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Whole School Science Progression

Unit A: plants

Year group	Scientific knowledge *(NC objectives)*	Working scientifically skills *(taken from PLAN- see progression grid for more details)*	Scientific enquiry suggestions 	Assessment opportunities (taken from PLAN) *(observations/photographs/ written responses/ retrieval quizzes/ mind maps/ posters etc.)*
Nursery				
EYFS				
Year 1 **Unit A** **Big Q:** How many types of plant are there?	•**Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees** •**Identify and describe the basic structure of a variety of common flowering plants, including trees.**	**Asking simple questions** (with the support of question stems) and recognising that they can be answered in different ways **Observing closely,** using simple equipment (magnifying glasses/ digital microscopes) **Performing simple tests** **Identifying and classifying** **Gathering and recording data** to help in answering questions- using photographs, videos, drawings, labelled diagrams or in writing. Record- measurements e.g. using prepared tables, pictograms, tally charts and block graphs. They classify using simple prepared tables and sorting rings. **Using their observations** and ideas to suggest answers to questions	 **Observation over time-How does my sunflower change each week? How does the … tree change over the year? (growing plants/ vegetables at suitable times of the year).**  **Identifying- can you match the plant to the picture? (Matching to cards)**  **Comparative-Which tree has the biggest leaves? (The children recognise 'biggest and smallest').**  **Do trees with bigger leaves lose their leaves first in autumn?**  **What are the most common British plants and where can we find them?**	Can name trees and other plants that they see regularly. Can sort and group parts of plants using similarities and differences. Can use simple charts etc. to identify plants. Can collect information on features that change during the year. Can use photographs to talk about how plants change over time. **EXT**: ***Can describe some of the key features of these trees and plants e.g. the shape of the leaves, the colour of the flower/ blossom*.**
Year 2 **Unit A**	•**Observe and describe how seeds and bulbs grow into mature plants.**	**Asking simple questions** (through the support of question stems) and	 **Comparative test to show that plants need light and water to stay healthy.**	Can describe how plants that they have grown from seeds and bulbs have developed over time.

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Big Q: What should I do to grow a healthy plant?	**•Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.**	recognising that they can be answered in different ways **Observing closely**, using simple equipment (magnifying glasses/ digital microscopes) **Performing simple tests** **Identifying and classifying** **Gathering and recording data** to help in answering questions- using photographs, videos, drawings, labelled diagrams or in writing. Record- measurements e.g. using prepared tables, pictograms, tally charts and block graphs. They classify using simple prepared tables and sorting rings. **Using their observations** and ideas to suggest answers to questions	 **Research and plan when and how to plant a range of seeds and bulbs.**  **Observation over time**  **Identifying and classifying- How can we sort leaves that we have collected on our walk?**	Can identify plants that grew well in different conditions. Can spot similarities and difference between bulbs and seeds. Can nurture seeds and bulbs into mature plants identifying the different requirements of different plants
Year 3 **Unit A** **Big Q:** Why do plants have flowers?	**• Identify and describe the functions of different parts of flowering plants: roots; stem/trunk; leaves; and flowers.** **• Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.** **• Investigate the way in which water is transported within plants.** **• Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.**	**Asking relevant questions** and using different types of scientific enquiries to answer questions (using question stems and prior knowledge e.g. What is the role of flowers?) **Make systematic and careful observations**: observe flowers carefully to identify the pollen/ observe flowers being visited by pollinators e.g. bees and butterflies in the summer/ observe when seeds are blown from the trees e.g. sycamore seeds **Recording findings** from observations made of flowering plants using simple scientific language, drawings, labelled diagrams,	 **Comparative/ fair testing- what is needed for a plant to grow? Investigate what happens to plants when they are put in different conditions e.g. in darkness, in the cold, deprived of air, different types of soil, different fertilisers, varying amount of space.**  **Research different types of seed dispersal.**  **Classify seeds in a range of ways, including by how they are dispersed.**  **How do flowers in a vase change over time? / Observe**	Can explain the function of the parts of a flowering plant. Can describe the life cycle of flowering plants, including pollination, seed formation, seed dispersal, and germination. Can give different methods of pollination and seed dispersal, including examples. Can draw and label a diagram of their created flowering plant to show its parts, their role and the method of pollination and seed dispersal.

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		Using straightforward scientific evidence to answer questions or to support their findings. **Evaluating and raising** further q's and predictions **Using results to draw simple conclusions**, make predictions for new values, suggest improvements and raise further questions **Reporting on findings from enquiries**, including oral and written explanations, displays or presentations of results and conclusions	**the effect of putting cut white carnations or celery in coloured.** **Water- how does water get from the roots to the leaves?**  **What colour flowers do pollinating insects prefer?**	**EXT**: ***Create a new species of flowering plant applying knowledge developed throughout the unit.***
Year 4	***Explored in Unit C -living things classification.***			
Year 5	***Explored in Unit C -living things life cycles.***			
Year 6	***Explored in Unit B- animals, including humans***			

