Kingsthorne Primary School

Science

Intent

We aim to give all children a strong understanding of the world around them whilst acquiring specific skills and knowledge to help them to think scientifically, to gain an understanding of scientific processes and also an understanding of the uses and implications of science, today and for the future.

Scientific enquiry skills are embedded in each topic the children study and these topics are revisited and developed throughout their time at school. Topics, such as Plants, are taught in Key Stage One and studied again in further detail throughout Key Stage Two. This model allows children to build upon their prior knowledge and increases their enthusiasm for the topics whilst embedding this procedural knowledge into the long-term memory.

All children are encouraged to develop and use a range of skills including observations, planning and investigations, as well as being encouraged to question the world around them and become independent learners in exploring possible answers for their scientific based questions.

Specialist vocabulary for topics is taught and built up, and effective questioning to communicate ideas is encouraged. Concepts taught should be reinforced by focusing on the key features of working scientifically, so that pupils learn to use a variety of approaches to answer relevant scientific questions.

Implementation:

As it is a core subject and crucial to pupils understanding of the world around them, science is taught every week in Years 1- 6. As science, alongside mathematics and literacy is a subject they must go on and study at secondary school to at least GCSE level we must ensure that they have a good understanding of the subject and its different disciplines.

With this in mind, we have categorized our science topics explicitly into Biology, Chemistry and Physics. In Year 1 pupils have a learning journal for all topics as they are very interlinked and the approach is cross curricular. In Year 2 pupils have a separate science book to their curriculum book. Taking this even further, the pupils in Key Stage 2 have separate books for each of these disciplines to help them identify which area of science they are studying. Having separate books in key stage 2 also allows us to pass them up through the year groups so that we have a continued record of the children's progress and to allow for reference to prior learning. Our pupils need regular signposting to prior learning in order to remind them of what they have learned and help them to retain the information they have learned. We are very much aware that for many of our pupils, school is the only time they ever discuss the phenomenon of the world around them and have opportunities to explore and explain their findings.

Our science curriculum is planned to allow for spiraled learning of topics, with repetition every couple of years to help develop the in-depth knowledge and understanding required. In addition to this, the books can also be used to assist in end of key stage assessment. We record pupil assessment on Educater which allows us to record assessment for each child against the key objectives for each topic. This way we can build a robust idea of the pupils learning and identify any areas of weakness in the curriculum that can be addressed. To aid the use of this assessment platform, we have built assessment for learning in to the teaching sequence to allow for a wide variety of assessment opportunities throughout a unit of work. Each topic has a start point to assess the knowledge pupils have already, a mid-point review to check on learning and an end point assessment. This is to ensure that teachers are providing many varied and active opportunities for the children to show their knowledge and learning in a wide variety of ways and not just an end of topic written test on which historically, our pupils have not fared well. The Early Years Foundation Stage (EYFS) follows the 'Development Matters in the EYFS' guidance which aims for all children in reception to have an 'Understanding of the World; people and communities, the world and technology' by the end of the academic year.

