



Science Overview with links to the National Curriculum

KS1 Year One

Topic title/when taught:	Aims and objectives:	National Curriculum links:
Autumn 1 Seasonal Changes	• To identify how the weather changes across the four seasons. • To identify events and activities that take place in different seasons. • To recognise how trees change across the four seasons. • To recognise that daylight hours change across the four seasons. • To observe changes across the four seasons. • To plan and carry out a weather report. Working Scientifically: • To record data in a pictogram. • To gather and record data about how seasons change over time.	Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies. Asking simple questions and recognising that they can be answered in different ways. Observing closely, using simple equipment. Gathering and recording data to help in answering questions
Autumn 2 Everyday Materials	To identify everyday materials. To recognise the difference between objects and materials. To describe the properties of materials. To group materials based on their properties (absorbency). To group materials based on their properties (waterproofness).	distinguish between an object and the material from which it is made. identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.

	To group materials based on their properties (toughness). Working Scientifically: To make observations and record data. To plan a test and suggest what might happen. To answer questions based on results.	describe the simple physical properties of a variety of everyday materials. compare and group together a variety of everyday materials on the basis of their simple physical properties. asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions
Spring 1 Sensitive Bodies	To name parts of the human body. To name the body parts used for each sense. To identify the body parts used for the sense of taste and touch. To identify the body parts used for the sense of smell and sight. To identify the body part used for the sense of hearing. To recognise how the senses are used in everyday life. Working Scientifically: To sort body parts into groups. To spot patterns in data. To use the senses to make observations. To investigate how sound changes as you move further away. Science in action: To recognise that scientists are always making new discoveries. To recognise the importance of the senses in certain jobs.	identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions

Spring 2 Comparing Animals	To identify and group animals. To describe a variety of animals. To compare the features of animals. To identify animals that are carnivores, herbivores and omnivores. To recognise animals that make suitable pets. Working Scientifically: To research using non-fiction texts. To gather and record data to help in answering questions. To describe and compare the structure of animals. Science in action: To know about famous scientists throughout history.	identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. identify and name a variety of common animals that are carnivores, herbivores and omnivores. describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). asking simple questions and recognising that they can be answered in different ways. identifying and classifying using their observations and ideas to suggest answers to questions. gathering and recording data to help in answering questions.
Summer 1 Introduction to Plants	To identify plants in the school grounds. To identify parts of a flowering plant. To identify and name wild and garden plants. To identify and name deciduous and evergreen trees. To recognise that new plants come from seeds and bulbs. Working Scientifically: To plan an investigation. To draw and label a diagram. To sort flowers into groups. To measure and compare leaves. To recognise that observations do not always match predictions. To use observations to find answers to questions. Science in action:	identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. identify and describe the basic structure of a variety of common flowering plants, including trees. asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions

	To recognise the importance of a scientist's role.	
Summer 2 Investigating Science Through Stories	To observe changes across the seasons. To describe and compare the features of animals. To identify differences in animal features. To describe the properties of everyday materials. To identify animals that are carnivores, herbivores and omnivores. Working Scientifically: To spot patterns in data. To carry out research to find specific information. To plan how to carry out a test. To use a ruler to measure.	identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. identify and describe the basic structure of a variety of common flowering plants, including trees. identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. identify and name a variety of common animals that are carnivores, herbivores and omnivores. describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions

KS1 Year Two

Topic title/when taught:	Aims and objectives:	National Curriculum links:
Autumn 1 Habitats	To identify some of the characteristics of living things. To recognise the difference between things that are alive, were once alive or have never been alive. To identify plants and animals in different habitats. To identify how a habitat provides animals and plants with what they need to survive. To recognise how animals and plants depend on each other. To recall how animals get their food from plants and other animals. Working Scientifically: To classify objects into groups. To carry out research to find answers to questions.	explore and compare the differences between things that are living, dead, and things that have never been alive. identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. identify and name a variety of plants and animals in their habitats, including microhabitats. describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food. asking simple questions and recognising that they can be answered in different ways. identifying and classifying gathering and recording data to help in answering questions
Autumn 2 Microhabitats	To identify a variety of flowering plants. Working Scientifically: To classify a variety of minibeasts. To recognise how scientists answer questions. To ask questions and plan how to carry out an experiment.	identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each others. identify and name a variety of plants and animals in their habitats, including microhabitats.