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Unit B: Animals, including humans.				
Year group:	**Scientific knowledge**	**Working scientifically skills**	**Scientific enquiry** 	**Assessment opportunities** *(observations/photographs/ written responses/ retrieval quizzes/ mind maps/ posters etc.)*
Nursery				
EYFS				
Year 1 **Big Q:** What are animals like? (across 2 terms)	•**Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.** • **Identify and name a variety of common animals that are carnivores, herbivores and omnivores *(NB pupils not required to use this language)*** • **Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets**).	**Asking simple questions** and recognising that they can be answered in different ways **Observing closely**, using simple equipment (magnifying glasses/ digital microscopes) Using their observations to compare and contrast animals at first hand or through videos and photographs **Performing simple tests** **Identifying and classifying** **Gathering and recording** data to help in answering questions- using photographs, videos, drawings, labelled diagrams or in writing. Record- measurements e.g. using prepared tables, pictograms, tally charts and block graphs. They classify using simple prepared tables and sorting rings. **Using their observations** and ideas to suggest answers to questions	 **Investigation question: How can we group animals based on what they eat? (Classify/group).** **Identify animals by matching them to named images.** **Classify animals using a range of features.**  **Research- Do animals have the same senses as humans?**	Can name a range of animals which includes animals from each of the vertebrate groups. Can describe the key features of these named animals. Can label key features on a picture/diagram. Can write descriptively about an animal. Can describe what a range of animals eat **EXT: *Can write a What am I? riddle about an animal***

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Big Q: Do all animals have the same senses as humans?	•**Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.**	(As above-) **Set up simple investigations** - Investigate human senses e.g. Which part of my body is good for feeling, which is not? Which food/flavours can I identify by taste? Which smells can I match? Take measurements of parts of their body ("My arm is x straws long.")	 **pattern seeking: Look for patterns between people e.g. Do people with big hands have big feet?**  **Classify people according to their features.**  **Research- What do I use my ..... for?**  **How does my height change over the year?**  **Is our sense of smell better when we cannot see?/ Which part of my body is good for feeling, which is not? Which food/flavours can I identify by taste? Which smells can I match?**	Can label parts of the body on pictures and diagrams. Can explore objects using different senses. Can play and lead 'Simon says'. During PE lessons, can follow instructions involving parts of the body. Can talk about their findings from investigations using appropriate vocabulary e.g. "My fingers are much better at feeling than my toes" "We found that the crisps all taste the same."
Year 2 **Big Q:** Do living things change or stay the same? What food do you need in a healthy diet and why?	•**Notice that animals, including humans, have offspring which grow into adults** •**Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)** •**Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene**	**Asking simple questions** and recognising that they can be answered in different ways **Use question stems as they explore the world around them to ask questions about what things animals need for survival and what humans need to stay healthy (e.g. ask pet owners questions about how they look after their pet)** and suggesting ways to find answers to their questions **Observing closely,** using simple equipment (magnifying glasses) **observing, through video or first-hand observation how different animals, including humans, grow- begin to take measurements, initially by comparisons, then using non-standard units.** **Performing simple tests** **Identifying and classifying** **Gathering and recording data to help in answering questions-** using photographs, videos, drawings, labelled diagrams or in	 **Research using secondary resources. What do living things need to survive? could I survive without? could a ----- live on the moon could a penguin live in the desert? could a camel live in the north pole?**  **Pattern seeking- How do I keep healthy?**  **Observation over time- Observe animals growing over a period of time e.g. chicks, caterpillars, a baby.** **How much food and drink do I have over a week?**  **Which offspring belongs to which animal?**	Can describe how animals, including humans, have offspring which grow into adults, using the appropriate names for the stages Can state the basic needs of animals, including humans, for survival Can name foods in each section of the Eatwell Guide Can describe, including using diagrams, the life cycle of some animals (chicks/ caterpillars), including humans, and their growth to adults e.g. by creating a life cycle book for a younger child Can measure/observe how animals, including humans, grow.

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		writing. **Record- measurements** e.g. using prepared tables, pictograms, tally charts and block graphs. They classify using simple prepared tables and sorting rings. **Using their observations and ideas to suggest answers to questions**	**Classify food in a range of different ways.**	**EXT:** Show what they know about looking after a baby/animal by creating a parenting/pet owners' guide
Year 3 **Big Q** Why do animals have skeletons? What is a healthy diet and why is it important?	**•Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat** **•Identify that humans and some other animals have skeletons and muscles for support, protection and movement.**	**Asking relevant questions** and using different types of scientific enquiries to answer them Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers **Gathering**, recording, classifying and presenting data in a variety of ways to help in answering questions **Recording findings using simple scientific** language, drawings, labelled diagrams, keys, bar charts, tally charts and tables **Using straightforward scientific** evidence to answer questions or to support their findings. **Identifying differences, similarities** or changes related to simple scientific ideas and processes **Evaluating and raising** further q's and predictions **Using results to draw simple conclusions**, make predictions for new values, suggest improvements and raise further questions **Reporting on findings from enquiries**, including oral and written explanations, displays or presentations of results and conclusions	 **Use secondary sources to find out the types of food that contain the different nutrients**  **Investigate patterns asking questions such as:** **▪ Can people with longer legs run faster?** **▪ Can people with bigger hands catch a ball better?**  **Compare, contrast and classify skeletons of different animals** *(Can give similarities e.g. they all have joints to help the animal move, and differences between skeletons).*  **Classify food in a range of ways- food groups (carbohydrates etc.)**	Can name some bones that make up their skeleton, giving examples that support, help them move or provide protection Can describe how muscles and joints help them to move. Can state that to be healthy we need to eat the right types of food to give us the correct amount of these nutrients Can give similarities e.g. they all have joints to help the animal move, and differences between skeletons. **EXT:** design a meal based on what they find out about the food groups and nutrients.
Year 4 **Big Q:**	**•Describe the simple functions of the basic parts of the digestive system in humans.**	**Asking relevant questions** and using different types of scientific enquiries to answer them. Making systematic and careful observations	 **Research the function of the parts of the digestive system.** **How can we keep our teeth healthy?**	Can sequence the main parts of the digestive system Can use diagrams or a model to describe what happens in each part of the digestive system.