Year Group	What we teach and why Highlight repeats / skills building up			Adaptations and experiences that are specifically chosen for our community and make links to the wider world. What do we hang the learning on to make it exciting? Include a variety of: charity work, cultural links, career opportunities, house competitions, trips, cross curricular links, intervention work, displays, focus on local area, link with external agencies, visitors, themed days etc..
	Autumn	**Spring**	**Summer**	
Year 1	**<u>Topic Title</u>** **Materials** (Chemistry) **<u>Links to NC</u>** Distinguish between an object and the material from which it is made Compare and group together a variety of everyday materials on the basis of their simple physical properties Describe the simple physical properties of a variety of everyday materials Identify and compare the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. **<u>Key Vocabulary</u>** materials, properties, objects, physical, transparent, opaque, man-made, natural **<u>Sequence of Lessons</u>** **<u>AfL – Baseline Assessment - Sorting</u>** Sorting objects by their material.	**<u>Topic Title</u>** **Animals** (Biology) **<u>Links to NC</u>** Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals including pets Identify and name a variety of common animals that are carnivores, herbivores and omnivores Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) **<u>Key Vocabulary</u>** Fish, amphibians, reptiles, birds, mammals, omnivore, herbivore, carnivore, habitat, diet, insect, nocturnal, lifecycle **<u>Sequence of Lessons</u>** **<u>AfL – Baseline Assessment - Big Question</u>** What does it mean to be alive? Classify animals and objects into living/non-living things.	**<u>Topic Title</u>** **Plants** (Biology) **<u>Links to NC</u>** 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 **<u>Key Vocabulary</u>** plants, leaves, trees, flowers, deciduous, evergreen, stem, roots, trunk, petal, branch **<u>Sequence of Lessons</u>** **<u>AfL – Baseline Assessment - Matching Activity</u>** Use labels to correctly identify parts of a flowering plant. L.O. I am learning to identify and describe the basic features of a flower (stem, petal, leaf, roots) To identify and classify. **<u>Scientific Enquiry – Plant Walk</u>**	**<u>Trips</u>** **<u>Ash End Farm</u>** – focused on animals and their young, animal facts and caring for them - reptiles, mammals, birds, insects **<u>Inspire Workshop</u>** Making a house for The Three Little Pigs – choosing appropriate materials **<u>Science Links through topics</u>** **<u>All About Me:</u>** **My Body** **Senses** **Healthy Me** - how we can keep our bodies healthy (washing our hands, eating healthy food, brushing our teeth, washing our bodies) **Growth** – lifecycle of a human **<u>Animals:</u>** L.O. I am learning to classify and sort objects into living and non-living.

	L.O. I am learning to identify everyday objects and name the materials they are made from. To ask simple questions and recognise that they can be answered in different ways. To identify and classify; L.O. I am learning to identify, name and sort objects into the material they are made from. To ask simple questions and recognise that they can be answered in different ways; To identify and classify. L.O. I am learning to group together and describe a variety of everyday materials on the basis of their physical properties (smooth, shiny, hard, soft, rough, squishy, rigid, flexible) To ask simple questions and recognise that they can be answered in different ways; To identify and classify; to perform simple tests; L.O. I am learning to identify, name and sort a variety of everyday materials by their physical properties. To identify and classify; to perform simple tests – test for flexible, waterproof etc. to observe closely, using simple equipment; To gather and record data to help in answering questions; **Afl - Mid-Point - Big Question** Which material will keep Eddy the Teddy dry? Teacher adapted Fred Bear's Coat p.93 Active assessment L.O. I am learning to identify and sort materials that are opaque and transparent. To identify and classify; to perform simple tests; To gather and record data to help in answering questions; **Investigation - What material shall I use for Teddy's curtains? Opaque/Transparent** L.O. I am learning to choose suitable materials. To ask simple questions;	L.O. I am learning to name and identify different animals. To identify and classify; L.O. I am learning to sort animals into different groups (mammals, fish, reptiles, amphibians, insects, birds) To identify and classify; L.O. I am learning that animals belong to different groups. To identify and classify; **Afl - Mid-Point - Open Ended Grouping Activity** Give them a variety of animals and pupils explain why they have grouped them as they have. L.O. I am learning that animals live in different habitats (ocean, woodland, desert, polar) L.O. I am learning to sort animals into the habitats they live in. To identify and classify; L.O I am learning to classify and sort a variety of animals that are herbivores, omnivores & carnivores. To identify and classify; L.O. I am learning about animal food chains. L.O. I am learning about animal life cycles. **Scientific Enquiry – Lifecycle of a Butterfly (Big Book)** (live butterfly garden to observe and explore) To ask simple questions; To observe closely, To gather and record data to help in answering questions; To use my observations and ideas to suggest answers to questions; **AfL - End of Unit Assessment** End of Unit Test **How does this link build on previous learning?**	L.O. I am learning to identify and name a variety of common flowers. To identify and classify. L.O. I am learning to recognise and label the basic features of a flower and a tree. To identify and classify. **Scientific Enquiry – Plant Walk** L.O. I am learning to identify and name a variety of common trees, using their leaves/flowers. To identify and classify. To gather and record data about my observations. **Afl - Mid-Point Review – Odd One Out** Tall Trunks – Explorify https://explorify.uk/en/activities/odd-one-out/tall-trunks **Investigation – Inside Plant Look** Use a magnifying glass to closely study the basic structures of marigolds and petunias. **KEY QUESTION** – Do all common flowering plants have the same features? L.O. I am learning to identify basic structure of a variety of common flowering plants. To ask simple questions and recognise that they can be answered in different ways. To observe closely, using simple equipment. To perform simple tests. To gather and record data about my observations. To use these observations and ideas to suggest answers to questions. What does this tell us? L.O. I am learning to compare deciduous and evergreen trees and name some of these. L.O. I am learning to identify and classify. To gather and record data about my observations. **AfL - End of Unit Assessment** End of unit test **How does this link build on previous learning?** Children know about similarities and differences in relation to places, objects, materials and living	L.O. I am learning where food comes from. L.O I am learning that different animals produce different foods. L.O. I am learning about nocturnal and diurnal animals. **Curriculum Links** **Art** **WOW point:** Visit from Artist to make 3D animals. Research, draw and create an animal. Displayed on topic boards. See ART and DT intent documents. **Literacy** **Fact Files** – habitats, diet, appearance, animal groups **Riddle** - writing about different animals **WORKING SCIENTIFICALLY** **Plan** To ask simple questions and recognise that they can be answered in different ways **Do** To observe closely, using simple equipment To perform simple tests To identify and classify **Record** To gather and record data to help in answering questions

