

Science Progression of Knowledge and Skills



Progression of Knowledge

		EYFS	Y1	Y2	Y3	Y4	Y5	Y6
PLANTS	Plant structure and function	<p>Know the names for the basic plant parts (leaves, flowers, stem and roots).</p> <p>Know the names of some familiar flowering plants, e.g. daisy, rose, sunflower, daffodil.</p>	<p>Know a variety of common plants and how they differ.</p> <p>Know that deciduous trees lose their leaves seasonally but evergreen trees do not.</p> <p>Know the basic structure (including leaves, flowers (blossom), fruit, roots, bulb, seed, trunk, branches, stem) of a variety of common plants, including flowering plants and trees.</p>		<p>Understand the functions of the basic parts of a plant and the relationship between structure and function.</p> <p>Know that water is transported within a plant through the stem to the leaves.</p>			
	Plant growth and needs	<p>Know that plants are alive.</p> <p>Know that seeds need water to grow.</p>	<p>Begin to understand how plants grow and change over time.</p>	<p>Know that seeds and bulbs grow into seedlings by producing roots and shoots.</p> <p>Know that seedlings grow into mature plants by developing parts such as roots, stems, leaves and flowers.</p> <p>Know that seeds need water and warmth to germinate.</p> <p>Know that plants need water, light and a suitable temperature for growth and health.</p>	<p>Know that plants need water, light, air, nutrients and a suitable temperature for growth and health.</p> <p>Understand that the needs for growth and health vary from plant to plant.</p>			

	Plant life cycle	Know that seeds grow into plants if taken care of.			<p>Know the life cycle of a plant from seed to mature plant. Know that flowers are the reproductive organ of a plant.</p> <p>Know that the process of pollination is the transfer of pollen to the female part of the flower.</p> <p>Know that the process of seed formation is the growth of a seed after pollination.</p> <p>Know some different methods of seed dispersal and the benefits of each.</p>			
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		EYFS	Y1	Y2	Y3	Y4	Y5	Y6
Animals, including humans	Animal growth	Know the names of familiar animals, e.g. farm animals, pets and animals seen in storybooks.	Know a variety of common animals, including amphibians, reptiles, birds, fish and mammals.	Understand how living things change and that animals have offspring that grow into adults. Know which offspring comes from which parent animal. Know the stages in some animal life cycles.			Describe the human life cycle, including the stages of growth and development (baby, toddler, child, teenager, adult, elderly). Describe the changes that occur during puberty (boys and girls). Know that gestation periods vary across mammals,	
	Animal structure and function	Know the main body parts of common animals e.g. number of legs, wings, fur, tail etc.. Know that animals, including humans use their senses to explore the world.	Know the main body parts of common animals, e.g. arms, legs, wings, tails, fins, head, trunk, horns/tusks, shell etc... Know the main five senses: sight, smell, hearing, touch and taste. Know that the skin is used for touch, tongue for taste, ears for hearing, eyes for sight and nose for smelling.		Know that animals can be grouped based on the presence of a skeleton. Know that the skeleton in humans and some animals is used for movement, protection and support. Know that the muscular system in humans and some animals works with the skeleton for movement. Know the main bones in the body.	Know the main organs of the human digestive system (mouth, tongue teeth, oesophagus, stomach, large and small intestines) and describe their simple functions. Know the different types of human teeth (incisor, canine, premolar, molar) and their simple functions.		Know the main parts of the human circulatory system (heart, blood vessels and blood). Know that the heart pumps blood around the body. Know that the blood vessels transport blood around the body. Know that the blood transports vital substances around the body, including oxygen and nutrients. Understand the relationships between different organ systems.