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What do our bodies do with the food we eat?	• **Identify the different types of teeth in humans and their simple functions**.	**Gathering, recording, classifying** and presenting data in a variety of ways to help in answering questions **Recording findings using simple scientific** language, **drawings, labelled diagrams,** (record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings) **Using straightforward** scientific evidence to answer questions or to support their findings. **Identifying differences,** similarities or changes related to simple scientific ideas and processes **Evaluating and raising further** qs and predictions. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions **Using results to draw simple conclusions**, make predictions for new values, suggest improvements and raise further questions **Reporting on findings** from enquiries, including oral and written explanations, displays or presentations of results and conclusions	 **Classify animals as herbivores, carnivores or omnivores according to the type of teeth they have in their skulls.**  **Comparative & fair testing- what impact do sugary drinks have on our teeth?**	Can point to the three different types of teeth in their mouth and talk about their shape and what they are used for. Can explain how the teeth in animal skulls show they are carnivores, herbivores or omnivores **EXT**: compare the digestive systems of different animals- create a model to show.
Year 5 **Big Q:** Why and how does the human body change over time?	• **Describe the changes as humans develop to old age.** ***(also explored in RSHE units summer term)***	**Taking measurements**, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. **Recording data** and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. **Identifying scientific evidence** that has been used to support or refute ideas or arguments (answering questions and concluding).	 **Fair testing- How does age affect a human's reaction time? (variables)** ***(****This unit is likely to be taught through direct instruction due to its sensitive nature, although children can carry out a research enquiry by asking an expert e.g. school nurse to provide answers to questions that have been filtered by the teacher)* ***finding out and recording the length and mass of a baby as it grows.***	Can explain the changes that takes place in boys and girls during puberty Can explain how a baby changes physically as it grows, and also what it is able to do Can present information about the changes occurring during puberty as an information leaflet for other Y5 children or answers to 'problem page questions'

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		Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations **Using test results** to make predictions to set up further comparative and fair tests		
Year 6 **Big Q:** How do our choices affect how our bodies work? Why does my heart beat?	• **Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.** • **Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.** ***(connections made during DARE programme).*** • **Describe the ways in which nutrients and water are transported within animals, including humans.**	**Engaging in practical enquiry** to answer questions- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary **Taking measurements**, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. **Recording data** and results of increasing complexity using scientific **diagrams and labels**, classification keys**, tables**, scatter graphs, **bar and line graphs.** **Identifying scientific evidence** that has been used to support or refute ideas or arguments. **Reporting** and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations **Using test results** to make predictions to set up further comparative and fair tests.	 **Research- changes over time: How have our ideas about disease and medicine changed over time?** (*opportunities to interview a pharmacist?)* **pattern seeking – exploring which groups of people may have higher or lower resting pulse rates**  **Identifying- Which organs of the body make up the circulatory system, and where are they found?** *(opportunities to skype/ have visit from GP).*  **observation over time - how long does it take my pulse rate to return to my resting pulse rate (recovery rate)**  **Comparative- Which type of exercise has the greatest effect on our heart rate?** *(Link to PE)* **Fair testing- How does the length of time we exercise for affect our heart rate?**	Can draw a diagram of the circulatory system and label the parts and annotate it to show what the parts do Produces a piece of writing that demonstrates the key knowledge e.g. explanation text, job description of the heart Can explain both the positive and negative effects of diet, exercise, drugs and lifestyle on the body. Present information e.g. in a health leaflet describing impact of drugs and lifestyle on the body.

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Unit C: Living things and their habitat.

Year group	Scientific knowledge	Working scientifically skills	Scientific enquiry 	Assessment opportunities *(observations/photographs/ written responses/ retrieval quizzes/ mind maps/ posters etc.)*
Nursery				
EYFS				
Year 1	***Connections to unit A- plants and seasonal changes***			
Year 2 **Big Q:** Why do different animals live in different places? How does a cactus survive in a	**•Explore and compare the differences between things that are living, dead, and things that have never been alive** **• Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.** **• Identify and name a variety of plants and animals in their habitats, including micro-habitats**	**Asking simple questions** and recognising that they can be answered in different ways **Observing closely,** using simple equipment (magnifying glasses/ digital microscopes) **Performing simple tests** **Identifying and classifying** **Gathering and recording data to help in answering questions-** using photographs, videos, drawings, labelled diagrams or in writing. Record- measurements e.g. using prepared tables, pictograms, tally charts and block graphs. They classify using simple prepared tables and sorting rings.	 **Pattern seeking- What conditions do woodlice prefer to live in? Which habitat do worms prefer – where can we find the most worms?**  **Observation over time. How does the school woods change over the year?** *(ensure you gather data in a range of ways using examples listed in WS).*  **classify- How would you group these plants and animals based on what habitat you would find them in?** **Is it living, dead, never alive?**	Can find a range of items outside that are living, dead and never lived. Can name a range of animals and plants that live in a habitat and micro-habitats that they have studied. Can talk about how the features of these animals and plants make them suitable to the habitat. Can talk about what the animals eat in a habitat and how the plants provide shelter for them

