



Crawley Down Village C of E School

Science curriculum progression document

Crawley Down Village C of E School aspires to be a learning community where love and respect are at the heart of all we do. We aim to be a school that lives life in all its fullness; encouraging and supporting each other to be the best we can be.

Learning together, flourishing together: "With God, all things are possible." Matthew 19:26



Intent

At Crawley Down C of E School, it is our intention to develop in all young people a lifelong curiosity and interest in the sciences. When planning for the science curriculum, we intend for children to have the opportunity, wherever possible, to learn through varied systematic investigations, leading to them being equipped for life to ask and answer scientific questions about the world around them. As children progress through the year groups, they build on their skills in working scientifically, as well as on their scientific knowledge, as they develop greater independence in planning and carrying out fair and comparative tests to answer a range of scientific questions.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	Materials	Forces & humans	The natural world and Space	Seeds and plants	Caring for living things	Life cycles and states of matter
Year 1	Animals including humans (observe seasonal changes)		Use of everyday materials (observe seasonal changes)		Plants (observe seasonal changes)	
Year 2	Use of everyday materials		Animals including humans	Plants	Living things and their habitats	
Year 3	Rocks	Animals including humans	Animals including humans	Light	Forces and Magnets	Plants
Year 4	Sound	Animals including humans		Electricity	States of Matter	Living things and their habitats
Year 5	Earth and Space	Forces	Properties of Materials		Living things and their habitats	Animals including humans
Year 6	Light	Electricity		Animals including humans	Living things and their habitats	Evolution and Inheritance

EYFS

	Autumn 1 Once Upon a Time – Wonderful Me & Families	Autumn 2 Once Upon a Time – Traditional Tales	Spring 1 Look up - Space	Spring 2 Look Up - Aliens	Summer 1 Mammoth to Mini - Dinosaurs	Summer 2 Mammoth to Mini – Minibeasts and planting	Early Learning Goals
Understanding the World Science – The Natural World	By the end of Autumn 1, it is expected children will be able to: Children will make collections of natural materials to investigate and talk about Children will explore the strength of materials to make a house for the 3 Little Pigs Children will know that this time of year is Autumn Children will ask questions about the natural environment Children will respect and care for the natural environment	By the end of Autumn 2, it is expected children will be able to: Children will explore and talk about forces including magnets, floating/sinking and stretching Children will know the names of body parts: heads, arms, hands, legs, feet, neck, shoulders, elbows, knees, ankles Children will know the 5 senses	By the end of Spring 1, it is expected children will be able to: Children will know some important processes and changes in the natural world including states of matter (freezing) Children will know that this time of year is Winter Children will know that there are 8 planets in the solar system Children will be able to talk about the moon and the sun Children will know we live on planet Earth	By the end of Spring 21, it is expected children will be able to: Children will know that this time of year is Spring Children will know that seeds can turn into plants. Children will begin to understand how it takes time to grow fruit and vegetables Children will plant and grow a fruit/vegetable/herb Children will know about features of my own immediate environment and how they might vary from another	By the end of Summer 1, it is expected children will be able to: Children will investigate light, dark and shadows Children will know the life cycle of a sunflower Children will know how to care for a plant and show respect for living things	By the end of Summer 2, it is expected children will be able to: Children will know the lifecycle of animals - butterfly comes from an egg and frogspawn Children will know that this time of year is Summer Children will know that some animals can live underwater Children will melt and solidify different substances such as chocolate and butter Children will know that some things in the world are man-made and some things are natural	By the end of the year, it is expected children will be able to: Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the natural world around them including the season and changing states of matter

Year 1

Working Scientifically:

- 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

Autumn – Paddington

By the end of the Autumn term, it is expected that children will be able to:

Seasonal changes:

- Observe changes across the four seasons.
Autumn focus
- Observe and describe weather associated with the seasons and how day length varies.
Autumn focus

Animals including humans:

- Identify and name a variety of animals including fish, amphibians, reptiles' birds and mammals.
- Identify and name a variety of common animals that 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
- Say which part of the body is associated with each sense.

