

Comparative / fair testing

Changing one variable to see its effect on another, whilst keeping all others the same.



Progression in Comparative/ Fair Testing

Nursery	Exploring materials: Use senses to compare natural materials and notice similarities and differences. Explore what happens when objects are pushed, pulled or moved.			
Reception	Boats: Explore which materials are waterproof and which boats float. Make predictions, test designs and discuss how shape and structure affect movement.			
Year 1	Materials Testing Materials for different properties	Seasons Does the amount of rain change across the seasons?		
Year 2	Materials Testing Materials for different properties Investigating which material is the most stretchy Investigating which materials are waterproof	Plants and Trees Do plants grow healthier in the light or dark?		
Year 3	Forces and Magnets Investigating different surfaces on distance travelled	Rocks and Soils To investigate which soil absorbs the most water	Plants How does the number of seeds affect plant growth	Light Does the distance from a light source affect the size of a shadow?
Year 4	Electricity To investigate what affects bulb brightness	Sound To investigate the relationship between volume and distance		
Year 5	Forces Does the size of a parachute affect the time it takes for it to fall to the ground?	Materials To investigate thermal conductors and insulators		
Year 6	Electricity To investigate how voltage affects bulb brightness	Animal's Including Humans To investigate how exercise impacts heart rate	Light To investigate the relationship between distance and shadows	

Research

Using secondary sources of information to answer scientific questions.



Progression in Research

Nursery	Finding out about the natural world: Ask questions about familiar animals, plants and places. Explore answers through adult-supported conversation, books and images.			
Reception	Plants and animals: Find out what plants need to grow and what animals need to survive, using adult-supported discussion, books, pictures and digital information.			
Year 1	With adult support, explore pictures, books and information provided by the teacher to help answer simple scientific questions.			
Year 2	Living Things and Their Habitats Research which animals live in different habitats	Animals Including Humans Research what animals need to survive		
Year 3	Animals Including Humans Research Animal Diets			
Year 4	Living Things and Their Habitats Research a human impact e.g. deforestation on habitats	States of Matter Research Climate change		
Year 5	Forces Streamlined animals in relation to water resistance.	Earth and Space Research facts about the planets	Living Things and their Habitats Research different animal lifecycles	
Year 6	Evolution and Inheritance Research Charles Darwin and his theory. Research adaptations in animals	Living Things and Their Habitats Who was Carl Linneus?	Electricity Renewable energy sources	Animal's Including Humans Researching healthy food choices

Observation over time

Observing changes that occur over a period of time ranging from minutes to months.



Progression in Observation Over Time

Nursery	Growing and seasons: Observe planted seeds as they grow. Notice changes in plants, animals and the environment across the seasons.		
Reception	Plants, animals and seasons: Observe and describe plant growth, seasonal changes and weather patterns. Discuss life cycles and how animals change.		
Year 1	Seasons How does the temperature change across a year? Does the amount of rain change each season?		
Year 2	Plants and Trees Observe the changes in seeds as they grow	Animal's Including Humans How much food and drink do I have over a week?	
Year 3	Plants What happens to celery when it is left in a glass of coloured water?	Light Is the sun the same brightness all day?	
Year 4	Sounds When is our classroom the quietest?	States of Matter Observe how temperature changes over time (melting and boiling) How does the level of water change in a glass when left on the windowsill?	Animals Including Humans Observe the impact of drinks on teeth (eggshells)
Year 5	Materials How does a sugar cube change as it is put in a glass of water?	Earth and Space Observe how the moon changes over time Observe how the sun 'moves' across the sky	Living Things and Their Habitats How the growing food grows food over time
Year 6	Living Things and Their Habitats What happens to a piece of bread if you leave on the window?	Animals Including Humans How does my heart rate change over the day? How much exercise do I do in a week?	Light How does my shadow change over the day?

Progression in Pattern Seeking

Pattern-seeking

Identifying patterns and looking for relationships in enquiries where variables are difficult to control.



Nursery	Noticing similarities and differences: Notice recurring features and changes in familiar natural surroundings, with adult support.		
Reception	Weather and seasonal patterns: Look closely at similarities, differences, patterns and change in nature. Discuss patterns noticed during repeated observations.		
Year 1	Seasons Does the wind always blow the same way?	Plants and Trees Is there a pattern to where we find moss growing in the school grounds?	Animals Including Humans Do the oldest children have the longest feet?
Year 2	Living Things and their Habitats Which microhabitat do _____ prefer? Where do we find the most minibeasts in school?		
Year 3	Forces and Magnet s Does the size and shape of a magnet affect how strong it is?		
Year 4	States of Matter Is there a pattern in how long it takes different ice lollies to melt?	Sound Is there a link between how loud it is in school and the time of day? If there is a pattern, is it the same in every area?	
Year 5	Animal Including Humans Is there a relationship between a mammal's size and their gestation period?	Forces Do all objects fall through water the same way?	
Year 6	Evolution and Inheritance Is there a pattern between the size and shape of a bird's beak and the food it will eat?	Animals Including Humans Is there a pattern between what we eat for breakfast and how fast we run?	

Progression in Identifying, Grouping and Classifying

Identifying, grouping and classifying
Making observations to name, sort and
organise items.



Nursery	Exploring collections: Match and sort objects by one noticeable property, such as colour, shape or size. Compare natural materials using senses			
Reception	Comparing and grouping: Describe similarities and differences between plants, animals and materials. Use observed features to suggest simple groups and explain choices.			
Year 1	Materials Group materials according to their properties	Plants and Trees Group plants and Trees according to their properties (plants or trees/ evergreen or deciduous)	Animals Including Humans Groups animals into groups (mammals/reptiles/birds etc) Group animals into carnivores/herbivores/omnivores	
Year 2	Materials Group materials according to their properties	Living Things and Their Habitats Group Living things according to their characteristics (dead or alive) Group animals into habitats		
Year 3	Rocks and Soils Group rocks according to their properties	Forces and Magnets Group materials according to whether they are magnetic or not	Light Group materials :opaque, translucent of transparent Group materials by whether they are light sources	Animals Including Humans Group food into their food groups
Year 4	Living Things and Their Habitats Group living things in different ways Using classification keys	States of Matter Group materials as to whether they are solids, liquids or gases	Electricity Grouping materials to whether they are conductors or insulators	
Year 5	Materials Grouping materials according to their properties			

	Grouping materials according to whether they are soluble or insoluble			
Year 6	Living Things and Their Habitats Categories and group living things into a broad range of categories	Living Things and Their Habitats Use and create classification systems to identify plants (in local environment)	Evolution and Inheritance Group species by variation (e.g fur colour/ wingspan)	