	To gather and record data to help in answering questions; To use my observations and ideas to suggest answers to questions; **AfL - End of Unit Assessment** End of Unit Test **How does this link build on previous learning?** Use all their senses in hands-on exploration of natural materials. (Nursery - Materials, including changing materials) Explore collections of materials with similar and/or different properties. (Nursery - Materials, including changing materials) Talk about the differences between materials and changes they notice. (Nursery - Materials, including changing materials) **Topic Title** **All About Me** (Biology**)** **Links to NC** Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. **Key Vocabulary** head, neck, elbow, leg, knee, arm, face, ears, eyes, hair, mouth, teeth, toes, fingers, shoulder, hand, nose, smell, touch, sight, hear, taste, feel, see **Sequence of Lessons** L.O. I am learning to identify, name and label the parts of the body. To identify and classify; L.O. I am learning to draw different body parts and label them. To identify and classify; L.O. I am learning to explore my body through my senses - touch, hear, see, smell, feel.	Use all their senses in hands-on exploration of natural materials. (Nursery - Humans) Name and describe people who are familiar to them. (Reception - Humans)	things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal)	**Review** To use their observations and ideas to suggest answers to questions

	To ask simple questions; To identify and classify; **Scientific Enquiry - Exploring Our Senses** Carousel Activity: 1. Can you guess the food/object using your senses? 2. Odd One Out To ask simple questions; To perform simple tests To gather and record data to help in answering questions; To use my observations and ideas to suggest answers to questions; **Investigation – Senses** **What does my body do if I lose a sense?** L.O. I am learning to explore my body through my senses - touch, hear, see, smell, feel. To ask simple questions; To perform simple tests To gather and record data to help in answering questions; To use my observations and ideas to suggest answers to questions; **How does this link build on previous learning?** In EYFS, particularly nursery, the children have the opportunity to explore their bodies through nursery rhymes, songs and name the body parts games. In Year 1, we focus on naming, identifying, drawing and labelling body parts and make links to these with our senses. **Nursery Topic Link** - All About Me (Autumn 1)			
Year 1	**Topic Title** **Seasonal Change** (Physics) **Links to NC** Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies	**Topic Title** **Seasonal Change** (Physics) **Links to NC** Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies	**Topic Title** **Seasonal Change** (Physics) **Links to NC** Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies	**Seasons** – weather chart daily in class; immersion week on seasons – each child tracked the weather and made a weather booklet. **NB – just do 5 days in school, don't send home, as they don't come back!!**