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desert with no water?	•**Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food**	**Using their observations and ideas to suggest answers to questions**	 **Research- How are the animals in … different to the ones that we find in Britain? How does the habitat of the Arctic compare with the habitat of the desert?** *(avoid rainforest animals/ animals of South America as studied in Y4)*	
Year 3	***(connections to plants)***			
Year 4 **Big Q:** Are living things in danger?	•**Recognise that living things can be grouped in a variety of ways.** • **Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.** • **Recognise that environments can change and that this can sometimes pose dangers to living things**	**Asking relevant questions** and using different types of scientific enquiries to answer them. **Making systematic and careful observations** **Gathering, recording**, classifying and presenting data in a variety of ways to help in answering questions **Recording findings using** simple scientific language, drawings, labelled diagrams, (record their measurements e.g. using tables, **tally charts** and **bar charts** (given templates, if required, to which they can add headings) Venn diagrams **Using straightforward scientific** evidence to answer questions or to support their findings. **Identifying differences**, similarities or changes related to simple scientific ideas and processes **Evaluating and raising further** qs and predictions	 **Research- why are people cutting down the rainforests and what effect does that have?**  **Use classification keys to name unknown living things. Classify living things found in different habitats based on their features- how are vertebrates grouped?** *(link to rainforest work and local environment).- **NB:** caroll diagram introduced in UKS2 when classifying.*  **Observe plants and animals in different habitats throughout the year** *(ensure you gather data in a range of ways using examples listed in WS).*  **Pattern seeking- but explore through research How has the use of insecticides affected bee population?**	Can keep a careful record of living things found in different habitats throughout the year (diagrams, tally charts etc.) Can use classification keys to identify unknown plants and animals. Can present their learning about changes to the environment in different ways e.g. campaign video, persuasive letter (deforestation)

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		Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions **Reporting on findings** from enquiries, including oral and written explanations, displays or presentations of results and conclusions.		
Year 5 **Big Q:** Do all plants and animals reproduce in the same way?	•**Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.** • **Describe the life process of reproduction in some plants and animals**	**Engaging in practical enquiry** to answer questions- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary **Taking measurements**, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. **Recording data** and results of increasing complexity using scientific **diagrams and labels**, classification keys**, tables**, scatter graphs, **bar and line graphs.** **Identifying scientific evidence** that has been used to support or refute ideas or arguments. **Reporting** and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations **Using test results** to make predictions to set up further comparative and fair tests	 **Use secondary sources and, where possible, first-hand observations to find out about the life cycle of a range of animals.**  **Compare the gestation times for mammals and look for patterns e.g. in relation to size of animal or length of dependency after birth.**  **Look for patterns between the size of an animal and its expected life span.**  **Grow and observe plants that reproduce asexually e.g. strawberries, spider plants, potatoes.**	Can draw the life cycle of a range of animals identifying similarities and differences between the life cycles. Can explain the difference between sexual and asexual reproduction and give examples of how plants reproduce in both ways. Can compare two or more animal life cycles they have studied Can explain how a range of plants reproduce asexually

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Year 6 **Big Q:** In what ways can we sort living things?	**•Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.** **• Give reasons for classifying plants and animals based on specific characteristics.** *(children's knowledge of living things is further developed in Unit I- evolution & inheritance)*	Use first-hand observation to identify characteristics shared by the animals in a group. Use information about the characteristics of an unknown animal or plant to assign it to a group **Engaging in practical enquiry** to answer questions- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary **Taking measurements**, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. **Recording data** and results of increasing complexity using scientific **diagrams and labels**, classification keys**, tables**, scatter graphs, **bar and line graphs.** (Venn & caroll diagrams) **Identifying scientific evidence** that has been used to support or refute ideas or arguments. **Reporting** and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations **Using test results** to make predictions to set up further comparative and fair tests	 **What do different types of microorganisms do?** **Use secondary sources to learn about the formal classification system devised by Carl Linnaeus and why it is important.** Use secondary sources to research the characteristics of animals that belong to a group.  **Classify plants and animals, presenting this in a range of ways e.g. Venn diagrams/ caroll diagrams/ keys**  **What happens to a piece of bread if you leave it on the windowsill for two weeks?**  **What do different types of microorganisms do? Are they always harmful?**  **Which is the most common invertebrate in our school environment?**	Can give examples of animals in the five vertebrate groups and some of the invertebrate groups. Can give the key characteristics of the five vertebrate groups and some invertebrate groups. Can compare the characteristics of animals in different groups Can give examples of flowering and non-flowering plants. **EXT:** Create an imaginary animal which has features from one or more groups.

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Unit D: Materials

Year group	Scientific knowledge	Working scientifically skills	Scientific enquiry 	Assessment opportunities *(observations/photographs/ written responses/ retrieval quizzes/ mind maps/ posters etc.)*
Nursery				
EYFS				
Year 1 Unit D **Big Question:** What are the things I use made from?	**•Distinguish between an object and the material from which it is made.** **• Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.** **• Describe the simple physical properties of a variety of everyday materials.** **• Compare and group together a variety of everyday materials based on their simple physical properties.**	**Asking simple questions** (through the support of question stems) and recognising that they can be answered in different ways **Observing closely,** using simple equipment (magnifying glasses/ digital microscopes) **Performing simple tests** **Identifying and classifying** **Gathering and recording data to help in answering questions-** using photographs, videos, drawings, labelled diagrams or in writing. Record- measurements e.g. using prepared tables, pictograms, tally charts and block graphs. They classify using simple prepared tables and sorting rings. ***Using their observations and ideas to suggest answers to questions***	 **How can we group materials? We need to choose a material to make an umbrella. Which materials are waterproof?**  **Which material is the strongest for …?**  **Which material e.g. "Which cloth is the most absorbent?"** *Test the properties of objects e.g. absorbency of cloths, strength of party hats made of different papers, stiffness of paper plates, waterproofness of shelters.*  **Is there a pattern in the types of materials that are used to make objects in a school?**  **Which materials can be recycled?**	Can label a picture or diagram of an object made from different materials. Can describe the properties of different materials. Can sort objects and materials using a range of properties. Can choose an appropriate method for testing an object for a particular property. Can use their test evidence to answer the questions about properties e.g. "Which cloth is the most absorbent?"