	Health and nutrition	<p>Know that animals need food.</p>	<p>Know that a carnivore is an animal that eats other animals and give some examples.</p> <p>Know a herbivore is an animal that eats only plants and give some examples.</p> <p>Know that an omnivore is an animal that eats both animals and plants and give some examples.</p>	<p>Know some animals, including humans, need water, food and air to survive.</p> <p>Understand the importance of exercise, a balanced diet and hygiene for humans.</p>	<p>Know that animals, including humans, need the right types and amount of nutrition.</p> <p>Understand that humans cannot make their own food and therefore eat to get the nutrients needed.</p> <p>Know the main food groups (carbohydrates, protein, fats, fibre, vitamins, minerals and water) and their simple functions.</p> <p>Know that a balanced diet should include all nutrient groups.</p> <p>Describe the diets of different animals.</p>	<p>Know that teeth can be damaged, including the effect of sugary and acidic food.</p> <p>Know it is important to brush teeth 2x per day, make good food choices and visit the dentist regularly.</p> <p>Describe the teeth of carnivores and herbivores and understand why teeth are different.</p> <p>Know that predators hunt for their food and prey are the animals being hunted.</p> <p>Know that producers make their own food.</p> <p>Know that food chains begin with a producer followed by consumers, and arrows to show the energy passed on.</p>		<p>Understand the impact of diet, exercise, drugs and lifestyle on the way a body functions.</p> <p>Know that the heart rate is the number of beats per minute.</p> <p>Know that exercise increases heart rate.</p>
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		EYFS	Y1	Y2	Y3	Y4	Y5	Y6
Living things and their habitats	Characteristics of living things	<p>Know that animals and plants move, grow and feed,</p> <p>Know the difference between things that living and things that are non-living.</p> <p>Know that some animals hibernate or store food in the winter.</p>		<p>Begin to understand some of the life processes, including movement, reproduction, sensitivity, growth, excretion and nutrition.</p> <p>Know the difference between things that are living, dead, and things that have never been alive, using some of the life processes.</p>		<p>Know that living things can be grouped in different ways.</p> <p>Know that a classification key can be used to group and identify plants and animals.</p> <p>Know that vertebrates are animals that have a backbone and invertebrates are animals that do not have a backbone.</p> <p>Know that plants can be grouped into flowering or non-flowering.</p> <p>Know that flowering plants include grasses and non-flowering plants includes ferns and mosses.</p> <p>Know that there are 5 main vertebrate groups: birds, mammals, reptiles, amphibians and fish.</p> <p>Know that invertebrate groups include snails, slugs, worms, spiders and insects.</p>		<p>Know that 'organism' is a term used to refer to an individual living thing.</p> <p>Know that micro-organisms are incredibly small and cannot usually be seen by the naked eye.</p> <p>Know the characteristics of the different groups of vertebrates and commonly found invertebrates.</p>

