



Northwood Park Primary School

Science Knowledge and Skills Progression - Summer

By the end of EYFS	By the end of Y1	By end of Y2	By end of Y3	BY end of Y4	By end of Y5	By end of Y6
<u>Summer 1 – Animals excluding Humans</u> * I know the name of animals that live in different habitats. *I can ask questions about different animals and the habitats they live in. *I can describe animals' habitats. *I know how animals are cared	<u>Summer 1 – Plants</u> *I know that parts of plants can be grouped based on their similarities and differences. *I know that plants can be sorted based on the shape of leaves, the colour of the flower/blossom. *I know the basic structure of a plant and a tree using scientific	<u>Summer 1 - Everyday Materials</u> *I know the names of everyday materials (wood, metal, plastic, glass, brick, rock, paper cardboard) *I know the properties of materials – as for Year 1 and opaque, transparent, and translucent, reflective, nonreflective, flexible, rigid.	<u>Summer 1 – Plants</u> *I know that many plants, but not all, have roots, stems/trunks, leaves, and flowers/blossom. *I know that roots absorb water and nutrients from the soil and anchor the plant in place. *I know that the stem transports water and nutrients/minerals around the plant and holds the	<u>Summer 1 & 2 Electricity</u> *I know that many household devices and appliances run on electricity. *I know that some appliances plug in to the mains (microwave)and others run on batteries (remote control). *I know an electrical circuit consists of a cell or battery	<u>Summer 1 - Animals including Humans</u> *I know at puberty, a child's body changes and develops primary and secondary sexual characteristics. I know this enables the adult to reproduce. *I know that girls' breasts develop and hair starts to grow on their bodies. *I know boys' hair starts to	<u>Summer 1- Living Things and their habitats</u> I know that there are four groups of plants (ferns/mosses, conifers, flowering plants) and they can be grouped (classified) in different ways according to their features. I know that animals can be divided into two main groups: those that have