	Science in action: To understand the role of a botanist.	asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions
Spring 1 Use of Everyday Materials	To recognise that objects are made from materials that suit their uses. To recognise that objects are made from materials that suit their uses. To recognise that the shape of some solid objects can be changed. To compare the suitability of materials for particular uses. To recognise that the strength of some materials can be changed. To compare the suitability of materials for particular uses. Working Scientifically: To recognise that objects can be grouped. To record data in a table. To gather data and use it to answer a question. To record data in a block graph. Science in action: To recognise that some materials are harmful to the environment.	identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment performing simple tests using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions

Spring 2 Life Cycles and Health	To identify different stages of the human life cycle. To know which offspring come from which parent animal. To observe and measure growth in humans. To identify and list the basic needs for survival for humans and animals. To recognise the importance of exercise and personal hygiene. To identify how to have a balanced diet. Working Scientifically: To use simple measuring equipment. To use secondary sources to research. To make observations over time. To interpret collected results.	notice that animals, including humans, have offspring which grow into adults. find out about and describe the basic needs of animals, including humans, for survival (water, food and air). describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions
Summer 1 Plant Growth	To recognise that seeds need certain conditions for growth. To recognise that seeds and bulbs contain what they need to grow into a plant. To describe what seeds need to germinate. To describe the effect of light on plant growth. To identify stages of a plant's life cycle. To recognise what plants need for healthy growth. Working Scientifically: To plan comparative tests. To measure with a ruler. To record data in a table. To observe using a magnifying glass. To draw and label diagrams. Science in action:	observe and describe how seeds and bulbs grow into mature plants. find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment performing simple tests using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions

	To recognise that humans have a responsibility to care for plants.	
Summer 2 Plant-based Materials	To describe how materials can be reused. To identify human-made and natural materials. To identify suitable materials based on their properties. To identify a material to help plant growth. To choose materials to create a suitable plant pot. Working Scientifically: To group based on characteristics. To perform a test and gather data. To use observations to answer a simple question. To identify and classify living things. Science in action: To understand how the 3Rs contribute to sustainable products.	explore and compare the differences between things that are living, dead, and things that have never been alive. find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions

LKS2 Year Three

Topic title/when taught:	Aims and objectives:	National Curriculum links:
Autumn 1 Movement and Nutrition	To explain the role of a skeleton. To recognise the main bones in the body. To explain how muscles are used for movement. To explain how food is an essential energy source for animals. To identify the main nutrient groups and their simple functions. To explain what makes a balanced diet. Working Scientifically: To group animals based on their physical properties. To measure and sort data. To gather and compare data to answer questions. To record information using secondary sources. Science in action: To explore scientific advances. To explore how knowledge has progressed over time and how different jobs use this information.	identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. identify that humans and some other animals have skeletons and muscles for support, protection and movement. setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings

Autumn 2 Forces and Magnets	To recognise the effects and uses of forces. To interpret how and why things move differently on different surfaces. To describe the effects of magnets. To compare the properties of different types of magnets. To explain the uses of magnets Working Scientifically: To write a scientific conclusion identifying cause and effect. To plan an investigation using variables. To write a method. To display data using a bar chart. To research the uses of magnets.	compare how things move on different surfaces notice that some forces need contact between two objects, but magnetic forces can act at a distance. observe how magnets attract or repel each other and attract some materials and not others. compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. describe magnets as having two poles. predict whether two magnets will attract or repel each other, depending on which poles are facing asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identifying differences, similarities or changes related to simple scientific ideas and processes
--	--	--

		using straightforward scientific evidence to answer questions or to support their findings
Spring 1 Rocks and Soil	To group rocks using their appearance. To group rocks using their physical properties. To describe the process of fossil formation. To identify fossils and group rocks accordingly. To compare soils and how they were formed. To describe a soil sample using sedimentation. Working Scientifically: To observe the appearance of rocks closely, using a magnifying glass. To make predictions, suggest improvements and explain observations over time. To present research on fossil formation. To use the fossil record to answer questions about the past. To record the drainage rate for different soils in a bar chart. To draw and label a diagram.	compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. describe in simple terms how fossils are formed when things that have lived are trapped within rock. recognise that soils are made from rocks and organic matter asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions using straightforward scientific evidence to answer questions or to support their findings

