



Copthorne CE Junior School

“Creating confident, curious learners with God’s love”



Curriculum Intent

At Copthorne CE Junior School, we prepare our children for lifelong learning by delivering an **ambitious, engaging, vibrant and inclusive** curriculum. Through ensuring a **progression of knowledge and skills** for all learners, our children will become **subject experts** within a **challenging, broad and balanced** curriculum.

Our children are encouraged to gain new knowledge, explore new skills, **develop resilience, make connections** and so **become critical thinkers**, who are **creative, curious and confident**.

Our Christian values are woven into all aspects of school life and the learning that takes place. Children become **collaborative, respectful and compassionate** members of our **diverse** community.

We believe that when leaving the school, our children will have the tools to be **active, independent learners**, who **take risks**, are **inquisitive** and have a **thirst for learning**. This allows them to flourish as they continue on their educational journey.

Science Intent

Our science curriculum is based around the following:

Through **independent** and **collaborative** learning and an **engaging**, practical curriculum, children will become naturally **curious** about the world around us. By embracing their sense of wonder about natural phenomena and by guiding them to become **enquiry-based learners**, this will develop skills and ways of working to enable them to **make connections** and have a sense of the world in which they live.

We want children to develop an **understanding** of the uses and implications of science, have how it has changed and shaped our lives, encourage **respect** for living organisms and the physical environment and provide opportunities for **critical evaluation** of evidence.

In conjunction with the aims of the National Curriculum, our science curriculum offers opportunities for children to:

- develop scientific knowledge and conceptual understanding through the specific disciplines of Biology, Chemistry and Physics;
- develop understanding of the nature, processes and methods of Science through different types of science enquiries that help them to answer scientific questions about the world around them;
- be equipped with the scientific knowledge required to understand the uses and implications of Science, today and for the future.
- develop the essential scientific enquiry skills to deepen their scientific knowledge.
- Use a range of methods to communicate their scientific information and present it in a systematic, scientific manner, including I.C.T., diagrams, graphs and charts.
- Develop a respect for the materials and equipment they handle with regard to their own, and other children’s safety.
- Develop an enthusiasm and enjoyment of scientific learning and discovery.

SCIENCE CURRICULUM OVERVIEW

	Autumn	Spring	Summer
Year 3	The Copthorne Detectives Revision of the KS1 Science curriculum Year 3 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.	Rock 'n' Roll Romans Year 3 Rocks and soils - 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. Year 3 Forces and Magnets - compare how things move on different surfaces - notice that some forces need contact between two objects, but magnetic forces can act at a distance - observe how magnets attract or repel each other and attract some materials and not others - compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials - describe magnets as having two poles - predict whether two magnets will attract or repel each other, depending on which poles are facing.	Walk like an Egyptian Year 3 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. Year 3 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 - identify that humans and some other animals have skeletons and muscles for support, protection and movement.
Year 4	Upstairs, downstairs Year 4 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. Year 4 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.	Explorers, Raiders and Traders Year 4 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	Mysterious Mayans Year 4 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 - construct and interpret a variety of food chains, identifying producers, predators and prey. Year 4 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.

	Autumn	Spring	Summer	
Year 5	Henry VIII – Hero or Villain? Year 5 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.	Who Let the Gods Out? Year 5 Properties and changes 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.	Journey into the Unknown	
			Space To Infinity and Beyond Year 5 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.	Around the world in 80 days Year 5 Living things and their habitats - 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. Year 5 Animals, including humans - describe the changes as humans develop to old age.
Year 6	We'll meet again Year 6 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. Year 6 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.	Exploring the Extreme Year 6 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 microorganisms, plants and animals - give reasons for classifying plants and animals based on specific characteristics. Year 6 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.	Back to the Future	
			Stone Age to the Iron Age Year 6 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.	Legacy of the Ancient Civilisations Revision of the KS2 Science curriculum

Science knowledge is taught in specific year groups, and so the end points for that specific knowledge is shown in the year groups that it is taught through the National Curriculum. In other year groups, some of the knowledge will be covered through other strands of science or links through other curriculum areas.

Foci	Area of learning	Year 2 end points	Year 3 end points	Year 4 end points	Year 5 end points	Year 6 end points
Organisms, their behaviour and the environment	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 important for human of exercise, eating the right amounts of different types of food, and hygiene	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.	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.	Describe the changes as humans develop to old age.	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.
	<i>Vocabulary</i>		<i>Herbivore, carnivore, omnivore, feed, feeding, growth, activity, food groups, vegetables, meat, fish, cereals, sugars, fats, fruits, starches, tooth, teeth, incisor, molar, canine, diet, healthy, unhealthy, root, decay, food, balanced diet. Skeleton, bone, bones, ribs, spine, skull, vertebrate, contract relax, contraction, joint, move, muscles, muscle</i>		<i>Babyhood, childhood, adolescence, adulthood womb, foetus, embryo, gestation, baby, toddler, teenager, elderly growth, development, puberty function, circulatory system, heart, valve, blood vessel, vein, artery transport, oxygenated, deoxygenated lifestyle, drug</i>	
	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 micro-organisms 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. Observe and describe how seeds and bulbs grow into mature 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.	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.	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Describe the life process of reproduction in some plants and animals.	Describe 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.