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Year 2 Unit D **Big Q:** Can we change materials? How do we choose the best material?	• **Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for uses.** • **Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.**	**Asking simple questions** and recognising that they can be answered in different ways **Observing closely**, using simple equipment (magnifying glasses/ digital microscopes) **Performing simple tests** **Identifying and classifying** **Gathering and recording data to help in answering questions-** using photographs, videos, drawings, labelled diagrams or in writing. Record- measurements e.g. using prepared tables, pictograms, tally charts and block graphs. They classify using simple prepared tables and sorting rings. ***Using their observations and ideas to suggest answers to questions***	**Which material would be best for the roof of the …. house?** *(use context of topic to create scenario).* **Which materials will float? Which materials will sink?** **How can we group materials by the changes that can be made to them?** **How can you change the shape of these materials? What materials can you bend and twist?**	Can name an object, say what material it is made from, identify its properties and make a link between the properties and a particular use. Can label a picture or diagram of an object made from different materials For a given object can identify what properties a suitable material needs to have Whilst changing the shape of an object can describe the action used Can use the words flexible and/or stretchy to describe materials that can be changed in shape and stiff and/or rigid for those that cannot Can recognise that a material may come in different forms which have different properties. Can sort materials using a range of properties
Year 3 Unit D **Big Q:** What are rocks and soils like? **(Creswell crags)**	•**Compare and group together different kinds of rocks based on their appearance and simple physical properties.** • **Describe in simple terms how fossils are formed when things that have lived, are trapped within rock.** • **Recognise that soils are made from rocks and organic matter.** *(Linked with work in geography, pupils should explore different kinds of rocks and soils, including those in the local environment)*	**Asking relevant questions** and using different types of scientific enquiries to answer them. **Making systematic and careful observations** *(a hand lens or microscope to help them to identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them)* **Setting up simple** practical enquiries, comparative and fair tests **Gathering, recording**, classifying and presenting data in a variety of ways to help in answering questions **Recording findings** using simple scientific language, drawings, labelled diagrams, (record their measurements e.g. using tables, tally	**Classifying rocks based on their physical properties. (Can you use the identification key to find out the name of each of the rocks in your collection?)** **Research- how are fossils formed over time?** **Who was Mary Anning and what did she discover?** **Which soil drains fastest? Which soul absorbs the most water?** **observing rocks, including those used in buildings and**	Can name some types of rock and give physical features of each. Can explain how a fossil is formed. Can explain that soils are made from rocks and also contain living/dead matter. Can devise tests to explore the properties of rocks and use data to rank the rocks

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		charts and bar charts (given templates, if required, to which they can add headings) **Using straightforward** scientific evidence to answer questions or to support their findings. **Identifying differences**, similarities or changes related to simple scientific ideas and processes **Evaluating and raising further** qs and predictions	**exploring how and why they might have changed over time;**	
Year 4 Unit D	**•Compare and group materials together, according to whether they are solids, liquids or gases.** **• Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C).** **• Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.**	**Asking relevant questions** and using different types of scientific enquiries to answer them. **Making systematic and careful observations where appropriate**, taking accurate measurements using standard units, using a range of equipment, including thermometers (temperature). **Setting up simple** practical enquiries, comparative and fair tests **Gathering, recording**, classifying and presenting data in a variety of ways to help in answering questions **Recording findings** using simple scientific language, drawings, labelled diagrams, (record their measurements e.g. using tables, tally charts and bar charts, tables (given templates, if required, to which they can add headings) **Using straightforward scientific** evidence to answer questions or to support their findings. **Identifying differences,** similarities or changes related to simple scientific ideas and processes **Evaluating and raising further** qs and predictions **Using results to draw simple conclusions,** make predictions for new values, suggest improvements and raise further questions	 **Can you group these materials? and objects into solids, liquids, and gases?**  **How does ice change as it is heated to 100 degrees?**  **At what temperature do different materials melt? (Melting points).**  **How does the level of water in a glass change when left on the windowsill?**  **Where is the best place to dry washing? (evaporation)**  **Is there a pattern in how long it takes different sized ice lollies to melt?**  **What is the water cycle?**	Can create a concept map, including arrows linking the key vocabulary Can name properties of solids, liquids and gases and group objects. Can give everyday examples of melting and freezing Can give everyday examples of evaporation and condensation Can describe the water cycle and draw diagrams/ write explanations to show their understanding. From their observations, can give the melting points of some materials. Using their data, can explain what affects how quickly a solid melts. Can explain why there is condensation on the inside the hot water cup but on the outside of the icy water cup From their data, can explain how to speed up or slow down evaporation

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		Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions		
Year 5 **Unit D** **Big Q:** How can we separate a mixture of water, iron filings, salt and sand? **Big Q:** How can we change materials reversibly and irreversibly?	**•Compare and group together everyday materials based on their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.** **• Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution.** **• Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.** **• Give reasons, based on evidence from comparative and fair tests, for the uses of everyday materials, including metals, wood and plastic**. • T2- **Demonstrate that dissolving, mixing and changes of state are reversible changes.** **• Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.**	**Engaging in practical enquiry** to answer questions- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary **Taking measurements**, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. **Recording data** and results of increasing complexity using scientific **diagrams and labels**, classification keys**, tables**, scatter graphs, **bar and line graphs.** **Identifying scientific evidence** that has been used to support or refute ideas or arguments. **Reporting** and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations **Using test results** to make predictions to set up further comparative and fair tests	 **How much sugar can be dissolved in a cup of water (How sweet can you make your tea?)** **What material is best for making a coat? (waterproofness/ thermal insulation)**  **Which of the following experiments (give some reversible and some irreversible) can be reversed?**  **How can you get the salt back from? the water?/ How does a container of salt water change over time?**  **Carry out comparative and fair tests involving non-reversible changes e.g. What affects the rate of rusting?**  **Research new materials produced by chemists e.g., Spencer Silver (glue of sticky notes) and Ruth Benerito (wrinkle free cotton).**  **How does temperature affect how much solute we can dissolve?**	Can create a chart or table grouping/comparing everyday materials by different properties. Can use test evidence gathered about different properties to suggest an appropriate material for a particular purpose Can use understanding of properties to explain everyday uses of materials, for example, how bricks, wood, glass and metals are used in buildings. Can explain what dissolving means, giving examples Can name equipment used for filtering and sieving. Can use knowledge of liquids, gases and solids to suggest how materials can be recovered from solutions or mixtures by evaporation, filtering or sieving Can describe some simple reversible and non-reversible Key vocabulary changes to materials, giving examples
Year 6 **Unit D**				