	Observe and talk about changes in the weather and the seasons **Key Vocabulary** Seasons - Autumn, Spring, Winter, Summer Weather - cloudy, sunny, hot, cold, foggy, icy, humid, rainy leaves, trees, plants, hibernate, evergreen, deciduous, days of the week, months of the year, daytime, night-time **Sequence of Lessons** **Scientific Enquiry** Learning opportunities throughout the term: L.O. I am learning to observe the changes in the seasons – Autumn. To ask simple questions; To identify and classify; **Scientific Enquiry** L.O. I am learning to keep track the daily weather using a weather chart. To identify and classify; To use my observations and ideas to suggest answers to questions; To gather and record data to help in answering questions; **How does this link build on previous learning?** Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal) **Autumn 1 - Local Environment** The children observe the basic changes in plants during Autumn - talking and sharing ideas on an Autumn Walk.	Observe and talk about changes in the weather and the seasons **Key Vocabulary** Seasons - Autumn, Spring, Winter, Summer Weather - cloudy, sunny, hot, cold, foggy, icy, humid, rainy leaves, trees, plants, hibernate, evergreen, deciduous, days of the week, months of the year, daytime, night-time **Sequence of Lessons** **Scientific Enquiry** Learning opportunities throughout the term: L.O. I am learning to observe the changes in the seasons – Winter. To ask simple questions; To identify and classify; **Scientific Enquiry** L.O. I am learning to keep track the daily weather using a weather chart. To identify and classify; To use my observations and ideas to suggest answers to questions; To gather and record data to help in answering questions; L.O. I am learning to identify and name some of the clothes I wear in the winter and explain why I wear them. To ask simple questions; To use my observations and ideas to suggest answers to questions; **Scientific Enquiry** L.O. I am learning to observe the changes in the seasons – Spring. To ask simple questions; To use my observations and ideas to suggest answers to questions; **How does this link build on previous learning?**	Observe and talk about changes in the weather and the seasons **Key Vocabulary** Seasons - Autumn, Spring, Winter, Summer Weather - cloudy, sunny, hot, cold, foggy, icy, humid, rainy leaves, trees, plants, hibernate, evergreen, deciduous, days of the week, months of the year, daytime, night-time **Sequence of Lessons** **Scientific Enquiry** Learning opportunities throughout the term: L.O. I am learning to observe the changes in the seasons – Summer. To ask simple questions; To identify and classify; **Scientific Enquiry** L.O. I am learning to keep track the daily weather using a weather chart. To identify and classify; To use my observations and ideas to suggest answers to questions; To gather and record data to help in answering questions; L.O. I am learning to identify and name some of the clothes I wear in the summer and explain why I wear them. To ask simple questions; To use my observations and ideas to suggest answers to questions;	

	In KS1, we build on this knowledge and extend our Autumn observations: Observing changes in plants, and animals (including humans). Observing, tracking and recording the weather using a weather chart.	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal): **<u>Spring 1 – Changes</u>** The children continue seasonal observations, focusing on Spring changes and talk about how these differ from Autumn/Winter. In KS1, we build on this knowledge and extend our Spring/Winter observations: Observing changes in plants, and animals (including humans) and comparing changes across the autumn/winter/spring seasons. Observing, tracking and recording the weather using a weather chart. Recording changes through drawings, diagrams and written explanations. We extend our observations across the year - observing and exploring all 4 seasons, discussing and asking/answering questions about changes/differences between seasons and looking at the effects on plants/animals and humans.		
Year 2	**<u>Topic Title</u>** **Uses of Everyday Materials** (Chemistry) **<u>Links to NC</u>** Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses Find out how the shapes of solid objects can be changed by squashing, bending, twisting and stretching.	**<u>Topic Title</u>** **Living Things and Their Habitats** (Biology) **<u>Links to NC</u>** Explore & compare living things, non-living & never lived. Identify that most living things need a habitat to which they are suited. The habitat must provide the basic needs of the living thing. Identify and name plants and animals in their habitats including micro-habitats	**<u>Topic Title</u>** **Animals including Humans** (Biology) **<u>Links to NC</u>** Notice that all animals 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.	**<u>Cross - Curriculum Links</u>** **<u>Literacy:</u>** **<u>Animals</u>** - writing animal fact files (non-chronological report) - food diary (healthy food) - healthy me diary (exercise, hygiene, sleep, diet) Guided Reading – using non-fiction books linking to science units. **<u>Curriculum:</u>** Spring Topic - Around the World; hot & cold continents; adaptations.