		Find out and describe how plants need water, light and suitable temperature to grow and stay healthy				
	<i>Vocabulary</i>		<i>Habitat, nutrition, environment, keys, condition, consumer, producer, organism, predator, prey, food chain, similar, different</i> <i>Plants, light, warmth, water, leaves, roots, stem. grow, growth, height, germinate</i>		<i>Plant Growth, fertiliser, nutrients, consumer, producer, predator, prey, food chain, Key, suited, plant food, produces, identify, habitats, life processes Micro-organism, microbe, germ, virus, decay, mould, feed, grow, reproduce, bacteria</i> <i>Plant growth, fertiliser, nutrients, consumer, producer, predator, prey, food chain, key, suited, plant food, produces, identify, habitats, life processes, Reproduce, reproduction, stamen, stigma, sepal, petal, ovary, pollen, style, germinate, germination, fertilise, fertilisation, pollinate, pollination, disperse, dispersal</i>	
	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.
	<i>Vocabulary</i>				<i>adaptation, evolution, characteristic, reproduction, genetics, survival</i>	
Materials, their properties and the Earth	Rocks and soils		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.			
	<i>Vocabulary</i>		<i>Rock, slate, granite, sandstone, chalk, soil, clay, sand limestone, quartz, marble, stone, pebble, texture, absorbent, characteristic, surface</i>			
	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		
	Properties and changes of materials	Identify and compare the uses of a variety of everyday materials, including wood, metal, plastics, 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			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.	
	Vocabulary		Strong, weak, flexible, transparent, soft, hard, waterproof, absorbent, shiny, dull, rigid, rough, smooth, opaque, compare, comparison, describe, description material, characteristics, properties, stretchy. Solid, liquid, melt, freeze, solidify, dissolve, solution, filter, undissolved, separate, sieve, mix	Changing state, evaporate, evaporation, condense, condensation, state, solid, liquid, gas, melt, freeze, conditions, melting, solidify Dissolve, dissolving, undissolved, solution, mixture, evaporate, condense, pure, separate, clear, cloudy, filter, Gas gases, air, oxygen, carbon dioxide, natural gas, carbon monoxide, properties		

Energy, forces and space	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.		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.
	Vocabulary		<i>Electricity, electrical, circuit, battery, bulb, crocodile clip, buzzer, motor, conduct, conductor, insulate, insulator, power, bright, brightness, switch, break, dim, batteries,</i>		<i>Changing circuits, circuit, complete circuit, conductor, insulator, symbol, circuit diagram, electricity, component, voltage</i>	
	Forces and magnets		Notice that some forces need contact between two objects, but magnetic forces can act at a distance Observe how magnets attract or repel each other and attract some materials and not others Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials Describe magnets as having two poles Predict whether two magnets will attract or repel each other, depending on which poles are facing. Compare how things move on different surfaces		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.	
	Vocabulary		<i>Force, movement, direction, distance, further, furthest, fast, faster, fastest, slow, slower, slowest, higher, highest, speed up, slow down, change direction, change shape, twist, squeeze, stretch, pull, twist</i>		<i>Friction, air resistance, water resistance, force meter, newton, surface area, forces, resists, Magnet, spring, metal, iron , copper, aluminium,</i>	

			<i>steel, brass, attract, repel, magnetic, non-magnetic, attraction, repulsion, force, elastic, pull towards, push away from, stretch, squash, compress</i>		
	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		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.
	Vocabulary		<i>Light, dark, shadow, transparent, opaque, direction, light travels, translucent, shortest, longest, highest, object, material, light source, Sun, night, day</i>	<i>Light, beam, reflect, reflection, opaque, mirror, light travelling, source, reflected, travel, block, shiny surface</i>	
	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	
	Vocabulary				<i>Earth, sun, moon, sphere, revolve, orbit, spin, rotate, axis, sunrise, sunset, north, south, east, west, light source, shadow</i>
	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.		
	Vocabulary		vibration, wave, volume, pitch, tone, insulation, Changing sounds, sounds, loudness, vibrate muffle, tuning, quiet, soft, noise, sound, source, loud, high, low, vibrating, soundproof			

LOWER KEY STAGE Curriculum

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. They 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 described separately at the beginning of the programme of study, but must always be 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.

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.

UPPER KEY STAGE Curriculum

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 described separately at the beginning of the programme of study, but must always be 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.

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.