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Unit E: forces

Year group	Scientific knowledge	Working scientifically skills	Scientific enquiry 	Assessment opportunities *(observations/photographs/ written responses/ retrieval quizzes/ mind maps/ posters etc.)*
Nursery				
EYFS				
Year 1 Unit E				
Year 2 Unit E				
Year 3 Unit E **Big Q:** How do magnets work?	**•Compare how things move on different surfaces.** **• Notice that some forces need contact between two objects, but magnetic forces can act at a distance.** **• Observe how magnets attract or repel each other and attract some materials and not others.** **• Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials.**	**Asking relevant questions** and using different types of scientific enquiries to answer them. **Making systematic and careful observations** **Setting up simple** practical enquiries, comparative and fair tests **Gathering, recording**, classifying and presenting data in a variety of ways to help in answering questions **Recording findings** using simple scientific language, drawings, labelled diagrams, (record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings) **Using straightforward scientific** evidence to answer questions or to support their findings.	 **Comparative and fair testing- How do different surfaces affect the distance a car travel?**  **Identifying and classifying- Are all materials magnetic?**  **Pattern seeking- Which ends of a magnet attract/repel?**  **Does the size and shape of a magnet affect how strong it is?**  **How does a compass work?**	Can give examples of forces in everyday life. Can give examples of objects moving differently on different surfaces. Can name a range of types of magnets and show how the poles attract and repel. Can draw diagrams using arrows to show the attraction and repulsion between the poles of magnets Can use their results to describe how objects move on different surfaces

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	• **Describe magnets as having two poles.** • **Predict whether two magnets will attract or repel each other, depending on which poles are facing.**	**Identifying differences**, similarities or changes related to simple scientific ideas and processes **Using results to draw simple conclusions,** make predictions for new values, suggest improvements and raise further questions (*e.g. it will spin for longer on this surface than that, but not as long as it spun on that surface.)* **Evaluating and raising** further qs and prediction		
Year 4 **Unit F**				
Year 5 **Unit E** **Big Q:** How and why do objects move?	•**Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.** • **Identify the effects of air resistance, water resistance and friction that act between moving surfaces.** • **Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.**	**Engaging in practical enquiry** to answer questions- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary **Taking measurements**, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. **Recording data** and results of increasing complexity using scientific **diagrams and labels**, classification keys**, tables**, scatter graphs, **bar and line graphs.** **Identifying scientific evidence** that has been used to support or refute ideas or arguments. **Reporting** and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations	 **Comparative and fair testing- How does the size of an object affect the rate it falls at?** **How does the mass of an object affect the size of the crater formed on impact?** Fair **What is the best material to make a parachute out of?** **Does the length of a lever effect the size of a force produced?**  **Do all objects fall through water in the same way?**  **Research using secondary resources-Where do you find gears in the real world?/ Research how the work of scientists such as Galileo Galilei and Isaac Newton helped to develop the theory of gravitation.**  **Can you label and name all the forces acting on the objects in each of these situations?**	Can demonstrate the effect of gravity acting on an unsupported object. Can give examples of friction, water resistance and air resistance. Can give examples of when it is beneficial to have high or low friction, water resistance and air resistance . Can explain the results of their investigations in terms of the force, showing a good understanding that as the object tries to move through the water or air or across the surface the particles in the water, air or on the surface slow it down Can label a diagram showing the different forces present.

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		Using test results to make predictions to set up further comparative and fair tests		EXT: Make a product that involves a lever, pulley or gear (links to DT).
Year 6				

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Unit F: Electricity

Year group	Scientific knowledge	Working scientifically skills	Scientific enquiry 	**Assessment opportunities** *(observations/photographs/ written responses/ retrieval quizzes/ mind maps/ posters etc.)*
Nursery				
EYFS				
Year 1 **Unit F**				
Year 2 **Unit F**				
Year 3 **Unit F**				
Year 4 **Unit F** **Big Q:** What can we do with electricity? / What powers the rides & lights at Goose Fair?	**•Identify common appliances that run on electricity.** **• Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.** **• Identify whether a lamp will light in a simple series circuit, based on whether the lamp is part of a complete loop with a battery.** **• Recognise that a switch opens and closes a circuit and associate this**	**Asking relevant questions** and using different types of scientific enquiries to answer them. **Making systematic and careful** observations where appropriate, taking accurate measurements using standard units, using a range of equipment (data loggers) **Gathering, recording, classifying** and presenting data in a variety of ways to help in answering questions **Recording findings using simple** scientific language, drawings, labelled diagrams, (record their measurements e.g. using tables, tally charts and bar charts.	 **Pattern seeking- observing patterns, for example, that bulbs get brighter if more cells are added.**  **Researching- how has electricity changed the way we live?**  **Which materials are good conductors? Which are good insulators?**  **How would you group these electrical devices based on**	Can name the components in a circuit. Can make electric circuits. Can control a circuit using a switch Can name some metals that are conductors Can name materials that are insulators. Use classification evidence to identify that metals are good conductors and non-metals are insulators.

