

Scientific enquiry - Ideas

Pattern seeking
Comparative and fair testing

Identifying, classifying and grouping
Research

Observation over time

YEAR A	Badger Wood	Keeper Wood	Farthing Wood
Autumn Year A	<p><u>Biology – Animals, including Humans</u> Using classification trees to classify animals using soft toys as representations (classifying and grouping).</p> <p>Asking questions about animals and using books and the internet to research them (research using secondary sources)</p> <p><i>Who has the largest hand-span?</i> (Pattern seeking between hand-span and height or feet size)</p> <p><i>Which habitat do worms prefer?</i> <i>Where can we find the most worms?</i> (pattern spotting)</p> <p><i>Which offspring belongs to which animal?</i> (identifying, grouping and classifying)</p> <p><u>Physics – Seasonal changes (continual)</u> Children to keep records of the weather and discuss patterns (pattern seeking)</p> <p><i>Is it always windy when it is raining?</i> <i>Does the wind always blow the same way?</i> <i>Is it always sunny when it is warm?</i></p>	<p><u>Physics – Forces and Magnets</u> <i>Which shoe/ surface is the most slippery?</i> (comparative test)</p> <p><i>If I change the car, what happens to the distance travelled?</i> (comparative test)</p>	<p><u>Physics – Earth and Space</u> <i>Is there a pattern between the size of a planet and the time it takes to travel around the sun?</i> (pattern spotting)</p> <p>Researching evidence of life in space or Apollo missions (researching using secondary sources)</p> <p><u>Physics – Forces: gravity, resistance, mechanisms</u> Creating parachutes and investigating “<i>How does the surface area of a parachute affect the time it takes to fall?</i>” (fair test)</p> <p><i>Do all objects fall through water in the same way?</i> (pattern seeking)</p> <p><i>How does the surface area of a container affect the time it takes to sink?</i> (fair test)</p>

	<i>Are shadows always in the same position?</i>		
	Badger Wood	Keeper Wood	Farthing Wood
Spring Year A	<p><u>Physics – Seasonal changes (continual) see Autumn</u></p> <p><u>Chemistry – Everyday Materials</u> <i>Which is the best material to make a model house, an umbrella etc? (fair testing)</i> <i>Which material makes the best waterproof jacket? (comparative testing)</i> <i>Is there a pattern in the types of materials that are used to make objects in a school? (pattern seeking)</i></p>	<p><u>Chemistry – Materials, states of matter</u> <i>Place ice cubes in a glass, observe and discuss what happens (observation over time)</i> <i>Which type of chocolate melts the quickest? (fair testing)</i> <i>Grouping and classifying materials as solids, liquids or gases (grouping and classifying)</i> <i>Record and measure the evaporation of a beaker of water over 2 weeks (observation over time)</i> <i>How does the surface area of a container of water affect how long it takes to evaporate? (pattern seeking)</i></p> <p><u>Physics – Sound</u> <i>Which milk bottle makes the highest pitch sound? (pattern seeking)</i> <i>Which material makes the best ear-muffs? (comparative test)</i></p>	<p><u>Physics – Electricity</u> <i>Systematically identifying the effect of changing one component at a time in a circuit (fair testing)</i> <i>How would you group electrical components and appliances based on what electricity makes them do? (identifying, grouping and classifying)</i></p>

	Badger Wood	Keeper Wood	Farthing Wood
Summer Year A	<p><u>Physics – Seasonal changes (continual) see Autumn</u></p> <p><u>Biology - Living things and habitats (woodland/seaside)</u> Children to explore how the conditions of a habitat affect the number of woodlice (Pattern Seeking) <i>Where do we find the most woodlice?</i></p> <p><u>Biology – Plants</u> Grouping different types of plants (classifying and grouping) Observing plants over the year and keeping record of how they have changed (observation over time) <i>Do trees with bigger leaves lose their leaves first in autumn? (pattern seeking)</i></p>	<p><u>Biology – Plants</u> <i>How is water transported in plants?</i> Putting cut up flowers/ lettuce into coloured water and observing transportation of water (observation) <i>Do bigger plants grow from bigger seeds? (pattern seeking)</i> <i>What colour flowers do pollinating insects prefer? (pattern seeking)</i></p> <p><i>What conditions do plants need to grow? (comparative test of plants growing in different locations- dry, wet, light, dark)</i> Observing plants over time and keeping record of how they have changed (observation over time)</p>	<p><u>Biology - Animals, including humans</u> Investigating and measuring pulse rate during exercise (pattern seeking) Conducting research about diet and drugs (researching using secondary sources) Investigating a Pig's heart (researching using secondary sources) Researching the gestation periods of other animals (researching using secondary sources) Recording the length and mass of a baby as it grows (researching using secondary sources) <i>Is there a link between a mammal's size and the length of its gestation period? (pattern seeking)</i></p>