Spring 2 Light and Shadows	To explain the role of light sources. To compare light reflecting on different surfaces To recognise which materials cast a shadow. To summarise how shadows change throughout the day. To investigate how the distance of the light source affects the size of its shadow. To tell a story using shadow puppets. Working Scientifically: To plan and draw a results table. To ask testable questions and plan how to answer them. To evaluate a method. To find patterns in data and form conclusions. Science in action: To recall how different people work with light and shadows.	recognise that they need light in order to see things and that dark is the absence of light notice that light is reflected from surfaces. recognise that light from the sun can be dangerous and that there are ways to protect their eyes recognise that shadows are formed when the light from a light source is blocked by an opaque object. find patterns in the way that the size of shadows change. asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identifying differences, similarities or changes related to simple scientific ideas and processes
---	---	---

		using straightforward scientific evidence to answer questions or to support their findings
Summer 1 Plant Reproduction	To identify the growth and survival needs of plants. To describe the relationship between structure and function in plants. To investigate how water is transported in plants. To explore the role of flowers in the life cycle of a plant. To apply knowledge of plant life and growth. To explore seed dispersal methods Working Scientifically: To pose relevant questions. To design simple results tables. To plan a simple enquiry. To complete, read and interpret data in a bar chart. To identify and suggest changes to an enquiry. To use results to draw conclusions.	identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. investigate the way in which water is transported within plants explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions

		identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings
Summer 2 Does hand span affect grip strength?	To revise the units Movement and nutrition and Rocks and soil. To revise the units Movement and nutrition and Plant reproduction. To revise the unit Forces and magnets. To revise the unit Uses of materials. To revise the units Light and shadows and Movement and nutrition. Working Scientifically: To plan a pattern seeking enquiry. To gather and record data. To conclude and evaluate the investigation. To use sets of data to inform design. To report on my findings using a shadow puppet display.	identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. identify that humans and some other animals have skeletons and muscles for support, protection and movement. compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. compare how things move on different surfaces notice that some forces need contact between two objects, but magnetic forces can act at a distance. asking relevant questions and using different types of scientific enquiries to answer them making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions

		using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions using straightforward scientific evidence to answer questions or to support their findings
--	--	---

LKS2 Year Four

Topic title/when taught:	Aims and objectives:	National Curriculum links:
Autumn 1 Digestion and Food	To describe the function of the human digestive system. To recognise the different types of human teeth and their roles in eating. To explain how to care for our teeth. To recognise that differences in teeth relate to an animal's diet. To recognise producers, predators and prey in food chains. To recognise that animal poo can give us clues about digestion, teeth and diet. Working Scientifically: To evaluate a model. To plan an enquiry by considering which variables should be changed, measured and controlled. To classify animals based on their diet. To analyse trends and form conclusions using scientific knowledge. To construct a results table for recording observations.	recognise that living things can be grouped in a variety of ways. describe the simple functions of the basic parts of the digestive system in humans. identify the different types of teeth in humans and their simple functions. construct and interpret a variety of food chains, identifying producers, predators and prey asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions

	Science in action: To describe real observation methods and evidence collected.	recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings
Autumn 2 Electricity and Circuits	To recognise how electrical appliances are powered. To construct an electrical circuit To explain the use of switches in a circuit. To explain the use of materials as electrical conductors or insulators. To investigate what affects bulb brightness. To explain how to be safe around electricity. Working Scientifically: To record and classify qualitative data To draw a scientific diagram. To write a method. To pose questions and plan ways to test them. Science in action: To explore how scientific advances inform safety advice.	identify common appliances that run on electricity construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit recognise some common conductors and insulators, and associate metals with being good conductors. asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard

		units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings
Spring 1 States of Matter	To identify solids using their properties. To identify liquids and gases using their properties To describe melting and freezing. To describe condensing and evaporating. To describe the different stages of the water cycle. To describe how temperature affects evaporation rates and the water cycle. Working Scientifically: To ask relevant questions about the properties of solids. To use results to draw simple conclusions about the properties of liquids. To use thermometers to take accurate measurements before and after melting. To make predictions for new values about evaporation rates.	compare and group materials together, according to whether they are solids, liquids or gases. observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C). identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard

