

Stow Heath Primary School



Science Curriculum - EYFS

Early Years Profile:

Pupils should be taught about:

- Understanding the World- The World

Nursery Coverage

Autumn Term –
Muddy Mondays (forest school)
Spring Term –
Chicks (hatching)
Summer Term –
Growing Sun flowers

Reception Coverage

Autumn Term –
Forest Friday (changes and pattern)
Spring Term –
Space (Earth and other planets)
Dogs Trust
Summer Term –
Mini Beasts (Kingswood visit)
Jack and the beanstalk (growing beans)

Nursery End points (30-50mths)

I can comment and ask questions about aspects of my familiar world such as the place where I live or the natural world.
 I can talk about some of the things I have observed such as plants, animals, natural and found objects.
 I can talk about why things happen and how things work.
 I can develop an understanding of growth, decay and changes over time.
 I can show care and concern for living things and the environment.

Reception End points (40-60mths)

I can look closely at similarities, differences, patterns and change.
 I know about similarities and differences in relation to places, objects, materials and living things.
 I can talk about the features of my own immediate environment and how environments might vary from one another.
 I can make observations of animals and plants and explain why some things occur, and talk about changes.

Science Curriculum - Key Stage 1

National Curriculum

Statutory Requirements

During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: ☒

- 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.

<p><u>National Curriculum: Year 1</u></p> <p><u>Plants</u> Pupils should be taught to: ☐</p> <ul style="list-style-type: none"> • 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. <p><u>Animals, including humans</u> Pupils should be taught to: ☐</p> <ul style="list-style-type: none"> • 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) ☐ • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense <p><u>Everyday Materials</u> Pupils should be taught to: ☐</p> <ul style="list-style-type: none"> • 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 • 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. <p><u>Seasonal change</u> Pupils should be taught to: ☐</p> <ul style="list-style-type: none"> • observe changes across the four seasons ☐ • observe and describe weather associated with the seasons and how day length varies. 	<p><u>National Curriculum: Year 2</u></p> <p><u>Living things and their habitats</u> Pupils should be taught to: ☐</p> <ul style="list-style-type: none"> • 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. <p><u>Plants</u> Pupils should be taught to: ☐</p> <ul style="list-style-type: none"> • 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 <p><u>Animals, including humans</u> Pupils should be taught to: ☐</p> <ul style="list-style-type: none"> • 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. <p><u>Uses of everyday materials</u> Pupils should be taught to: ☐</p> <ul style="list-style-type: none"> • 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.
<p>Year 1 Coverage</p>	<p>Year 2 Coverage</p>
<p>Autumn Term 1 – ‘All about me’ Animals including humans</p> <p>Autumn Term 2 – ‘The big build’ Material</p> <p>Spring Term 1 – ‘To the rescue’ Materials</p> <p>Spring Term 2 – ‘What’s around here’ Plants</p> <p>Summer Term 1 – ‘Posting and Places – Where should we go?’ Seasonal changes</p> <p>Summer Term 2 – ‘Animals allsorts’ Animals including humans</p>	<p>Autumn Term 1 – ‘All about me’ Animals including humans (exercise and healthy living)</p> <p>Autumn Term 2 – ‘Through the key hole’ Materials</p> <p>Spring Term 1 – ‘China’ Animals including humans (living things and life cycles)</p> <p>Spring Term 2 – ‘Kings and Queens’ Living things and their habitats</p> <p>Summer Term 1 – ‘Out of this world’ Plants</p> <p>Summer Term 2 – ‘Off to the seaside’ Working scientifically</p>
<p>Year 1 End points</p>	<p>Year 2 End points</p>

Working Scientifically

I can ask simple scientific questions.
I can observe closely, using simple equipment.
I can carry out simple tests.
I can identify and classify things.
I can use observations and ideas to suggest answers to questions.
I can gather and record data to answer questions
Exc- I can make careful observations, using simple equipment and record them in different ways.
Exc – I can ask question and suggest scientific ways to answer them

Plants

I can identify and name a variety of common wild and garden plants including deciduous and evergreen trees.
I can identify and name the flower, stem, leaf and root of a flowering plant.
I can identify and name the roots, trunk, branches and leaves of a tree.
Exc – I can compare the structure of flowering plants and trees
Exc – I can identify, name and compare a variety of common wild and garden plants including deciduous and evergreen trees.

Animals, including humans

I can identify and name a variety of animals including fish, amphibians, reptiles, birds, mammals and invertebrates.
I can identify and name animals by what they eat (carnivore, herbivore and omnivore).
I can describe and compare the structure of a variety of common animals (birds, fish, amphibians, reptiles, mammals and invertebrates, including pets)
I can identify, name, draw and label the basic parts of the human body that I can see.
I can say which part of the human body is associated with each sense.
Exc - I can give examples of when someone might use each of the 5 senses
Exc- I can compare the similarities and differences in animal bodies

Everyday Materials

I can distinguish between an object and the material it is made from.
I can identify and name wood, plastic, glass, metal, water and rock.
I can describe the properties of everyday materials.
I can compare and group a variety of everyday materials on the basis of their simple physical properties
Exc – I can suggest materials an object could be made from and say why.
Exc - I can describe the properties of a variety of everyday materials and explain how this affects how the materials are used.