	Key Vocabulary Object, material, metal, wood, plastic, properties, transparent, opaque, translucent, waterproof, flexible, suitability, natural, man-made, **Sequence of Lessons** **AfL – Baseline Assessment - Odd One Out** Show the children pictures of different objects and/or materials and they have to say which is the odd one out and why. Could be open ended as long as they can say why one is the odd one out. L.O. I am learning to identify the properties of materials. I can name the object, the material and its use. L.O. I am learning to identify and classify. L.O. I am learning to understand that the same object can be made of many materials e.g. spoons – wood, metal, plastic and why this is. L.O. I am learning to identify if a material is transparent, opaque or translucent. L.O. I am learning to identify and classify. **Investigation – Is it waterproof? Why?** L.O. I am learning to identify if a material is waterproof or not and can explain why. To ask simple questions. To observe closely, using simple equipment; perform simple tests. To gather and record data. To use their observations and ideas to suggest answers to questions L.O. I am learning to explain why objects are made from different materials and that some are more suitable than others. **AfL - Mid-Point Review - Big Question** What materials will I need to build my house? Children have the opportunity to write and draw what they would make their house from and why	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. **Key Vocabulary** Habitat, environment, micro-habitat, living, dead, never lived, predator, herbivore, omnivore, carnivore, source, shelter, sort and classify, **Sequence of Lessons** **AfL – Baseline Assessment - Sorting** Where do I live? Sort a variety of animals into the correct habitat. **Scientific Enquiry – Chicks (lifecycle of chick)** Ongoing throughout investigation: L.O. I am learning to explore the lifecycle of an animal. To ask simple questions and recognise that they can be answered in different ways. To observe closely, using simple equipment To perform simple tests To gather and record data to help in answering questions To use their observations and ideas to suggest answers to questions L.O. I am learning to identify living things and non-living things and things that have never been alive. To identify and classify. L.O. I am learning about different habitats, which living things live where. To identify and classify. L.O. I am learning to identify different plants and animals from specific habitats. To gather and record data to help in answering questions about animals and their habitats.	**Key Vocabulary** Animals, young, reproduce, babies, eggs, life cycle, mammals, live young, growth, diet, healthy, balanced diet, **Sequence of Lessons** **AfL – Baseline Assessment – Matching Activity** Can you match the young to the adult animal? L.O. I am learning to identify animals and their young. To identify and classify. L.O. I am learning to find out how different animals reproduce (eggs, live young) L.O. I am learning to identify the stages of human development. To identify and classify. **AfL - Mid-Point Review** What do these animals need to survive? Matching survival requirements to different animals including humans. L.O. I am learning about a healthy balanced diet. To use observations and ideas to suggest a balanced meal. L.O. I am learning to design a healthy, balanced meal. To gather and record data to help in answering questions by keeping a food diary. L.O. I am learning how to keep myself healthy. To ask simple questions. To gather and record data to help in answering questions. **AfL – End Point Assessment** End of Unit Test	PSHE – Jigsaw: - Healthy Me - Changing Me DT – designing and cooking a healthy, balanced meal **Trips/Workshops/Visitors:** Think Tank Museum Dudley Zoo **Whole-School Themed Days** Science Day – 7th October 2023 **WORKING SCIENTIFICALLY** **Plan** To ask simple questions and recognise that they can be answered in different ways **Do** To observe closely, using simple equipment To perform simple tests To identify and classify **Record** To gather and record data to help in answering questions **Review** To use their observations and ideas to suggest answers to questions **KNOWLEGDE THREADS** **Biology** Animals including humans