	To record the stages of the water cycle using a labelled diagram. To research climate change and the water cycle.	units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions using straightforward scientific evidence to answer questions or to support their findings
Spring 2 Sounds and Vibrations	To describe how sounds are made. To describe how sounds are heard through different mediums. To describe the relationship between vibration strength and volume. To describe the relationship between volume and distance. To describe pitch and how to change it. To explain how insulating materials can be used to muffle sound. Working Scientifically: To observe closely how different instruments create a sound. To research how whales and dolphins communicate underwater. To present results using a bar chart. To suggest which variables to measure and for how long. To design simple results tables	identify how sounds are made, associating some of them with something vibrating recognise that vibrations from sounds travel through a medium to the ear find patterns between the pitch of a sound and features of the object that produced it. find patterns between the volume of a sound and the strength of the vibrations that produced it recognise that sounds get fainter as the distance from the sound source increases asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard

		units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings
Summer 1 Classification and changing habitats	To group animals in various ways. To group plants in various ways. To recognise and describe different habitats and their inhabitants. To recognise the impact humans can have on habitats. To recognise the impact of natural disasters on habitats. Working Scientifically: To record data in different ways. To apply and create classification keys. To make careful observations. To make and use classification keys. To gather, record, classify and present data. To research using an information sheet.	recognise that living things can be grouped in a variety of ways. explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. recognise that environments can change and that this can sometimes pose dangers to living things construct and interpret a variety of food chains, identifying producers, predators and prey making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions

		recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings
Summer 2 How does the flow of liquids compare?	To revise the units States of matter and Classification and changing habitats. To revise the unit Electricity and circuits. To revise the units States of matter and Sound and vibrations. To revise the unit Digestion and food. To revise the unit States of matter. Working Scientifically: To plan a comparative test. To gather and record data To conclude and evaluate the investigation. To observe carefully and apply these observations to problem solve. To report on my findings.	describe the simple functions of the basic parts of the digestive system in humans. compare and group materials together, according to whether they are solids, liquids or gases. recognise that vibrations from sounds travel through a medium to the ear asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions

		identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings
--	--	---

UKS2 Year Five

Topic title/when taught:	Aims and objectives:	National Curriculum links:
Autumn 1 Mixtures and Separation	To describe mixtures. To explain the process of sieving. To explain the process of filtering. To describe solutions and how they can be identified. To identify which factors affect the time taken to dissolve. To describe the process of evaporation. Working Scientifically: To describe the process of evaporation. To draw and annotate a diagram to explain a concept. To identify testable questions and how to answer them. To make observations about solutions To plan a fair test with consideration of variables and measurements.	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 might be separated, including through filtering, sieving and evaporating. demonstrate that dissolving, mixing and changes of state are reversible changes. 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

		reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations
Autumn 2 Properties and Changes	To determine the hardness of materials and link this to their uses. To determine the transparency of different materials and link this to their uses. To determine the conductivity of different materials and link this to their uses. To demonstrate reversible changes. To demonstrate irreversible changes. To demonstrate irreversible changes. Working Scientifically: To evaluate the hardness test to determine the degree of trust in the results. To plan and draw a table of results. To write a detailed, organised method that is easy to follow. To write a prediction using prior knowledge of the states of matter. To analyse observations about rusting and use them to support a conclusion. To measure the circumference of a balloon accurately.	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. 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 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 reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations

Spring 1 Earth and Space	To compare the contributions of Ptolemy, Alhazen and Copernicus to models of the Solar system. To describe the movement and shapes of the celestial bodies in our Solar System. To explain the causes of day and night and the seasons. To devise a sundial to tell the time. Working Scientifically: To pose testable questions about the solar system. To develop a model to represent the Solar System. To draw a diagram to explain day and night. To calibrate and use a sundial to measure time. To use temperature data to make predictions about climate change. Science in action: To describe some uses of satellites and the problems posed by space junk.	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. explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. identifying scientific evidence that has been used to support or refute ideas or arguments
Spring 2 Life Cycles and Reproduction	To describe the life cycle of a plant, including the reproductive stage. To describe the life cycle of a mammal.. To describe the life cycle of a bird and compare it with that of a mammal. To describe the life cycle of an insect and compare it with that of an amphibian. To describe asexual reproduction in plants. Working Scientifically: To observe and compare equivalent parts in different flowers.	describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. describe the life process of reproduction in some plants and animals. 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