Seasonal change

I can observe and comment on changes across the 4 seasons.
I can observe and describe weather that is associated with the seasons
I can observe and describe how day length varies
Exc - I can describe and compare the changes that happen in the four seasons

Working scientifically

I can ask simple scientific questions.
I can observe closely, using simple equipment.
I can carry out simple tests.
I can identify and classify things.
I can use observations and ideas to suggest answers to questions.
I can gather and record data to answer questions
Exc – I can perform a simple test and describe the outcome
Exc – I can suggest and shoe different ways to gather and record data.

Living things and their habitats

I can identify things that are living, dead and never been alive.
I can explore and compare the differences between things that are living, dead and things that have never been alive
I can identify that most 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.
I can identify and name a variety of plants in their habitats, including micro habitats
I can identify and name a variety of animals in their habitats, including micro habitats
I can 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.
Exc – I can explain why some animals and plants are suited to some habitats but not others
Exc – I can show an understanding of how animals depend on each other.

Plants

I can observe and describe how seeds and bulbs grow into mature plants
I can find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.
Exc - I can observe and describe how seeds and bulbs grow into mature plants and compare differences.
Exc – I can explain why plants need water, light and a suitable temperature to grow and stay healthy and explain what might happen when something is taken away

Animals, including humans

I know that animals, including humans, have off spring which grow into adults
I can describe the basic needs of animals, including humans, for survival.
I can describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene
Exc – I can explain the consequences of not having enough exercise, eating the wrong foods and poor hygiene has on a human being.
Exc – I can explain and describe the changes between stages in an animal life cycle

Uses of everyday materials

I can identify, name and compare the suitability of a variety of materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
I can explore how shapes of solid objects from some materials can be changed by squashing, bending, twisting and stretching.
Exc – I can justify the suitability of a variety of everyday materials.

Science Curriculum –Lower Key Stage 2

National Curriculum

Statutory Requirements

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: ☒

- 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.

National Curriculum:

Plants

Pupils should be taught to: ☒

- 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.

Animals, including humans

Pupils should be taught to: ☒

- 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.

Rocks

Pupils should be taught to: ☒

- 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.

Light

Pupils should be taught to: ☒

- 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.

Forces and Magnets

Pupils should be taught to: ☒

- 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 ☒

National Curriculum:

Living things and their habitats

Pupils should be taught to: ☒

- 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.

Animals, including humans

Pupils should be taught to: ☒

- 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.

States of matter

Pupils should be taught to: ☒

- 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.

Sound

Pupils should be taught to: ☒

- 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.

Electricity

Pupils should be taught to: ☒

- 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.