YEAR B	Badger Wood	Keeper Wood	Farthing Wood
Autumn Year B	<p><u>Biology – Animals, including Humans</u> See Year A</p> <p><u>Physics – Seasonal changes (continual)</u> See Year A</p>	<p><u>Physics – Electricity</u> Testing whether different materials conduct electricity (pattern spotting) What happens when we add more bulbs to a circuit? (pattern spotting)</p> <p><u>Physics – Light</u> Which pair of sunglasses is most effective? (comparative test) What happens to shadows when the light source moves? (pattern seeking)</p>	<p><u>Chemistry - Materials, filtering, changes</u> Which nappy is the most absorbent? (fair test) Which materials would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting, or for making blackout curtains? (comparative test) Grouping objects into transparent, translucent and opaque materials (identifying, grouping and classifying)</p>

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Spring Year B	<p><u>Physics – Seasonal changes (continual)</u> See Year A</p> <p><u>Chemistry – Everyday Materials</u> See Year A</p>	<p><u>Biology – Animals, including Humans</u> Identifying and grouping animals with and without skeletons (grouping and classifying) <i>What nutrients does our body need? (researching using secondary sources)</i> <i>Does doing lots of sports make you fitter? (pattern seeking)</i> <i>Do male humans have larger skulls than female humans? (pattern seeking)</i> <i>Which liquid decays our teeth the most? Eggs in liquid investigation (comparative test)</i> Grouping and classifying the teeth of carnivores and herbivores (grouping and classifying) <i>Are foods that are high in energy always high in sugar? (pattern seeking)</i></p>	<p><u>Biology - Evolution and Inheritance</u> <i>Bird beak buffet - Are there any patterns between birds' beaks and the foods they eat? (pattern spotting)</i> Compare the skeletons of apes, humans, and Neanderthals – how are they similar, and how are they different (identifying, grouping and classifying) <i>Can you classify these observations into evidence for the idea of evolution, and evidence against? (identifying, grouping and classifying)</i></p>

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Summer Year B	<p><u>Physics – Seasonal changes (continual)</u> See Year A</p> <p><u>Biology - Living things and habitats (woodland/seaside)</u> See Year A</p> <p><u>Biology – Plants</u> See Year A</p>	<p><u>Biology: Living Things and Habitats</u> Using and making simple guides or keys to explore and identify local plants and animals (researching using secondary sources) Grouping plants and animals in environment (identifying and classifying) Researching the effects of deforestation (researching using secondary sources) How do conditions of their habitat affect food supply/chain (Pattern Seeking)</p> <p><u>Chemistry: Rocks</u> Classifying rocks according to whether they have grains or crystals (grouping and classifying) <i>How are fossils formed?</i> (researching using secondary sources)</p>	<p><u>Biology: Living things and habitats</u> Using keys and computer programmes to classify a range of living things (grouping and classifying) Research unfamiliar animals and plants and decide where they belong on a classification key (work of Carl Linnaeus) (researching using secondary sources) <i>Do all flowers have the same number of petals?</i> (pattern spotting) Growing plants from cuttings, tubers and bulbs (observation over time) Producing a biography about a naturalist (researching using secondary sources) Compare this collection of animals based on similarities and differences in their lifecycle (identifying, grouping and classifying)</p> <p><u>Physics – Light</u> Investigating the effect of different light sources and objects and the shadows produced (comparative tests) <i>How do shadows change during the day?</i> (observation over time) <i>How does the angle that a light ray hits a plane mirror affect the angle</i></p>

			<i>at which it reflects off the surface?</i> (fair test)
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