

## Level Expected at the End of EYFS

We have selected the Early Learning Goals that link to the Science National Curriculum. For more detail about linked subject progression within the EYFS Framework, please refer to [these documents](#).

### The Natural World:

Children at the expected level of development will:

- Explore the natural world around them, making observations and drawing pictures of animals and plants.
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

### Key Stage 1 National Curriculum Expectations

- The principal focus of science teaching in key stage 1 is to enable pupils to experience and observe phenomena, looking more closely at the natural and humanly constructed world around them. They should be encouraged to be curious and ask questions about what they notice.
- Pupils should be helped to develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying out simple comparative tests, and finding things out using secondary sources of information.
- In KS1, pupils should begin to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. Most of the learning about science should be done through the use of first-hand practical experiences, but there should also be some use of appropriate secondary sources, such as books, photographs and videos.
- 'Working scientifically' is taught through and clearly related to the teaching of substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.
- Pupils should read and spell scientific vocabulary at a level consistent with their increasing word-reading and spelling knowledge at key stage 1.

### Lower Key Stage 2 National Curriculum Expectations

- The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships and interactions.
- Pupils should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information.
- They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.
- 'Working scientifically' is taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.
- Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge.

## Upper Key Stage 2 National Curriculum Expectations

- The principal focus of science teaching in upper key stage 2 is to enable pupils to develop a deeper understanding of a wide range of scientific ideas. They should do this through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically.
- At upper key stage 2, they should encounter more abstract ideas and begin to recognise how these ideas help them to understand and predict how the world operates. They should also begin to recognise that scientific ideas change and develop over time.
- They should select the most appropriate ways to answer science questions using different types of scientific enquiry, including observing changes over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative and fair tests and finding things out using a wide range of secondary sources of information.
- Pupils should draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.
- 'Working and thinking scientifically' is taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content.
- Pupils should read, spell and pronounce scientific vocabulary correctly.

For further information about the specific objectives for each phase from Key Stage 1 to Upper Key Stage 2, please click the following link:

[Science programmes of study: key stages 1 and 2](#)

## Intent

Every child at Cookridge Primary School will develop the scientific knowledge and conceptual understanding to succeed in becoming confident, enthusiastic and capable scientists of the future. Science at Cookridge has a 'hands on' and interactive approach which not only inspires all children to achieve their best, but allows them to speculate, enquire and hypothesise about the world and all of its wonders.



## Implementation

- From Year 1 to Year 6, science frameworks have been developed to ensure teaching occurs in a way that allows children to build on their prior knowledge in a logical order. It is our belief that each step of the framework underpins the following objectives. These frameworks are clearly evident on the science subject guidance page for each year group which allows all stakeholders of Cookridge Primary School access.
- From KS1 to UKS2, the curriculum has been adapted to ensure all children thoroughly explore the 'Working Scientifically' objectives in the first half term of each school year. This is to ensure a foundation for learning key scientific skills is engrained in our pupils every year, before they are utilized across every science topic.
- Pupils take part in short fluency sessions regularly, which recap previous learning, and include the use of Kahoot to ensure a strong foundation in the basics.
- At Cookridge Primary School, our science planning is based around Twinkl's schemes of work. We follow the Twinkl *Plan It: Unit Overviews* to ensure pitch and order of teaching is accurate. We then build on these using other resources to ensure there are elements of enquiry, investigation and exploration throughout our curriculum.
- We have developed our medium term planning across each phase to ensure a depth of teaching occurs for each topic. These have been expanded from the national curriculum statements. Teachers produce tabletops that allow pupils to independently access all science learning and teaching. Support staff then target children when additional support is needed. Improvement Challenges (ICs) are used to address misconceptions that have been identified and Mastery Challenges (MCs) are used to challenge children who have successfully met the objectives.
- Through regular book scrutiny, observations and assessment, we are able to ensure that science is being pitched and taught accurately across the primary phase and that all of the above is in place for all children. This ensures that there is a consistency in the approach to teaching science and therefore provides pupils with the best opportunity to succeed.
- The science leads works collaboratively, with other members of the trust where we are able, to moderate and share new strategies.



## Impact

- Measure against last national data (Considering impact of COVID-19) - 2019 KS1 results above national - Science - 84%
- Measure against last national data (Considering impact of COVID-19) - 2019 KS2 results above national – Science - 91%,
- What is the subject performance like? – Data and triangulation activities – internal and external
- Analyse performance of different group using the Subject crib sheet
- Who are your children of focus and why? – Subject crib sheet
- Can you measure impact and clearly state the subject Intent as a truth? – Our intent for this subject is a reality because...