	<p style="text-align: center;">Variation and inheritance</p>	<p>Know the names of familiar animals such as farm animals, pets and animals seen in storybooks.</p> <p>Know the names of some familiar flowering plants, e.g. daisy, rose, sunflower, daffodil.</p>	<p>Know a variety of plants and animals and describe some differences.</p>				<p>Know that a life cycle shows the changes an animal or plant goes through until the reproduction of a new generation when the cycle starts again.</p> <p>Know that all living things must reproduce for the species to survive.</p> <p>Know that sexual reproduction requires two parents, whereas asexual reproduction only requires one parent.</p> <p>Know that there are different processes plants and animals use to reproduce (asexual and sexual reproduction)</p>	<p>Know that living things have changed over time.</p> <p>Know that fossils provide us with information about living things that inhabited the Earth millions of years ago.</p> <p>Know the characteristics are passed from parents to their offspring, but that offspring vary from their parents.</p> <p>Know that over time, variation in offspring can affect animals' chances of survival in particular environments.</p>
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	<p style="text-align: center;">Habitats and interdependence</p>	<p>Know that plants and animals live in a range of different places, e.g. land, sea, air.</p> <p>Name some different places where animals live on the school site.</p>		<p>Name a variety of habitats, including woodland, ocean, rainforest and seashore.</p> <p>Know that a habitat is the environment where an animal or plant lives/grows, because it provides what they need to survive.</p> <p>Know that a micro-habitat is a very small habitat, e.g. stones, logs, leaf litter).</p> <p>Know that living things depend on each other, e.g. for food, shelter.</p> <p>Understand that a food chain can be used to show how animals obtain food from eating either plants and/or other animals.</p>		<p>Know that habitats can change throughout the year and this can be dangerous for living things.</p> <p>Know that humans can have both a positive and negative impact on the environment.</p>		<p>Know that animals and plants have adapted to suit their environment over many millions of years and that this process can be called evolution.</p>
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		MATERIALS						
		EYFS	Y1	Y2	Y3	Y4	Y5	Y6
MATERIALS	Identifying and naming		<p>Know that objects are items or things.</p> <p>Know that a material is what an object is made from.</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, rock and water.</p>		<p>Know that rocks can be grouped based on their appearance or properties, e.g. colour, texture, hardness, permeability.</p> <p>Know that rocks may contain grains, crystals or fossils.</p> <p>Know that grains and crystals appear differently and can be used to classify rocks.</p> <p>Know that soils are made from rocks and dead matter.</p>	<p>Know that all substances around us can exist as solids, liquids and gases.</p>	<p>Know that all substances around us can exist as solids, liquids and gases.</p>	
	Properties and uses	<p>Know that objects float or sink.</p>	<p>Know that property refers to how a material can be described.</p> <p>Describe the physical properties of a variety of everyday materials.</p> <p>Understand materials can be grouped based on their physical properties.</p>	<p>Know why objects are made from particular materials and to give examples of their suitability.</p> <p>Know that one material can be used for a range of purposes and give examples of this.</p> <p>Know that different materials can be used for the same purpose and give examples.</p> <p>Know why certain materials are unsuitable for particular objects.</p>	<p>Understand the relationship between the properties of rocks and their uses.</p>	<p>A property of a solid is that it keeps its shape unless a force is applied to it.</p> <p>A property of a liquid is that it can flow freely and take on the shape of a container.</p> <p>A gas does not have a fixed shape and can escape from an unsealed container.</p>	<p>Describe a broader range of materials and their properties, including hardness, solubility, conductivity, transparency and response of magnets.</p>	

	Change	<p>Know some objects move when pushed or pulled.</p> <p>Know some objects freeze or melt.</p>		<p>Know that a push or pull must be applied to change the shape of a solid object.</p> <p>Know that a solid object can be squashed, bent, torn or stretched.</p> <p>Know that different objects may take a different amount of force to change shape.</p>	<p>Know that fossils can form from the remains of living things.</p> <p>Know that rocks can change over times, e.g. erosion, weathering.</p>	<p>Know that heating causes solids to turn into liquid (melting) and liquids turn into gases (evaporation).</p> <p>Know that cooling causes gases to turn into liquids (condensing) and liquids into solids (freezing).</p> <p>To know that water can exist as a solid, liquid or gas.</p> <p>Know the freezing point of water is zero degrees Celsius and the boiling point of water is 100 degrees Celsius.</p> <p>Know that water flows around the world in a continuous process called the water cycle.</p> <p>Know that in the water cycle, evaporation is when bodies of water are heated and turn into water vapour.</p> <p>Know that in the water cycle, condensation is the process of water vapour cooling to form water droplets in clouds, which can result in precipitation.</p> <p>Know that the rate of evaporation increases as the temperature rises.</p>	<p>Know that some substances will dissolve in a liquid to form a solution.</p> <p>Know the factors that affect the time taken to dissolve, including temperature and stirring.</p> <p>Understand that dissolving, mixing and changes of state are reversible changes.</p> <p>Know that some liquids and solids can be separated using sieving, filtering and evaporation and describe the process.</p> <p>Understand that some changes result in the formation of new materials and that these are usually irreversible, e.g. burning, rusting, the action of acid on bicarbonate of soda.</p>	
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		ENERGY - LIGHT						
		EYFS	Y1	Y2	Y3	Y4	Y5	Y6
ENERGY - LIGHT	Sources	<p>Know that day is light because the sun is in the sky.</p> <p>Know that night is dark because the sun is not in the sky.</p>			<p>Know that light travels from a source, e.g. the sun, light bulbs, torches.</p> <p>Know that light is needed to see things and that dark is the absence of light.</p> <p>Know that light from the sun can be dangerous and your eyes need to be protected.</p>			<p>Know that light travels in a straight line from a light source.</p> <p>Understand that luminous objects are seen because of light directly entering the eye, whereas non-luminous object to reflect light into the eye.</p>
	Transfer	<p>Know that shadows are created when something blocks the light.</p>			<p>Know that all materials reflect light.</p> <p>Know that shadows are formed when an opaque object blocks the light from a light source.</p>			<p>Know that shiny surfaces reflect light uniformly.</p> <p>Know that when light is reflected off a surface, its direction changes.</p> <p>Know that mirrors and periscopes work using reflection of light on smooth surfaces.</p> <p>Understand why shadows have the same shape as the objects that cast them because of light travelling in straight lines.</p> <p>Understand relationships between light sources, objects and shadows.</p>