for when they live outside their natural habitat. *I can sort animals according to where they live.	language, <i>e.g. leaves, flowers, petals, fruit, roots, bulb, seed, trunk, branch, stem.</i> * I know were each part of the plant is. I know the names of parts of a plant as they grow <i>e.g. seed, shoot, stem and roots.</i> * I can make close observations of plants, including trees - leaves, seeds, flowers etc *I can sort and group parts of plants.	*I can identify and compare the suitability of a variety of everyday materials <i>e.g. I know that my water bottle is made of plastic because it is <u>transparent</u> so I can see the drink inside and it is <u>waterproof</u> so that it holds the water.</i> *I can demonstrate how the shapes of solid objects made from some materials can be changed by push/pushing, pull/pulling, squash/squashing, bend/bending, twist/twisting and stretch/ stretching.	leaves and flowers up. *I know that leaves use sunlight and water to produce the plant's food. I know that some plants produce flowers which enable the plant to reproduce *I can describe my observations of what has happened, and I can make suggestions, <i>e.g. I know there are tubes in the stem, the water goes up the stem and it might go up to the leaves if I leave it for longer.</i> * I can use different types	connected to a component using wires. *I know if there is a break in the circuit, a loose connection or a short circuit, the lamp will not light up. *I know that a switch can be added to a simple series circuit to turn the lamp on and off. *I know that when the switch is open the lamp will not light up. *I know that a switch can be added to a simple series circuit to turn	grow on their body and face. *I know how to measure accurately in cm and mm. *I know how to record data in their own structure. I know how to identify a pattern, suggest reasons for this pattern, and identify any anomalies. * I know that old age is the final stage of development for humans. *I know that physical and mental changes may occur in old	backbones (vertebrates); and those that do not (invertebrates). I know that there are five vertebrate groups (mammals, reptiles, amphibians, fish and birds). I know some key characteristics of each group <i>e.g. birds have feathers, fish have gills, most mammals give birth to live young, reptiles are cold-blooded and amphibians can live both in water and land.</i>
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	*I can observe leaves closely using simple equipment. *I can make close observations of plants, including trees - leaves, seeds, flowers etc	E.g., Manipulating playdough	of enquiries: research using secondary sources to help me answer my question. *I can make careful observations and use these to help answer a question- how water is transported in a plant. *I can recognise different variables are being investigated across the class and that each group is changing only one thing. I can identify some control variables and, know that variable I am changing.i.e.,	the buzzer on and off. *I know that when the switch is open the buzzer will not generate a sound.. *I know that metals are good conductors so they can be used as wires in a circuit. *I know that non-metallic solids are insulators except for graphite (pencil lead). *I know that a switch can be added to the circuit to turn the component on and off.	age e.g. decline in short-term memory, bone density reduces. *I know the name and can explain the different stages of the human life cycle: foetus Baby, toddler, adolescent, adult and old age. * I can use secondary sources to research and compare gestational periods of mammals. *I can report and present findings from enquiries, including conclusions causal relationships,	I know the name of living things living in a range of habitats and I can name key features that help identify them. e.g. I know penguins are birds because they lay eggs, warm-blooded and have feathers even though they don't fly. I know a platypus is mammal because it is covered in fur and produces milk even though it is egg-laying. I know that invertebrates can be divided into a number of
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			to compare their 'unhealthy' plants with the class control.	*I know that metals such as aluminium and copper are good conductors. *I know materials such as wood and plastic (Non-metallic solids) are insulators except for graphite (pencil lead). *I know an electrical circuit consists of a cell or battery connected to a component using wires. *I know if there is a break in the circuit, a loose connection or a short circuit, the	and explanations. *I can report and presenting findings from enquiries, including conclusions, causal relationships, and explanations. *I can compare and predict growth patterns. I can record data and results of increasing complexity using scientific diagrams and labels.	groups, including insects, spiders, snails and worms. I know that plants and animals are two main groups but there are other living things that do not fit into these groups e.g. micro-organisms such as bacteria and yeast, and toadstools and mushrooms. *I can ask appropriate closed questions to split the daffodils into groups and
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				lamp will not light up. *I know that a switch can be added to a simple series circuit to turn the lamp on and off. *I know an electrical circuit consists of a cell or battery connected to a component using wires. *I can apply my knowledge of conductors and insulators to design different types of switch. *I can report on findings from enquiries,		present this in a classification key. *I can choose and use secondary sources to research nonflowering plants and presents my findings appropriately. *I can choose and use secondary sources to research nonflowering plants and presents my findings appropriately.
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<u>Summer 2- Light</u>	<u>Summer 2- Everyday Materials</u>	<u>Summer 2 -Plants</u>	<u>Summer 2- Plants continued & Animals including Humans</u>	including oral and written explanations, displays or presentations of results. *I can set up and investigate a range of circuits. *I can draw simple conclusions, suggest improvements and raise further questions.	<u>Summer 2 - Year 5 Properties and Changes in Materials</u>	<u>Summer 2 Year 6 – Light</u>
* I know how shadows that they see inside and outdoors. *I can identify the light source and the object that is making the shadow. *I know that see-through objects make pale shadows and non-see-through objects make dark shadows. *I can measure shadows using their feet or other nonstandard units. *I can draw around shadows throughout the day to record	* I know the names of everyday materials including wood, plastic, metal and water, and rock. * I can describe properties of materials e.g. I know wood is strong, flexible and long-lasting (durable). *I know some types of rocks can be hard, durable but other rocks like chalk can be soft and wears away quickly.	*I know that seeds and bulbs can germinate and grow into plants. *I know that seeds do not need light to germinate. *I know that some plants have flowers which become seeds, fruits. *I know that seeds and bulbs need to be planted outside at times of year and they will germinate and grow at different rates. E.g. Sunflower seeds should be planted in late Spring.	* I know that some plants produce flowers which enable the plant to reproduce. *I know that pollen, which is produced by the male part of the flower, is transferred to the female part of other flowers (pollination). *I know that the seed formed because of pollination is sometimes contained in berries or fruits which are then		*I know that some materials will dissolve in a liquid and form a solution while others are insoluble and form sediment. *I know that mixtures can be separated by filtering, sieving and evaporation. *I know that materials e.g. polystyrene, plastic, ceramic and metal have different uses depending on their properties. These properties	*I know that light travels in straight lines and the shape of the shadow will be the same as the outline shape of the opaque object. *I know that the closer an object is to the light source, the larger the shadow it casts. *I know this because an object closer to the source will block a larger area of the light, increasing its shadow size.



