measurements in a variety of increasingly complex ways, e.g. using tables, scatter graphs, bar graphs or line graphS gather, record and present findings of increasing complexity from their research

Year 6 Science Curriculum

	deciding which sources will be most useful and reliable, and understanding the difference between fact and opinion. set up and carry out comparative and fair tests, including controlling variables identify, group, classify and describe a wide range of living things and materials, using their scientific knowledge to justify their choices use and develop keys and other information records of increasing complexity to identify, classify, group and describe living things and materials **Record** gather, record and present findings of increasing complexity from their research (such as from secondary sources) in a variety of ways, e.g. fact files, answers to questions or giving explanations record classification tasks in a variety of ways to help answer questions, e.g. classification keys **Review** notice patterns in their results (including those found in the natural environment) draw increasingly complex conclusions based on their data, observations and scientific knowledge, identifying if this refutes or supports their previous ideas read, spell and pronounce scientific vocabulary correctly report and present their results and conclusions to others in oral and written forms with confidence	(such as from secondary sources) in a variety of ways, e.g. fact files, answers to questions or giving explanations use and apply mathematical skills at a level consistent with their increasing maths knowledge at upper key stage 2 **Review** notice patterns in their results (including those found in the natural environment) draw increasingly complex conclusions based on their data, observations and scientific knowledge, identifying if this refutes or supports their previous ideas discuss the degree of trust they can have in a set of results, e.g. by considering measurement precision and accuracy, how variables were controlled and enquiry limitations. read, spell and pronounce scientific vocabulary correctly report and present their results and conclusions to others in oral and written forms with confidence talk about how scientific ideas have developed over time, with reference to scientific evidence that has been used to support or refute ideas or arguments