	Skill	Year 3	Years 3 and 4	Years 4 and 5	Years 5 and 6	Year 6 Greater Depth
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PLAN

Scientific question	With help suggest how to find the answer to simple questions given by my teacher.	With help, come up with own ideas about what to investigate.	On my own put forward sensible ideas about what to investigate.	Using scientific language, come up with questions we could investigate.	
Method & equipment	With help, make some suggestions about how to find things out. Choose the best method from those provided by my teacher.	On my own, suggest ways of doing my investigation. Suggest the advantages of working together for your investigation. Choose the correct equipment from that provided by my teacher.	Write an appropriate method to answer the question. On my own say what equipment I need. Describe how the equipment will be used.	Come up with different ways to carry out my investigation. Choose the best method & say why it is best. Explain how working with others may improve my results. Explain why I am using different equipment.	
Fair test	With help, say if the method is fair or not.	From the list provided by my teacher, select things I will keep the same.	Say why I need to do a fair test. List all the things (variables) I will keep the same. Say what thing I will change (vary).	Explain why I have chosen to investigate a certain variable.	Explain how it is a fair test using the terms independent and dependent variables.
Design results table	With help, identify things to measure or observe.	Suggest how to record information.	Select the best recording method from those suggested by my teacher. Design my own basic results table.	Decide how many times to repeat my observations. Design my own results table to include different units of measure.	Say how many times & why I am repeating my observations. Decide and justify the detail of data I am collecting.
Make prediction	Suggest what might happen & where I have seen this before.	Suggest what might happen & why.	Make a prediction using scientific language and an 'er/er' statement.	Make a prediction including estimated results I expect.	

	Skill	Year 3	Years 3 and 4	Years 4 and 5	Years 5 and 6	Year 6 Greater Depth
OBSERVE & DO	Start observing	With help, describe observations using simple scientific words.	On my own, make accurate observations (words & pictures)	Make observations (words, pictures & ICT) that I think will be useful.	Repeat observations (using words, pictures, ICT) until I am happy with my results.	
	Safely use equipment	Follow instructions in order to stay safe. Work together & say how others help you. Correctly use equipment provided.	With support say what possible dangers are. Choose from equipment provided by teacher. Use it safely & accurately.	On my own, say what possible dangers are to myself & others. On my own, say what equipment I need & use it correctly.	Say how I will avoid the dangers to myself & others in my investigation.	On my own, write a set of safety rules.
	Take measurements	Take simple measurements	Take accurate whole number measurements (e.g. 7 cm).	Take sets of detailed measurements (e.g. 72mm or 7.2cm)	Repeat sets of measurements. Accurately take a combination of different units of measure.	
	Record results	Record my findings on tables provided by my teacher.	Put results (numbers & words) in the table provided by my teacher.	Record results accurately on my table.	Record different units of measure accurately.	

	Skill	Year 3	Year 3 and 4	Year 4 and 5	Year 5 and 6	Year 6 Greater Depth
CONCLUDE	Present results	Present my results as simple tables, block graphs and pictograms.	Present data (numbers) in tables & bar charts.	Present my data (numbers) in the most appropriate table, bar chart or graph.	Put data into the appropriate table, bar chart or line graph for continuous variables (e.g. time). Present information in a variety of ways including diagrams, drawings and ICT.	Work out averages from my data & use this within my graphs & results. Make notes on my results using words & numbers to help explain them. Compare my results to others' information.
	Identify important information	Say what happened in my investigation.	Recognise simple patterns in observations (what I saw) or in data (numbers) in tables, pie or bar charts.	Recognise simple patterns in my data (numbers).	Accurately describe patterns in results. Identify if certain results (or repeated observations) do not follow the pattern or are different.	Explain why certain results (or repeated observations) do not follow the pattern or are different. Explain if I can or cannot trust my results.
	Explain conclusions	Use my observations and ideas to answer questions from my teacher. Use simple scientific words to describe my findings. With help, say whether what happened was what I expected. Say if anything was different happened.	On my own, use my results to answer my original question. With help, make an 'er/er' statement. Use simple scientific words / symbols / units. Draw a simple diagram with some labels.	On my own, draw simple conclusions from my results & make an 'er/er' statement. Say which results have helped me make a conclusion. Use correct scientific words / symbol / units. Compare my results with my prediction. Draw a simple diagram or model with labels & a basic explanation of what is happening.	Make a conclusion that uses more than one piece of evidence, including numerical data & line graphs. Show workings for my calculations, including correct scientific or mathematical symbols. On my own, compare my results to my prediction. Use a scientific diagram or model with clear explanations. Make other predictions from my results.	Make detailed conclusions that fit the pattern of my results. Explain all scientific terminology I use. Identify the most important aspects of my scientific diagram & any limitations it has.
	Suggest improvements	With help, suggest different ways I could have done things.	On my own, suggest improvements to my method.	Suggest improvements to my method & say why.	Say how accurate my results are & how they could be improved.	Use my results data to reason how my method could be improved.
	So what?	Say how this science could be useful or harmful. Say who uses this science to help others.	Suggest a technology that could use or uses this science. Explain how this technology uses the science. Say how this science affects our lives.	Describe how technologies using this science could be useful and/or harmful. Say where is this science used in real-life. Say where is this science used in jobs.	Explain how different technologies use this science.	Explain how the science I investigated helps particular jobs. Explain where in the world this science helps or affects different people or places.