	Factors affecting energy				<p>Know that shadows change as a result of different factors:</p> <ul style="list-style-type: none"> -changing the position of the light source -changing the distances between the light source, object and surface. <p>Know that shadows change position and length throughout the day as the sun changes position in the sky.</p>			<p>Understand how and why the distance between the object and the screen affects the size of a shadow.</p> <p>Understand how the angle of a reflected ray is affected by the angle of the incoming ray on a smooth surface.</p>
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		ENERGY - SOUND						
		EYFS	Y1	Y2	Y3	Y4	Y5	Y6
ENERGY - SOUND	Sources					Understand that sound is a result of vibrations.		
	Transfer					<p>Know that vibrations from sounds travel through mediums to the ear.</p> <p>Know that an insulating material reduces the amount of vibrations that pass through it and this can be used to protect the ears from damaging sounds.</p> <p>Know that different materials provide different amounts of insulation against sound.</p>		

ENERGY - ELECTRICITY	Factors affecting energy	Recognise differences in sounds.				<p>Know a variety of ways to change the pitch or volume of a sound.</p> <p>Know that quicker vibrations cause higher-pitched sounds and slower vibrations cause lower-pitched sounds.</p> <p>Know that stronger vibrations cause louder sounds and weaker vibrations cause quieter sounds.</p> <p>Know that sounds get fainter as the distance from the sound source increases.</p>		

		ENERGY – ELECTRICITY						
		EYFS	Y1	Y2	Y3	Y4	Y5	Y6
ENERGY - ELECTRICITY	Sources					<p>Know all electrical appliances need a power source, including batteries or mains electricity.</p> <p>Know an electrical circuit needs a complete path for the electrical charge to flow through.</p> <p>Know the main components in a simple circuit.</p> <p>Know the precautions for working safely with electricity.</p>		<p>Know a wide variety of components in a series circuit, including buzzer and motor.</p> <p>Know the conventions used to draw circuit diagrams, including the recognised symbols for common components and using straight lines.</p>

	Transfer				<p>Know that some materials allow electrical charge to pass through them quickly and these are known as electrical conductors, e.g. metals.</p> <p>Know that some materials do not allow electrical charge to pass through them easily and these are known as electrical insulators, e.g. wood and plastic.</p> <p>Know that metals are used for cables and wires because they are good conductors of electricity.</p> <p>Know that plastic is used to cover cables and wires because it is a good insulator.</p>		
					<p>Understand that an open switch breaks a series circuit so the components will be off.</p> <p>Understand that a closed switch completes a series circuit so the components will be on.</p> <p>Understand the relationship between bulb brightness and the number of bulbs in a circuit.</p>		<p>Know that the voltage of a circuit can be changed and how this affects bulb brightness or buzzer volume.</p>