<ul style="list-style-type: none"> • predict whether two magnets will attract or repel each other, depending on which poles are facing. 	
<p>Year 3 Coverage</p> <p>Autumn Term 1 – ‘A journey across the ages’ Rocks, stones and soils</p> <p>Autumn Term 2 – ‘A journey across the ages’ Forces and magnets</p> <p>Spring Term 1 – ‘To the rescue’ Light</p> <p>Spring Term 2 – ‘What’s around here’ Animals including humans</p> <p>Summer Term 1 – ‘Posting and Places – Where should we go?’ Plants</p> <p>Summer Term 2 – ‘Animals allsorts’ Working scientifically</p>	<p>Year 4 Coverage</p> <p>Autumn Term 1 – ‘H2O’ Electricity</p> <p>Autumn Term 2 – ‘H2O’ Sound</p> <p>Spring Term 1 – ‘Invaders’ States of matter</p> <p>Spring Term 2 – ‘Kings and Queens’ States of matter</p> <p>Summer Term 1 – ‘Amazing Amazon’ Animals including humans</p> <p>Summer Term 2 – ‘Amazing Amazon’ Living things and their habitats</p>
<p>Year 3 End points</p> <p><u>Working scientifically</u></p> <p>I can ask relevant scientific questions and using different types of scientific enquiries to answer them. I can set up simple practical enquires, comparative and fair tests I can make systematic and careful observations and where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. I can gather, record, classify and present data in a variety of ways to help in answering questions. I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. I can report on findings from enquires, including oral and written explanations, displays or presentations of results and conclusions. I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. I can identify differences, similarities or changes related to simple scientific ideas and processes I can use straightforward scientific evidence to answer questions or to support their findings. Exc – I can consistently use scientific language and spell key words correctly. Exc – I can set up simple practical enquiries, comparative and fair tests Exc - I can ask relevant questions and beginning to plan different types of scientific enquiries to answer them</p> <p><u>Plants</u></p> <p>I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers I can 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 I can investigate the way in which water is transported within plants I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. Exc – I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal and be able to explain this process using consistently correct scientific vocabulary.</p> <p><u>Animals, including humans</u></p> <p>I can 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 I can identify that humans and some animals have skeletons and muscles for support, protection and movement Exc - I can clearly explain what a balanced diet is using the names of foods from the different food groups Exc - I can identify that humans and some animals have skeletons and muscles for support, protection and movement. Identify what skeletal parts protect which organs of the body.</p>	<p>Year 4 End points</p> <p><u>Working scientifically</u></p> <p>I can ask relevant scientific questions and using different types of scientific enquiries to answer them. I can set up simple practical enquires, comparative and fair tests I can make systematic and careful observations and where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. I can gather, record, classify and present data in a variety of ways to help in answering questions. I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. I can report on findings from enquires, including oral and written explanations, displays or presentations of results and conclusions. I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. I can identify differences, similarities or changes related to simple scientific ideas and processes I can use straightforward scientific evidence to answer questions or to support their findings. Exc – I can consistently use scientific language and spell key words correctly. Exc – I can gather, record, classify and present data in a variety of ways to help in answering questions</p> <p><u>Living things and their habitats</u></p> <p>I can recognise that living things can be grouped in a variety of ways I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment I can recognise that environments can change and that this can sometimes pose dangers to living things. Exc – I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Pupils can work upwards and downwards on a key</p> <p><u>Animals, including humans</u></p> <p>I can describe the simple functions of the basic parts of the digestive system in humans I can identify the different types of teeth in humans and their simple functions I can construct and interpret a variety of food chains, identifying producers, predators and prey. Exc – I can construct and interpret a variety of food chains, identifying producers, predators and prey. To know that all food chains trace back to a green plant Exc – I can identify the different types of teeth in humans and their simple functions. To relate this knowledge to animal teeth & their diet</p> <p><u>States of matter</u></p> <p>I can compare and group materials together, according to whether they are solids, liquids or gases I can 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)</p>

Rocks

I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties

I can describe in simple terms how fossils are formed when things that have lived are trapped within rock

I can recognise that soils are made from rocks and organic matter.

Exc - I can recognise that soils are made from rocks and organic matter and describe simply the process.

Light

recognise that they need light in order to see things and that dark is the absence of light

I notice that light is reflected from surfaces

I can recognise that light from the sun can be dangerous and that there are ways to protect their eyes

I can recognise that shadows are formed when the light from a light source is blocked by an opaque object

I can find patterns in the way that the size of shadows change

Exc - I can recognise that shadows are formed when the light from a light source is blocked by an opaque object...begin to explain what happens to the colour of the shadow with translucent objects used to block the light

Exc – I can find patterns and use comparative language to explain the way that the size of shadows change.

Forces and magnets

I can compare how things move on different surfaces

I notice that some forces need contact between two objects, but magnetic forces can act at a distance

I can observe how magnets attract or repel each other and attract some materials and not others

I can 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

I can describe magnets as having two poles

I can predict whether two magnets will attract or repel each other, depending on which poles are facing.

Exc - I can sort a variety of everyday materials on the basis of whether they think they are magnetic/non-magnetic. Know not all metals are magnetic...only those containing iron/steel.

I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Exc – I can name, compare and group materials together, according to whether they are solids, liquids or gases.

Explain that some solids can behave like liquids e.g. powders and grains.

Sound

I can identify how sounds are made, associating some of them with something vibrating

I can recognise that vibrations from sounds travel through a medium to the ear

I can find patterns between the pitch of a sound and features of the object that produced it

I can find patterns between the volume of a sound and the strength of the vibrations that produced it

I can recognise that sounds get fainter as the distance from the sound source increases

Exc - I can describe (using comparative language) patterns between the pitch of a sound and features of the object that produced it

Electricity

I can identify common appliances that run on electricity.

I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.

I can 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.

I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.

I can recognise some common conductors and insulators, and associate metals with being good conductors

I can identify common appliances that run on electricity.

I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires,

Exc – I can 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...pupils may predict/experiment with the number of cells and describe the effect this has on the brightness of the bulb

Exc – I can recognise a variety of common conductors and insulators, and associate metals with being good conductors. bulbs, switches and buzzers.

Science Curriculum – Upper Key Stage 2

National Curriculum

Statutory Requirements

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.

National Curriculum:

Living things and their habitats

Pupils should be taught to: ☐

- 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.

Animals, including humans

Pupils should be taught to: ☐

- describe the changes as humans develop to old age.

Properties and changes of materials

Pupils should be taught to: ☐

- 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 ☐
- 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 ☐
- give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic ☐
- 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.

