

Year 1 Working Scientifically

Science Topic	Exploration leading to Fair-test/pattern seeking	Observation over time	Classification and identification
Plants		Observe the growth of flowers and vegetables they have planted. Keep records of how plants have changed over time, for example the leaves falling off trees and buds opening	Compare and contrast familiar plants; describe how they were able to identify and group them. Compare and contrast how different plants change and what they have found out about different plants
Animals, including humans			Compare and contrast animals. Describe how they identify and group them. Group animals according to what they eat. Use senses to compare different textures sounds and smells
Everyday materials	Test to explore questions such as: 'What is the best material for an umbrella? ... for lining a dog basket?... for curtains?... for a bookshelf?... for a gymnast's leotard ?		Group materials according to their properties such as: hard/soft; stretchy/stiff; shiny/dull; rough smooth; bendy/not bendy; waterproof/not waterproof and absorbent/not absorbent; opaque/transparent.
Seasonal Changes		Observe and make tables and charts about weather; and making displays of what happens in the world around them, including day length, as the seasons change.	

Year 2: Working Scientifically

Science Topic	Exploration leading to Fair-test/pattern seeking	Observation over time	Classification and identification
Living things and their habitats	Describing the conditions in different habitats and micro-habitats and finding out how the conditions affect the number and type(s) of plants and animals that live there		Sorting and classifying things according to whether they are living, dead or were never alive and recording their findings using charts. They should describe how they knew where to place things
Plants	Setting up a comparative test to show that plants need light and water to stay healthy	Use the local environment throughout the year to observe how different plants grow. Observing and recording with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth	
Animals, including humans	Raise questions about what things animals need for survival and what humans need to stay healthy ; and suggesting ways to find answers to their questions	Observe through video or first- hand observation or measurement how different animals including humans, grow	
Uses of everyday materials			Observe closely, identifying and classifying the uses of different materials, and recording their observations.

Year 3: Working Scientifically

Science Topic	Exploration leading to Fair-test/pattern seeking	Observation over time	Classification and identification
Plants	Compare the effect of different factors on plant growth, for example the amount of light, the amount of fertiliser.	Discover how seeds are formed by observing the different stages of plant cycles over a period of time; looking for the patters in the structure of seeds that relate to how they are dispersed. Observe how water is transported in plants, for example putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers	
Animals, including humans			Identify and group animals with and without skeletons and observing and comparing their movement. Compare and contrast the diets of different animals and decide on ways of grouping them according to what they eat.
Rocks	What happens when rocks are rubbed together or what changes occur when they are in water	Observe rocks exploring how and why they might have changed over time.	Using a hand lens or microscope to help identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them. Explore different soils and identify similarities and differences between them
Light	Look for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes.		
Forces and magnets	Compare how different things move on different surfaces and gathering and recording data to find answers to their questions. Exploring the strength of different magnets and finding a fair way to compare them. Looking for patterns in the way that magnets behave in relation to each other and what might effect this e.g. poles		Compare and group things by how they move. Sort materials into those that are magnetic and those that are not.

Year 4: Working Scientifically

Science Topic	Exploration leading to Fair-test/pattern seeking	Observation over time	Classification and identification
Living things and their habitats		They should identify how the local habitat changes throughout the year	Classify animals into major groups such as vertebrates (animals with backbones) into fish amphibians, reptiles, birds and mammals: invertebrates into snails and slugs, worms, spiders and insects. Plants are more difficult to classify, but can be grouped into categories such as trees, grasses, flowers, and non-flowering plants such as ferns and mosses Use guides and keys to identify local small invertebrates Make a guide to local living things
Animals, including humans	Find out what damages teeth		Compare the teeth of carnivores and herbivores
States of matter	Explore the effect of temperature on different substances such as chocolate, butter and cream. Investigate the effect of temperature on washing drying or snowmen melting	Observe water as a solid, a liquid and a gas and should note the changes to water when it is heated or cooled. Observe and record evaporation over a period of time, such as a puddle in the playground or washing drying on a washing line	Group and classify a variety of different materials
Sound	Explore how the pitch and volume of sounds can be changed in a variety of ways, and finding patterns in data. Finding patterns in the sounds that are made by different objects elastic bands of different thicknesses Make ear muffs from a variety of different materials to investigate which provides the best insulation against sound.		
Electricity	Observing patterns, for example that the bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit		

Year 5: Working Scientifically

Science Topic	Exploration leading to Fair-test/pattern seeking	Observation over time	Classification and identification
Living things and their habitats	Try growing new plants from different parts of the parent plant, for example seeds, stem and root cuttings, tubers, and bulbs.	Observing and comparing the life cycles of plants and animals in their local environment with other animals around the world. Observe changes in an animal over a period of time e.g. rearing chicks	Compare how different animals reproduce and grow.
Animals, including humans		Research the gestation periods of other animals and compare them with humans. Record the length and mass of a baby as it grows. (compare with an adult for the same time period)	
Properties and changes of materials	Explore reversible changes, including evaporating, filtering, sieving, melting and dissolving. Explore changes that are difficult to reverse, for example, burning, rusting and other reactions, for example vinegar with bicarbonate of soda. Investigate questions such as 'Which materials would be the most effective for making a warm jacket, or wrapping ice cream to stop it melting. They might compare materials in order to make a switch in a circuit.		
Earth and space	Construct simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day		
Forces	Explore falling paper cones or cupcakes. Design and make parachutes having carried out fair tests to determine which design are the most effective. Explore resistance in water by making and testing boats of different shapes. Explore the effects of levers, pulleys, gears and/ or springs		

Year 6: Working Scientifically

Science Topic	Fair-test/pattern seeking	Observation over time	Classification and identification
Living things and their habitats			<p>Look at the classification system in more detail. They should be introduced to the idea that broad groupings, such as micro-organisms, plants and animals can be subdivided. Through direct observations where possible they should classify animals into vertebrates and invertebrates.</p> <p>Use classification systems and keys to identify some animals and plants in the immediate environment</p>
Animals, including humans			
Evolution and inheritance	<p>Analyse the advantages and disadvantages of specific adaptations, such as being on two feet rather than four, having a long or a short beak, having gills or lung, tendrils on climbing plants, brightly coloured and scented flowers</p>		<p>Comparing how some living things are adapted to survive in extreme conditions for example, cactuses, penguins and camels.</p>
Light	<p>Investigate where to place rear view mirrors on cars; designing and making a periscope and using the idea that light appears to travel in straight lines to explain how I works. They might investigate the relationship between light sources, objects and shadows by using shadow puppets.</p>		

Electricity	Systematically identifying the effect of changing one component at a time in a circuit; designing and making a set of traffic lights, a burglar alarm or some other useful circuit		
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