		EYFS	Y1	Y2	Y3	Y4	Y5	Y6
FORCES EARTH AND SPACE	Key facts	<p>Know that some trees change in the four seasons.</p> <p>Know some of the signs of each season (leaves on the grounds, cold weather daffodils growing and sunny weather).</p> <p>Know that some animals hibernate or store food in the winter.</p>	<p>Know the name and order of the 4 seasons: spring summer, autumn and winter,</p> <p>Know that it is unsafe to look directly at the sun.</p>				<p>Know that the sun is a star at the centre of our solar system.</p> <p>Know that the sun, earth and moon are approximately spherical bodies.</p> <p>Know the names, order and relative positions of the planets around other main celestial bodies.</p> <p>Know the moon is a celestial body that orbits a planet and give examples of moons that orbit other planets.</p>	
	Forces in motion	<p>Know that weather changes throughout the year.</p> <p>Know and compare weather types, e.g. rain, sun, snow, wind.</p>	<p>Know weather associated with the 4 seasons and how it changes in the UK.</p> <p>Understand that day length varies across the 4 seasons, with fewer daylight hours in winter and more in the summer.</p>				<p>Know the earth and other planets orbit around the sun.</p> <p>Know that the tilt of the earth and its orbit around the sun causes the seasons.</p> <p>Know that the moon orbits around the earth.</p> <p>Understand how the earth's rotation causes day and night and the apparent movement of the sun across the sky.</p>	

		EYFS	Y1	Y2	Y3	Y4	Y5	Y6
FORCES, EARTH AND SPACE	Key facts				<p>Know some examples of contact and non-contact forces.</p> <p>Know that some forces are as a result of contact between two surfaces, but some forces can act at a distance, e.g. magnetism.</p> <p>Know the north and south poles of a magnet.</p> <p>Know some examples of magnetic materials, including iron and nickel, and how they react to a magnet and each other.</p> <p>Know some different examples of magnets, e.g. bar, horseshoe, button and ring.</p> <p>Know some of the uses of magnets.</p>		<p>Know that gravity is a non-contact force that pulls objects together.</p> <p>Know that air-resistance and water-resistance are both types of friction.</p>	

Forces in motion				<p>Know that friction is a contact force that acts between two surfaces to slow an object down.</p> <p>Know that magnetism is a non-contact force that affects objects containing magnetic metal.</p> <p>Understand that they opposite poles of a magnet attract one another and like poles repel.</p>		<p>Know that unsupported objects fall towards earth because of gravity.</p> <p>Know that friction, air resistance and water resistance act in the opposite direction to a moving object.</p> <p>Know that when forces are imbalanced, the speed, shape or direction of an object changes.</p> <p>Know that when forces are balances, the speed, shape or direction of an object stays the same.</p> <p>Know that some mechanisms including levers, pulleys and gears, allow a small forces to have a greater effect.</p>	
	Factors affecting forces			<p>Know that rougher surfaces have more friction between them than smoother surfaces.</p> <p>Understand that the strength of different magnets may vary.</p>		<p>Know that rougher surfaces have more friction between them than smoother surfaces and how that may affect movement.</p> <p>Know that the larger the surface area of an object the greater the air or water resistance it creates.</p>	

		SCIENCE IN ACTION						
		EYFS	Y1	Y2	Y3	Y4	Y5	Y6
SCIENCE IN ACTION		To know some different job roles.	To know about famous scientists throughout history.					
			To know about a range of jobs and careers that use scientific knowledge and methods.					
			To know about the work of modern-day scientists.					
			To know about science in the news and recent discoveries.					
			To know there are spiritual, moral, social and cultural links with science.					
					To know about the methods and equipment used by scientists throughout history and how these have led to modern methods.			
					To know how scientific knowledge has changed over time, leading to the current understanding of science.			
					To know about current scientific research and what it aims to achieve in the future.			
					To know that collaboration and peer reviewing is essential for effective scientific progress.			
							To know how scientific evidence is used to support or refute ideas or arguments.	
							To know that mistakes can often lead to new discoveries.	