Earth and space

Pupils should be taught to: ☐

- 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.

Forces

Pupils should be taught to: ☐

National Curriculum:

Living things and their habitats

Pupils should be taught to: ☐

- describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals ☐
- give reasons for classifying plants and animals based on specific characteristics.

Animals including humans

Pupils should be taught to: ☐

- identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood ☐
- 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.

Evolution and inheritance

Pupils should be taught to: ☐

- recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago ☐
- recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents ☐
- identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

Light

Pupils should be taught to: ☐

- recognise that light appears to travel in straight lines ☐
- use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye ☐
- explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes ☐
- use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

Electricity

Pupils should be taught to: ☐

- associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit ☐

<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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.
Year 5 Coverage	Year 6 Coverage
<p>Autumn Term 1 – ‘Rites and Rituals’ Animals including humans</p> <p>Autumn Term 2 – ‘Rites and Rituals’ Living things and their habitats</p> <p>Spring Term 1 – ‘The Ancient Greeks’ Materials</p> <p>Spring Term 2 – ‘The Ancient Greeks’ Earth and Space</p> <p>Summer Term 1 – ‘London – Then and Now’ Forces</p> <p>Summer Term 2 – ‘London – Then and Now’ Working scientifically</p>	<p>Autumn Term 1 – ‘Black out’ Light</p> <p>Autumn Term 2 – ‘Black out’ Electricity</p> <p>Spring Term 1 – ‘The lost world’ Evolution and inheritance/adaptation</p> <p>Spring Term 2 – ‘The lost world’ Animals including humans (living things and life cycles)</p> <p>Summer Term 1 – ‘The World is our Oyster – A Time to Shine’ Living things and their habitats (classification)</p> <p>Summer Term 2 – ‘The World is our Oyster – A Time to Shine’ Living things and their habitats</p>
Year 5 End points	Year 6 End points
<p><u>Working scientifically</u> I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs I can use test results to make predictions to set up further comparative and fair tests I can report 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 I can identify scientific evidence that has been used to support or refute ideas or arguments. Exc – I can use and justify test results to make predictions to set up further comparative and fair tests Exc – I can select how to record data and results of increasing complexity from a range of scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Exc – I can use scientific language to explain and justify my findings</p> <p><u>Living things and their habitats</u> I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird I can describe the life process of reproduction in some plants and animals. Exc – I can describe and explain the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p> <p><u>Animals, including humans</u> I can describe the changes as humans develop from birth to old age. Exc - I can describe and explain the changes as humans develop from birth to old age.</p> <p><u>Properties and changes of materials</u></p>	<p><u>Working scientifically</u> I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs I can use test results to make predictions to set up further comparative and fair tests I can report 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 I can identify scientific evidence that has been used to support or refute ideas or arguments. Exc – I can independently suggesting and creating different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Exc – I can take measurements by choosing which scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate Exc – I can choose how to record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Exc – I can use test results and background knowledge links to make predictions to set up further comparative and fair tests</p> <p><u>Living things and their habitats</u> I can 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 I can give reasons for classifying plants and animals based on specific characteristics.</p>

I can 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

I know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution

I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating

I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic

I can demonstrate that dissolving, mixing and changes of state are reversible changes

I can 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.

Exc – I can 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 and make links to real life situations and objects

Exc – I can demonstrate from real life experience that dissolving, mixing and changes of state are reversible changes

Earth and space

I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system

I can describe the movement of the Moon relative to the Earth

I can describe the Sun, Earth and Moon as approximately spherical bodies

I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.

Exc - Describe and explain the movement of the Earth, and other planets, relative to the Sun in the solar system

Forces

I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object

I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces

I can recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.

Exc – I can identify and explain the effects of air resistance, water resistance and friction, that act between moving surfaces and apply to wider world

Exc – I can recognise and identify that mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect and how it used in everyday mechanisms.

Exc – I can describe how living things are classified into broad and narrow groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals and make links between different species.

Exc – I can justify reasons for classifying plants and animals based on specific characteristics.

Animals, including humans

I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood

I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function

I can describe the ways in which nutrients and water are transported within animals, including humans.

Exc – I can describe the ways in which nutrients and water are transported within animals, including humans and make links to the heart and its function.

Exc – I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood and make a connection between their functions

Evolution and inheritance

I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago

I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents

I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

Exc – I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. Understand that collections of fossils are key evidence for the theory of natural selection alongside the work of scientists such as Charles Darwin

Light

I can recognise that light appears to travel in straight lines

I can 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

I can 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

I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.

Exc – I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them and link this to why shadows have different resolutions as they move closer to the light source.

Electricity

I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit

I can 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

I can use recognised symbols when representing a simple circuit in a diagram.

Exc - I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit and give an explanation.

Exc – I can compare and explain reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.