	To research the life cycles of different mammals. To pose questions to compare the life cycles of different birds. To use data to describe a relationship and make predictions. To represent root growth over time on a line graph.	using test results to make predictions to set up further comparative and fair tests
Summer 1 Unbalanced Forces	To describe gravity and its effects. To describe air resistance and its effects. To describe water resistance and its effects. To describe the effects of levers, pulleys and simple machines on movement. To describe the relationship between lever length and effort. Working Scientifically: To analyse data to write a conclusion. To plan a fair test to investigate air resistance. To design a results table. To evaluate a method. To draw and label a diagram. To draw an accurate line graph.	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 levers, pulleys and gears, allow a smaller force to have a greater effect. 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 a 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
Summer 2 Human Timeline	To describe how humans change from babies through to old age. To identify changes in males and females as a result of puberty. To explore the gestation periods of humans and other animals. Working Scientifically: To use a line graph to identify patterns in height and predict values. To plot data on a scatter graph.	describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. describe the life process of reproduction in some plants and animals. describe the changes as humans develop to old age. 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 a degree of trust in results, in oral and written forms such as displays and other presentations
Does the size of an asteroid affect its impact strength?	To revise the units Earth and space and Life cycles and reproduction. To revise the units Unbalanced forces and Mixtures and separation. To revise the units Separating mixtures and Unbalanced forces. Working Scientifically: To plan a comparative test. To gather and record data. To conclude and evaluate the investigation.	describe the movement of the Earth, and other planets, relative to the Sun in the solar system. describe the Sun, Earth and Moon as approximately spherical bodies. 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

UKS2 Year Six

Topic title/when taught:	Aims and objectives:	National Curriculum links:
Autumn 1 Classifying big and small	To explain how organisms are classified using the Linnaean system. To classify the cold-blooded vertebrate groups using their common characteristics. To classify the warm-blooded vertebrate groups using their common characteristics. To classify invertebrates. To describe how the plant kingdom is organised (based on shared characteristics). To describe and classify micro-organisms. Working Scientifically: To produce a working classification key.	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. recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs identifying scientific evidence that has been used to support or refute ideas or arguments
Autumn 2 Light and reflection	To describe the pathway of light. To describe how we see. To explain how shadows change. To investigate what affects the angle of the reflected ray. To explain how a periscope works. To explain how mirrors are helpful Working Scientifically: To use evidence to form conclusions. To draw scientific diagrams.	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.

	To pose questions. To record results as a line graph. Science in action: To explore different jobs or inventions that depend on reflection.	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 a 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
Spring 1 Evolution and inheritance	To explain why there are differences within a species. To recognise the inheritance of characteristics in plants and animals. To explain why adaptation is necessary. To model how natural selection affects population size. To describe the theory of evolution. To recognise evidence that can be used for evolution. Working Scientifically: To group factors To evaluate the degree of trust and pose new questions for further enquiry To consider evidence used to inform theories.	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. planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary

	To consider the degree of trust in the evidence used	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 a 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
Spring 2 Circuits, batteries and switches	To use recognised symbols for electrical components. To predict and present results for electrical circuits. To recognise a link between the number of components and resistance. To identify ways to change voltage within an electrical circuit. To investigate how voltage affects bulb brightness. To apply knowledge of circuits and components to a practical solution. Working Scientifically: To use standardised symbols when drawing diagrams. To explain results using scientific knowledge. To design a results table. To plan an enquiry. Science in action: To recognise that scientific knowledge can solve a problem.	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 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 a 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
Summer 1 Circulation and health	To identify factors that affect our health and how to reduce their negative impact. To summarise the key structures and purpose of the circulatory system. To identify the key roles of blood. To explore the relationship between animal size and heart rate. To investigate the relationship between exercise and heart rate. To describe the relationship between heart rate and fitness. Working Scientifically: To evaluate sources of information. To evaluate a model. To interpret patterns in data. To write a method. To draw a line graph.	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. 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 a 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
Summer 2 Are some sunglasses safer than others?	To revise the units Circulation and health and Light and reflection. To revise the units Light and reflection and Circuits, batteries and switches. To revise the units Light and reflection and Circulation and health. To revise the units <i>Classifying big and small, Evolution and inheritance, Light and reflection and Circulation and health.</i> To revise the units Light and reflection and Circulation and health. Working Scientifically: To plan a comparative test. To gather and record data. To conclude and evaluate the investigation. To use further data to inform a conclusion. To report on findings in the form of an advert.	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 the impact of diet, exercise, drugs and lifestyle on the way their bodies function identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. 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 associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. use recognised symbols when representing a simple circuit in a diagram. 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 a 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
--	--	---