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	with whether a lamp lights in a simple series circuit. **• Recognise some common conductors and insulators, and associate metals with being good conductors.**	**Using straightforward scientific** evidence to answer questions or to support their findings. **Identifying differences**, similarities or changes related to simple scientific ideas and processes **Evaluating and raising** further qs and predictions. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions **Using results to draw** simple conclusions, make predictions for new values, suggest improvements and raise further questions **Reporting on findings** from enquiries, including oral and written explanations, displays or presentations of results and conclusions	**where the electricity comes from? (battery/ mains)**	Can incorporate a switch into a circuit to turn it on and off.
Year 5 **Unit F**				
Year 6 **Unit F** **Big Q:** Can we vary the effects of electricity? How do the numbers of lights and rides at Goose Fair impact the electricity needed?	**• Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.** **• Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.** **• Use recognised symbols when representing a simple circuit in a diagram.**	**Engaging in practical enquiry** to answer questions- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary **Taking measurements**, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. **Recording data** and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.	 **Does the voltage of cells used in the circuit impact the volume of a buzzer with the number**  **How has our understanding of electricity changed over time?**  **How would you group electrical components and appliances based on what electricity makes them do?**  **Which make of battery lasts the longest?**	Can make electric circuits and demonstrate how variation in the working of particular components, such as the brightness of bulbs, can be changed by increasing or decreasing the number of cells or using cells of different voltages Can draw circuit diagrams of a range of simple series circuits using recognised symbols

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		Identifying scientific evidence that has been used to support or refute ideas or arguments. **Reporting** and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations **Using test results** to make predictions to set up further comparative and fair tests.		

Unit G: Earth and space

Year group	Scientific knowledge	Working scientifically skills	Scientific enquiry 	**Assessment opportunities** *(observations/photographs/ written responses/ retrieval quizzes/ mind maps/ posters etc.)*
Nursery				
EYFS				
Year 1				
Year 2				
Year 3				
Year 4				

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Year 5 **Unit G** **<u>Big Q</u>** Sun, Earth & Moon: What is moving and how do we know? **Or** How have our ideas about the solar system changed over time?	• **Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.** • **Describe the movement of the Moon relative to the Earth.** • **Describe the Sun, Earth and Moon as approximately spherical bodies.** • **Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.**	**Engaging in practical enquiry** to answer questions- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary **Taking measurements**, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. **Recording data** and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. **Identifying scientific evidence** that has been used to support or refute ideas or arguments. **Reporting** and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations **Using test results** to make predictions to set up further comparative and fair tests	 **Observation over time- Can you observe and identify all the phases in the cycle of the Moon?**  **Is there a pattern between the size of a planet and the time it takes to travel around the Sun?**  **How does the length of daylight hours change in each season?**  **How do astronomers know what stars are made of? How have our ideas about the solar system changed over time?**	Can show, using diagrams, the movement of the Earth and Moon Can explain the movement of the Earth and Moon. Can show using diagrams the rotation of the Earth and how this causes day and night Can explain what causes day and night. Can use the model to explain how the Earth moves in relation to the Sun and the Moon moves in relation to the Earth Can demonstrate and explain verbally how day and night occur Can explain evidence gathered about the position of shadows in term of the movement of the Earth and show this using a model. Can explain verbally, using a model, why we have time zones Can describe the arguments and evidence used by scientists in the past
Year 6				

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Unit H: energy (Seasons, light and sound)

Year group	Scientific knowledge	Working scientifically skills	Scientific enquiry 	Assessment opportunities
Nursery				
EYFS **Unit H**				
Year 1 **Unit H** **Big Q:** What is it like in Winter, Spring, Summer and Autumn?	**•Observe changes across the four seasons.** **• Observe and describe weather associated with the seasons and how day length varies.** (revisited throughout the year)	**Asking simple questions** and recognising that they can be answered in different ways **Observing closely**, using simple equipment (magnifying glasses/ digital microscopes) **Performing simple tests** **Identifying and classifying** (using simple prepared tables and sorting rings) **Gathering and recording data to help in answering questions-** using photographs, videos, drawings, labelled diagrams or in writing. Record- measurements e.g. using prepared tables *(Present this information in tables and charts to compare the weather across the seasons/ lengths of day.),* pictograms, tally charts and block graphs.	 **Observation over time- how have the plants/ trees changed over the 4 seasons?** *(Collect information, regularly throughout the year, of features that change with the seasons e.g. plants, animals, humans)*  **In which season does it rain the most?**  **Are there plants that are in flower in every season? What are they?**	Can name the four seasons and identify when in the year they occur. Can describe weather in different seasons over a year Can describe days as being longer (in time) in the summer and shorter in the winter. Can describe other features that change through the year Use the evidence gathered to describe the general types of weather and changes in day length over the seasons. Use their evidence to describe some other features of their surroundings, e.g. themselves, animals, plants that change over the seasons.