Progression of Skills

		EYFS	Y1	Y2	Y3	Y4	Y5	Y6
WORKING SCIENTIFICALLY	Posing questions	Asking questions about the natural world with support	Exploring the world around them and raising their own simple questions. Recognising there are different types of enquiry (ways to answer a question). Responding to suggestions on how to answer questions.	Beginning to raise further questions during the enquiry process. Considering what makes a testable question. Beginning to recognise that there are different types of enquiry and that they are suitable for different questions. Beginning to make suggestions about how different questions could be answered.	Beginning to select from options which variables will be changed, measured and controlled. Beginning to suggest what observations to make and how long to make them for. Planning a simple method, verbally and in writing. Selecting and beginning to decide what simple equipment might be used to aid observations and measurements.	Beginning to raise further questions during the enquiry process. Considering what makes a testable question. Beginning to recognise that there are different types of enquiry and that they are suitable for different questions. Beginning to make suggestions about how different questions could be answered.	Raising questions throughout the enquiry process. Identifying testable questions. Selecting the most appropriate enquiry methods to answer questions and give justification.	
	Planning	Beginning to share ideas and suggestions about what to do, when working practically.	Beginning to recognise when a test is fair. Deciding if suggested observations are suitable, with support. Ordering as simple method.	Beginning to select from options which variables will be changed, measured and controlled. Beginning to suggest what observations to make and how long to make them for. Planning a simple method, verbally and in writing. Selecting and beginning to decide what simple equipment might be used to aid observations and measurements.	Beginning to select from options which variables will be changed, measured and controlled. Beginning to suggest what observations to make and how long to make them for. Planning a simple method, verbally and in writing. Selecting and beginning to decide what simple equipment might be used to aid observations and measurements.	Beginning to select from options which variables will be changed, measured and controlled. Beginning to suggest what observations to make and how long to make them for. Planning a simple method, verbally and in writing. Selecting and beginning to decide what simple equipment might be used to aid observations and measurements.	Suggesting which variables will be changed, measured and controlled. Making and explaining decisions about what observations to make and how long to make them for. Writing a method including detail about how to ensure control variables are kept the same. Writing a method that considers reliability by planning repeated readings. Suggesting the most appropriate equipment to make observations and measurements and justifying their choices.	
	predicting	Beginning to make guesses about what might happen.	Suggesting what might happen, often justifying with personal experience.	Making predictions about what they think will happen by: -using scientific knowledge and/or personal experience to explain their prediction (because....) -beginning to consider cause and effect when making predictions, where appropriate. -predicting a trend by considering how the changing variable will affect the measured variable (the smoother the surface, the longer distance the car will travel).	Making predictions about what they think will happen by: -using scientific knowledge and/or personal experience to explain their prediction (because....) -beginning to consider cause and effect when making predictions, where appropriate. -predicting a trend by considering how the changing variable will affect the measured variable (the smoother the surface, the longer distance the car will travel).	Making predictions about what they think will happen by: -using scientific knowledge and/or personal experience to explain their prediction (because....) -beginning to consider cause and effect when making predictions, where appropriate. -predicting a trend by considering how the changing variable will affect the measured variable (the smoother the surface, the longer distance the car will travel).	Making predictions about what they think will happen by: -using scientific knowledge and/or personal experience to explain their prediction (because....) -beginning to consider cause and effect when making predictions, where appropriate. -predicting a trend by considering how the changing variable will affect the measured variable (the smoother the surface, the longer distance the car will travel).	Making increasingly scientific predictions by: -using previous scientific knowledge and evidence to inform their predictions. -using scientific language to describe a potential outcome or explain why they think something will happen. -making links between topics to evidence a prediction.