# KS1 Science framework: Cycle 1 and 2

## Cycle 1:

## Cycle 2:

Key Learning for Secure – Scientific Enquiry			
Autumn 1 and 2	ScIn1.1	I can ask simple questions and recognise that they can be answered in different ways.	
	ScIn2.1	I can use simple equipment to observe scientific investigation closely.	
	ScIn3.1	I can perform simple tests.	
	ScIn4.1	I can identify and classify scientifically.	
	ScIn5.1	I can use my observations and ideas to suggest answers to questions.	
	ScIn6.1	I can gather and record data to help in answering questions.	
Everyday Material	sc1.1	I can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock, (Y1)	
	sc2.1	I can distinguish between an object and the material from which it is made (Y1)	
	sc3.1	I can describe the simple physical properties of everyday materials (Y1)	
	sc4.1	I can compare and group together the materials on the basis of their simple physical properties. (Y1)	
Spring 1 and 2	Uses of Everyday Material	sc5.1	I can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2)
		sc6.1	I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2)
	Animals including humans	sc7.1	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals (Y1)
		sc8.1	Identify and name a variety of common animals that are carnivores, herbivores and omnivores (Y1)
		sc9.1	Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) (Y1)
Summer 1 and 2	Living things and this habitat Living things and their habitats	sc10.1	I can explore and compare the differences between things that are living, dead, and things that have never been alive. (Y2)
		sc11.1	I can identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2)
	sc12.1	I can 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. (Y2)	
	sc13.1	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. (Y2)	

Key Learning for Secure – Scientific Enquiry			
Autumn 1 and 2	ScIn1.2	I can ask simple questions and recognise that they can be answered in different ways.	
	ScIn2.2	I can use simple equipment to observe closely scientific investigation.	
	ScIn3.2	I can perform simple tests.	
	ScIn4.2	I can identify and classify scientifically.	
	ScIn5.2	I can use my observations and ideas to suggest answers to questions.	
	ScIn6.2	I can gather and record data to help in answering questions.	
Animals including humans	sc1.2	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1)	
	sc2.2	I notice that animals, including humans, have offspring which grow into adults. (Y2)	
	sc3.2	I can find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Y2)	
	sc4.2	I can describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2)	
Spring 1 and 2	Seasonal changes	sc5.2	I can observe changes across the four seasons. (Y1)
		sc6.2	I can observe and describe weather associated with the seasons and how day length varies. (Y1)
Summer 1 and 2	Plants	sc7.2	I can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees (Y1)
		sc8.2	I can identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1)
		sc9.2	I can find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. (Y2)
		sc10.2	I can observe and describe how seeds and bulbs grow into mature plants. (Y2)

# LKS2 Science framework: Cycle 1 and 2

## Cycle 1:

Key Learning for Secure – Scientific Enquiry			
Autumn 1 and 2	ScIn1.1	I can ask relevant questions and I can set up simple practical enquiries, comparative and fair tests in order to find answers.	
	ScIn2.1	I can gather and record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.	
	ScIn3.1	I can gather, record, classify and present data in a variety of ways to help in answering questions.	
	ScIn4.1	I can report on findings using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	
	ScIn5.1	I can identify differences, similarities or changes related to simple scientific ideas and processes.	
	ScIn6.1	I can use straightforward scientific evidence to answer questions or to support my findings.	
	States of Matter		
States of Matter	SC1.1	I can compare and group solids, liquids and gasses (Y4)	
	SC2.1	I can observe that materials change state depending on temperature, and measure or research the temperature at which this happens in degrees Celsius (°C) (Y4)	
		I can identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature (Y4)	
Sound			
Spring 1 and 2	Sound	SC4.1	I can identify how sounds are made, associating some of them with something vibrating (Y4)
		SC5.1	I can recognise that sounds get fainter as the distance from the sound source increases (Y4)
		SC6.1	I can recognise that vibrations from sounds travel through a medium to the ear (Y4)
		SC7.1	I can find patterns between the volume of a sound and the strength of the vibrations that produced it (Y4)
	Light	SC8.1	I can recognise that they need light in order to see things and that dark is the absence of light (Y3)
		SC9.1	I can recognise that shadows are formed when the light from a light source is blocked by an opaque object (Y3)
		SC10.1	I can notice that light is reflected from surfaces (Y3)
Summer 1 and 2	Electricity	SC11.1	I can recognise that light from the sun can be dangerous and that there are ways to protect their eyes (Y3)
		SC12.1	I can find patterns in the way that the size of shadows change (Y3)
		SC13.1	I can identify common appliances that run on electricity (Y4)
		SC14.1	I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers(Y4)
		SC15.1	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 (Y4)
		SC16.1	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 (Y4)
forces and Magnets	forces and Magnets	SC17.1	I can recognise some common conductors and insulators, and associate metals with being good conductors (Y4)
		SC18.1	I can compare how things move on different surfaces (Y3)
		SC19.1	I can notice that some forces need contact between two objects, but magnetic forces can act at a distance (Y3)
		SC20.1	I can observe how magnets attract or repel each other and attract some materials and not others (Y3)
		SC21.1	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 (Y3)
		SC22.1	I can describe magnets as having two poles (Y3)
		SC23.1	I can predict whether two magnets will attract or repel each other, depending on which poles are facing (Y3)