how they change over time. *I can describe the changes I feel when the clouds cover and uncover the Sun. *I know which clothing to wear when it is hot or out in the Sun. * I can compare the shape of shadows made by different objects. *I can classify which objects/materials make dark shadows.	*I know that some objects are made from one material and some are made from more than one material e.g. a plastic sharpener is made from plastic and metal. *I know that materials can be described by their properties e.g. shiny, stretchy, rough etc. e.g. I know that metal can be strong, hard and shiny. *I know that some types of plastic are flexible.	*I know that some plants are better suited to growing in full sun and some grow better in partial or full shade. E.g. Ferns prefer the shade but sunflowers need complete sunlight. *I know that some plants also need different amounts of water and space to grow well and stay healthy. E.g. cacti don't need much water but cress needs lots of water to grow. *I can identify similarities and difference between bulbs and seeds	dispersed in different ways. *I know that food contains a range of different nutrients – carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars, water – and fibre that are needed by the body to stay healthy. I know that a piece of food will often provide a range of nutrients. *I know that to be healthy we need to eat the right types of food to give us the correct amount of these nutrients.		including thermal conductivity. *I know that polystyrene is a good thermal insulator, but metal is a poor thermal insulator. *I know that materials e.g. polystyrene, plastic, ceramic and metal have different uses depending on their properties. . *I know that polystyrene is a good thermal insulator, but metal is a poor thermal insulator.	*I know that the closer an object is to the light source, the larger the shadow it casts. *I know that the shape of a shadow depends upon the shape of the opaque object because light travels in straight lines. *I know that the shape of a shadow depends upon the shape of the opaque object because light travels in straight lines. *I can plan different types of scientific enquiries to answer
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	*I know that some materials are stronger than others. *I know that materials can be compared on the basis of their physical properties including strength. * I can sort and classify objects and materials using a range of properties. I can use my observations and ideas to suggest answers. *I can collect data to measure bridge strength using pennies (or equivalent).	*Classify seeds and bulbs. *Research and plan when and how to plant a range of seeds and bulbs * Make comparisons between plants as they grow.	*I can research different types of pollination using secondary resources. *I can classify seeds in a range of ways, including by how they are dispersed. *I can classify food in a range of ways. *I can use secondary sources to find out the types of food that contain the different nutrients. *I can use food labels to answer enquiry questions e.g. foods with high amounts of		* I know that everyday objects including a saucepan are made from materials e.g. plastic and metal have different uses depending on their properties. I know these properties including thermal conductivity, hardness and transparency. I know that some changes to materials are irreversible, such as such as burning wood, rusting and mixing vinegar with bicarbonate of soda result in the formation of new materials,	questions related to shadow size. *I can take measurements with increasing precision and accuracy. *I can record my data using a table. *I can comment on patterns in data, using scientific evidence that supports my ideas. *I can use scientific diagrams to explain my observations using my knowledge of how light travels.
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	*I can use my data to compare bridge shapes. *I can interpret data in the charts and makes comparisons.		sugar have high amounts of fats.		and these are not reversible. can take measurements using a range of equipment including a thermometer. I know how to measure the temperature by reading a thermometer correctly. I can record the temperature using the correct units in a table. I know how to plot my test results using a line graph. I can record data and present my findings from my	
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					enquiry including conclusions. I can use scientific diagrams and labels to record my findings. I can classify changes to materials as reversible or irreversible.	
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