Observing (qualitative data)	Commenting on what they see and hear in the natural world.	Using their senses to describe, in simple terms, what they notice or what has changed.	Using their senses to describe in more detail and with simple scientific vocabulary, what they notice or what has changed.	Using their sense to describe, in detail and with as broader range of scientific vocabulary, what they notice or what has changed.
	Measuring (quantitative data)	Using non-standard units to measure. Beginning to use standard units and read simple scales to measure and compare. Beginning to use simple measuring equipment to make approximate measurements.	Using non-standard units to measure and compare. Beginning to use standard units and read simple scales to measure and compare. Beginning to use simple measuring equipment to make approximate measurements.	Using standard units to measure and compare. Using measuring equipment with increasing accuracy. Reading scales with unmarked intervals between numbers.
Researching	Recognising that information can be found online and in books.	Gathering specific information from one simplified, specific source.	Gathering specific information from a variety of sources.	Gathering answers to open-ended questions from a variety of sources.
Recording (diagrams)	Drawing and labelling pictures of plants and animals.	Drawing and labelling simple diagrams,	Beginning to draw more scientific diagrams by: -using some standard symbols. -drawing in 2D to produce simple line diagrams. -labelling with more scientific vocabulary.	Drawing scientific diagrams by: -using a wider range of standard symbols. -drawing with increasing accuracy. -labelling with a broader range of scientific vocabulary. -annotating diagrams to explain concepts and convey opinions.
Recording (tables)	Recognising that tables can be used to record information.	Using a prepared table to record results including: -numbers -simple observations -tally frequency	Using a prepared table to record results including observations that are more detailed. Using tables with more than two columns. Identifying and adding headings to tables. Beginning to design simple results tables.	Using tables with columns that allow for repeat readings. Suggesting headings to tables, including units. Designing results tables with increasing independence with consideration of variables where applicable. Calculating the mean average.

	Grouping and classifying	Grouping objects, plants and animals with support.	Grouping based on visible characteristics. Organising questions to create a simple classification key.	Grouping based on visible characteristics and measurable properties. Populating a pee-prepared branching and number key. Choosing appropriate questions for classification keys.	Grouping in a broader range of contexts. Organising the layout of number and branching keys. Formulating appropriate questions for classification keys.
	Graphing	N/A	Representing data using pictograms and clock graphs.	Represent data using bar charts. Drawing bar charts with greater accuracy. Reading the value of bars with greater accuracy.	Represent data by using line graphs and scatter graphs. Plotting points with greater accuracy. Reading the value of plotted points with greater accuracy
	Analysing and drawing conclusions	Describing their discoveries when working practically.	Using their results to answer simple questions. Beginning to recognise when results or observations do not match their predictions.	Writing a conclusion to summarise findings using simple scientific vocabulary. Beginning to suggest how one variable may have affected another. Beginning to quote results as evidence of relationships. Identifying data that does not fit a pattern (anomalous data). Recognising when results or observations do not match their predictions. Beginning to use identify patterns to predict new values or trends.	Writing a conclusion to summarise findings using increasingly complex scientific vocabulary. Suggest with increasing independence how one variable may have affected another. Quoting relevant data as evidence of relationships. Identifying anomalies in repeat data and excluding results where appropriate. Comparing individual, class and/or model data to the prediction and recognising when they do not match. Using identified patterns to predict new values or trends.

	Evaluating	N/A	N/A	<p>Beginning to identify steps in the method that need changing and suggest improvements.</p> <p>Beginning to identify which variables were difficult to control and suggesting how to better control them.</p> <p>Commenting on the degree of trust by reflecting on: -results that do not fit a pattern (anomalies) -the quality of results (accurate measurements and maintaining control of variables)</p> <p>Beginning to identify new questions that would further the enquiry.</p>	<p>Identifying steps in the method that need changing and suggesting improvements.</p> <p>Identifying which variables were difficult to control and suggesting how to control them better.</p> <p>Commenting on the degree of trust by also reflecting on: -accuracy (human error with equipment) -reliability (repeating results) -sources of information (websites, books)</p> <p>Posing new questions in response to the data that would extend the enquiry.</p> <p>Deciding what data to collect to further test direct relationships.</p>
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