## Cycle 2:

Key Learning for Secure – Scientific Enquiry				
Autumn 1 and 2	ScIn1.2	I can ask relevant questions and I can set up simple practical enquiries, comparative and fair tests in order to find answers.		
	ScIn2.2	I can gather and record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.		
	ScIn3.2	I can gather, record, classify and present data in a variety of ways to help in answering questions.		
	ScIn4.2	I can report on findings using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.		
	ScIn5.2	I can identify differences, similarities or changes related to simple scientific ideas and processes.		
	ScIn6.2	I can use straightforward scientific evidence to answer questions or to support my findings.		
Rocks and Fossils				
Rocks and Fossils	SC1.2	I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties (Y3)		
	SC2.2	I can describe in simple terms how fossils are formed when things that have lived are trapped within rock (Y3)		
	SC3.2	I can recognise that soils are made from rocks and organic matter (Y3)		
Animals including humans				
Spring 1 and 2	Animals including humans	SC4.2	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.(Y3)	
		SC5.2	I can identify that humans and some other animals have skeletons and muscles for support, protection and movement. (Y3)	
		SC6.2	I can describe the simple functions of the basic parts of the digestive system in humans (Y4)	
		SC7.2	I can identify the different types of teeth in humans and their simple functions (Y4)	
		SC8.2	I can construct and interpret a variety of food chains, identifying producers, predators and prey.(Y4)	
Living things and their habitats				
Summer 1 and 2	Plants	Living things and their habitats	SC9.2	I can recognise that living things can be grouped in a variety of ways (Y4)
			SC10.2	I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment (Y4)
			SC11.2	I can recognise that environments can change and that this can sometimes pose dangers to living things. (Y4)
		Plants	SC12.2	-Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers (Y3)
			SC13.2	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 (Y3)
SC14.2	Investigate the way in which water is transported within plants (Y3)			
SC15.2	Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal (Y3)			

# UKS2 Science framework: Cycle 1 and 2

## Cycle 1:

Key Learning for Secure – Scientific Enquiry		
Autumn 1 and 2	ScIn1.1	I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
	ScIn2.1	I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
	ScIn3.1	I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
	ScIn4.1	I can use test results to make predictions to set up further comparative and fair tests.
	ScIn5.1	I can report and present 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.
	ScIn6.1	I can identify scientific evidence that has been used to support or refute ideas or arguments.
	Properties of Everyday Materials	
Autumn 1 and 2	SC1.1	I can 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. (Y5)
	SC2.1	I know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution and demonstrate that dissolving, mixing and changes of state are reversible changes. (Y5)
	SC3.1	I use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. (Y5)
	SC4.1	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. (Y5)
	SC5.1	I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
Evolution and inheritance		
Spring 1 and 2	SC6.1	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. (Y6)
	SC7.1	I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. (Y6)
	SC8.1	I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. (Y6)
Animals including humans (Y5)		
Summer 1 and 2	SC9.1	I can describe the changes as humans develop to old age. (Y5)
	SC10.1	I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. (Y6)
	SC11.1	I can recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. (Y6)
	SC12.1	I can describe the ways in which nutrients and water are transported within animals, including humans. (Y6)

## Cycle 2:

Key Learning for Secure – Scientific Enquiry		
Autumn 1 and 2	ScIn1.2	I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
	ScIn2.2	I can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
	ScIn3.2	I can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
	ScIn4.2	I can use test results to make predictions to set up further comparative and fair tests.
	ScIn5.2	I can report and present 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.
	ScIn6.2	I can identify scientific evidence that has been used to support or refute ideas or arguments.
	Electricity	
Autumn 1 and 2	SC1.2	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, comparing and giving reasons for variations. (Y6)
	SC2.2	I can use recognised symbols when representing a simple circuit in a diagram. (Y6)
	SC3.2	I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. (Y6)
Forces		
Spring 1 and 2	SC4.2	I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. (Y5)
	SC5.2	I can identify the effects of air resistance, water resistance and friction that act between moving surfaces. (Y5)
	SC6.2	I can recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. (Y5)
	SC7.2	I describe the movement of the Earth, and other planets, relative to the Sun in the solar system. (Y5)
	SC8.2	I can describe the movement of the Moon relative to the Earth. (Y5)
	SC9.2	I can describe the Sun, Earth and Moon as approximately spherical bodies. (Y5)
Earth, space and light		
Spring 1 and 2	SC10.2	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. (Y5)
	SC11.2	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. (Y6)
	SC12.2	I can use idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. (Y6)
	SC13.2	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 (Y6).
Living things and their habitats		
Summer 1 and 2	SC14.2	I can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5)
	SC15.2	I can describe the life process of reproduction in some plants and animals. (Y5)
	SC16.2	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 (Y6)
	SC17.2	I can give reasons for classifying plants and animals based on specific characteristics. (Y6)