Spring – Crowns and Castles

By the end of the Spring term, it is expected that children will be able to:

Seasonal changes:

- Observe changes across the four seasons.
Winter focus
- Observe and describe weather associated with the seasons and how day length varies.
Winter focus

Everyday Materials:

- Distinguish between an object and the material from what it's 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 every day materials.
- Compare and group together a variety of everyday materials on the basis of their simple physical properties.
- Explore, name, discuss and raise and answer questions about everyday materials and properties. Such as: hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent

Summer – A Gardeners' World

By the end of the Summer term, it is expected that children will be able to:

Seasonal changes:

- Observe changes across the four seasons.
Spring and Summer focus
- Observe and describe weather associated with the seasons and how day length varies.
Spring and Summer focus

Plants

- Name a variety of common wild and garden plants.
- Name a variety of deciduous and evergreen garden trees.
- Identify and describe the basic structure of a variety of common flowering plants and trees. Such as leaves, flowers blossom, petals, fruit, roots, bulb, seed, trunk, branches, stem.
- Observe the growth of flowers and vegetables.

Year 2

Working Scientifically:

- 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

Autumn – London’s Burning

By the end of the Autumn term, it is expected that children will be able to:

Use of Everyday Materials:

- 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.
- They should think about the properties of materials that make them suitable or unsuitable for particular purposes and they should be encouraged to think about unusual and creative uses for everyday materials.
- Find out about people who have developed useful new materials, for example John Dunlop, Charles Macintosh or John McAdam.

Spring - Africa

By the end of the Spring term, it is expected that children will be able to:

Animals Including Humans:

- 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

Plants:

- Observe and describe how seeds and bulbs grow into mature plants
Develop skills learned in Year 1
- Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy

Summer – What a Wonderful World

By the end of the Summer term, it is expected that children will be able to:

Living things and their habitats:

- 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

Year 3

Working scientifically

- 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.

Autumn – Home Is Where The Heart Is	Spring – Mission Impossible	Summer - Invasion
By the end of the Autumn term, it is expected that children will be able to: Rocks: • 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. Animals including humans: • 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	By the end of the Spring term, it is expected that children will be able to: Animals including humans: • Identify that humans and some other animals have skeletons and muscles for support, protection and movement Light: • 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.	By the end of the Summer term, it is expected that children will be able to: Forces and Magnets: • Compare how things move on different surfaces. • Notice that some forces need contact between 2 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 2 poles. • Predict whether 2 magnets will attract or repel each other, depending on which poles are facing. Plants: • 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

Year 4

Working scientifically

- 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.

Autumn – Inside Out

By the end of the Autumn term, it is expected that children will be able to:

Animals including humans:

- 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

Sound:

- 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

Spring – A Glimpse of Gold

By the end of the Spring term, it is expected that children will be able to:

Electricity:

- 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

Summer – Water, water everywhere

By the end of the Summer term, it is expected that children will be able to:

States of matter:

- 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

Living things and their habitats:

- 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
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Animals including humans:

- construct and interpret a variety of food chains, identifying producers, predators and prey

Year 5

Working scientifically

- 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

Autumn – Mission to Mars

By the end of the Autumn term, it is expected that children will be able to:

Earth and space:

- describe the movement of the Earth and other planets relative to the sun in the solar system
- describe the movement of the moon relative to the Earth
- describe the sun, Earth and moon as approximately spherical bodies
- use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky

Forces:

- explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
- identify the effects of air resistance, water resistance and friction, that act between moving surfaces
- recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect

Spring – Groovy Greeks

By the end of the Spring term, it is expected that children will be able to:

Properties of materials:

- compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets
- 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

Summer – Sea-Faring invaders

By the end of the Summer term, it is expected that children will be able to:

Living things:

- 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:

- Describe the changes as humans develop to old age

Year 6

Working scientifically

- 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

Autumn – Portals, People and Places

By the end of the Autumn term, it is expected that children will be able to:

Light:

- 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:

- 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

Spring – Off with Their Heads

By the end of the Spring term, it is expected that children will be able to:

Animals including humans:

- identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
- recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function
- describe the ways in which nutrients and water are transported within animals, including humans

Summer – Survival of the Fittest

By the end of the Summer term, it is expected that children will be able to:

Evolution and inheritance:

- 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

Living things and their habitats:

- Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals
- Give reasons for classifying plants and animals based on specific characteristics