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		Using their observations and ideas to suggest answers to questions		
Year 2 **Unit H**				
Year 3 **Unit H** **Big Qs:** How can we see all of the bright lights at Goose fair? What is a shadow?	**•Recognise that they need light in order to see things, and that dark is the absence of light.** **• Notice that light is reflected from surfaces.** **• Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.** **• Recognise that shadows are formed when the light from a light source is blocked by an opaque object.** **• Find patterns in the way that the size of shadows change.**	**Asking relevant questions** and using different types of scientific enquiries to answer them. **Making systematic and careful observations** **Setting up simple** practical enquiries, comparative and fair tests **Gathering, recording**, classifying and presenting data in a variety of ways to help in answering questions **Recording findings** using simple scientific language, drawings, labelled diagrams, (record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings) **Using straightforward scientific** evidence to answer questions or to support their findings. **Identifying differences**, similarities or changes related to simple scientific ideas and processes **Using results to draw simple conclusions,** make predictions for new values, suggest improvements and raise further questions **Evaluating and raising** further qs and prediction	 **Research- How can we protect our eyes from the sun?**  **Comparative- Which material is best for sunglasses?** **How does the distance between the shadow puppet and the screen affect the size of the shadow?**  **Which materials would you choose to make shadow puppets?**  **How do the size of a shadow change over a day?** **When is our classroom the darkest?**	Can define transparent, translucent and opaque. Can describe how shadows are formed. Can describe how we see objects in light and can describe dark as the absence of light Can state that it is dangerous to view the sun directly and state precautions used to view the sun, for example in eclipses Can define transparent, translucent and opaque. Can describe how shadows are formed
Year 4 **Unit H**	**•Identify how sounds are made, associating some of them with something vibrating.**	**Asking relevant questions** and using different types of scientific enquiries to answer them.	 **Which material is best to use for muffling sound in ear defenders?**	Can name sound sources and state that sounds are produced by the vibration of the object

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How well can you hear the music at Nottingham's Splendour festival?	• **Recognise that vibrations from sounds travel through a medium to the ear.** • **Find patterns between the pitch of a sound and features of the object that produced it.** • **Find patterns between the volume of a sound and the strength of the vibrations that produced it.** • **Recognise that sounds get fainter as the distance from the sound source increases.**	**Making systematic and careful observations** taking measurements where appropriate (data loggers for volume) **Setting up simple** practical enquiries, comparative and fair tests **Gathering, recording**, classifying and presenting data in a variety of ways to help in answering questions **Recording findings** using simple scientific language, drawings, labelled diagrams, (record their measurements e.g. using tables, tally charts and bar charts (given templates, if required, to which they can add headings) **Using straightforward scientific** evidence to answer questions or to support their findings. **Identifying differences**, similarities or changes related to simple scientific ideas and processes **Using results to draw simple conclusions,** make predictions for new values, suggest improvements and raise further questions **Evaluating and raising** further qs and prediction	**How does the length of a guitar string/tuning fork affect the pitch of the sound? (comparative)** **How does distance from the source effect the volume of the sound?** Fair **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 of the school?** **When is our classroom the quietest? (data loggers)** **Do all animals have the same hearing range?**	Can state that sounds travel through different mediums such as air, water, metal use a diagram to show how sounds travel from an object to the ear Can give examples of how to change the volume of a sound e.g. increase the size of vibrations by hitting or blowing harder Can give examples to demonstrate that sounds get fainter as the distance from the sound source increases
Year 5				
Year 6 **Big Q:** How do we see all of the bright lights at Goose fair?	• **Recognise that light appears to travel in straight lines.** • **Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.**	**Engaging in practical enquiry** to answer questions- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary **Taking measurements**, using a range of scientific equipment, with increasing	**Comparative-How does the position of a light source affect the size of a shadow?** **Fair testing- How does the angle that a light ray hits a plane mirror affect the angle at which it reflects off the surface?**	Can describe, with diagrams or models as appropriate, how light travels in straight lines either from sources or reflected from other objects into our eyes Can describe, with diagrams or models as appropriate, how light travels in straight lines past

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John Peake- (Nottingham) creator of the world's first traffic light.	• **Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.** • **Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.**	accuracy and precision, taking repeat readings when appropriate. **Recording data** and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. **Identifying scientific evidence** that has been used to support or refute ideas or arguments. **Reporting** and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations **Using test results** to make predictions to set up further comparative and fair tests	 **How do our eyes adapt to different conditions?**  **Can you identify all the colours of light that make white light when mixed together?**	translucent or opaque objects to form a shadow of the same shape. Can explain how evidence from enquiries shows that light travels in straight lines Can predict and explain, with diagrams or models as appropriate, how the path of light rays can be directed by reflection to be seen, e.g. the reflection in car rear view mirrors or in a periscope Can predict and explain, with diagrams or models as appropriate, how the shape of shadows can be varied

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Unit I: evolution and inheritance

Year group	Scientific knowledge	Working scientifically skills	Scientific enquiry 	Assessment opportunities
Nursery				
EYFS				
Year 1				
Year 2				
Year 3	***(Y3 rocks formation-fossils: explored during materials)***			
Year 4				
Year 5				
Year 6 **Big Q:** What is evolution, how does it happen and how do scientists know? **Or**	**•Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.** **• Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.** **• Identify how animals and plants are adapted to suit their**	**Engaging in practical enquiry** to answer questions- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary **Taking measurements**, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. **Recording data** and results of increasing complexity using scientific	 **Research- What happened when Charles Darwin visited the Galapagos islands?**  **Pattern seeking- Is there a pattern between the size and shape of a bird's beak and the food it will eat?**  **Compare the skeletons of apes, humans, and Neanderthals – how are they similar, and how are they different?**	Can explain the process of evolution Can give examples of how plants and animals are suited to an environment Can give examples of how an animal or plant has evolved over time e.g. penguin, peppered moth Give examples of living things that lived millions of years ago and the

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What happened when Charles Darwin visited the Galapagos islands?	**environment in different ways and that adaptation may lead to evolution**	diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. **Identifying scientific evidence** that has been used to support or refute ideas or arguments. **Reporting** and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations **Using test results** to make predictions to set up further comparative and fair tests	 **Classify and group offspring according to their features (explaining similarities and inherited features).**  **How has the skeleton of the horse changed over time?**	fossil evidence we have to support this Can give examples of fossil evidence that can be used to support the theory of evolution