Scientific enquiry - Ideas

Pattern seeking | Identifying, classifying and grouping | Observation over time
Comparative and fair testing | Research

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

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

	Badger Wood	Keeper Wood	Farthing Wood
Summer Year A	**Physics – Seasonal changes (continual) see Autumn** **Biology - Living things and habitats (woodland/seaside)** Children to explore how the conditions of a habitat affect the number of woodlice (**Pattern Seeking**) *Where do we find the most woodlice?* **Biology – Plants** Grouping different types of plants (**classifying and grouping**) Observing plants over the year and keeping record of how they have changed (**observation over time**) *Do trees with bigger leaves lose their leaves first in autumn?* **(pattern seeking)**	**Biology – Plants** *How is water transported in plants?* Putting cut up flowers/ lettuce into coloured water and observing transportation of water (**observation**) *Do bigger plants grow from bigger seeds?* (**pattern seeking**) *What colour flowers do pollinating insects prefer?* (**pattern seeking**) *What conditions do plants need to grow?* (**comparative test** of plants growing in different locations- dry, wet, light, dark) Observing plants over time and keeping record of how they have changed (**observation over time**)	**Biology - Animals, including humans** 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)** *Is there a link between a mammal's size and the length of its gestation period?* **(pattern seeking)**

YEAR B	Badger Wood	Keeper Wood	Farthing Wood
Autumn Year B	**<u>Biology – Animals, including Humans</u>** **See Year A** **<u>Physics – Seasonal changes (continual)</u>** **See Year A**	**<u>Physics – Electricity</u>** Testing whether different materials conduct electricity **(pattern spotting)** *What happens when we add more bulbs to a circuit?* **(pattern spotting)** **<u>Physics – Light</u>** *Which pair of sunglasses is most effective?* **(comparative test)** *What happens to shadows when the light source moves?* **(pattern seeking)**	**<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)**

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

	Badger Wood	Keeper Wood	Farthing Wood
Summer Year B	**<u>Physics – Seasonal changes (continual)</u>** **See Year A** **<u>Biology - Living things and habitats (woodland/seaside)</u>** **<u>See Year A</u>** **<u>Biology – Plants</u>** **See Year A**	**<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)** **<u>Chemistry: Rocks</u>** Classifying rocks according to whether they have grains or crystals **(grouping and classifying)** *How are fossils formed?* **(researching using secondary sources)**	**<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)** *Do all flowers have the same number of petals?* **(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)** **<u>Physics – Light</u>** Investigating the effect of different light sources and objects and the shadows produced **(comparative tests)** *How do shadows change during the day?* **(observation over time)** *How does the angle that a light ray hits a plane mirror affect the angle*

			at which it reflects off the surface? **(fair test)**