	they chose those materials (collected verbally by CT during activity) L.O. I am learning that some materials are natural or man-made. To identify and classify. **Scientific Enquiry** L.O. I am learning what happens to a material when you squash, twist, stretch, bend it. To ask simple questions. To gather and record data. To use observations and ideas to suggest answers to questions. **Investigation – Present Wrapping** L.O. I am learning to explore material properties and their suitability. To ask simple questions and recognise that they can be answered in different ways. To observe closely, using simple equipment To perform simple tests. To gather and record data to help in answering questions. To use their observations and ideas to suggest answers to questions. **AfL – End Point Assessment - One to One** End of Unit Test **How does this link build on previous learning?** Distinguish between an object and the material from which it is made. (Y1 - Everyday materials) Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials) Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials) Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials)	To use observations and ideas to suggest answers to questions; giving reasons why certain animals live in certain habitats, and why they don't live in others. **AfL - Mid-Point Review – Highlight the Bloopers** Read statements about animals that could also have pictures. Children have to spot and highlight the mistakes. E.g. Foxes are four legged reptiles that live in woodland. They are carnivores. L.O. I can say why an animal is suited and specially adapted to a habitat. To gather and record data to help in answering questions about animals and their habitats. To use observations and ideas to suggest answers to questions; giving reasons why certain animals live in certain habitats, and why they don't live in others. L.O. I am learning about food chains. (producer, consumer, prey). **AfL – End Point Assessment** End of Unit Test **How does this link build on previous learning?** Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 - Plants) Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants) Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals including humans) Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals including humans) Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds	**How does this link build on previous learning?** Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including 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. (Y1 - Animals, including humans. **Topic Title** Plants **Links to NC** Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and suitable temperature to grow and stay healthy. **Key Vocabulary** Plant, leaf, petal, flower, stem, growth, light, control experiment, **Sequence of Lessons** **AfL – Baseline Assessment – Flowers in Spring!** **Odd One Out –** Explorify https://explorify.uk/en/activities/odd-one-out/flowers-in-spring L.O. I am learning about the features and functions of a plant (petal, leaf, stem, roots) To identify and classify. **Scientific Enquiry – What do plants need?** L.O. I am learning to find out what plants need to survive - water, light, warmth. **Whole-Class – Big Book** Change variables to see how/if plants survive: 1 flower in a dark place with water 1 flower in sunlight with water 1 flower in sunlight without water	Living things and their habitats Evolution and inheritance Seasons **Physics** **Electricity** **Light** **Earth and Space** **Forces** **Sound** **Chemistry** **Properties and changes of materials** **States of matter** **Rocks**

		and mammals, including pets). (Y1 – Animals, including humans) Observe changes across the four seasons. (Y1 - Seasonal changes)	To observe closely, using simple equipment. To perform simple tests. To use these observations and ideas to suggest answers to questions. What does this tell us? To gather and record data about my observations. **Investigation – Sweet Peas** (ongoing throughout unit) L.O. I am learning about the life-cycle of a plant To ask simple questions. To observe closely. To gather and record data to help in answering questions. **AfL - Mid-Point Review – Big Question** How does your garden grow? What conditions do plants need to thrive? L.O. I am learning about seed dispersal. L.O. I am learning to ask simple questions. **AfL – End Point Assessment** End of Unit Test **How does this link build on previous learning?** Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including 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. (Y1 - Animals, including humans)	
Year 3	**Topic Title** **Forces and Magnets** **(Physics)** **Links to NC** Compare how things move on different surfaces.	**Topic Title** **Rocks and Soils** **(Chemistry)** **Links to NC** Compare and group together different kinds of rocks based on their appearance and simple physical properties.	**Topic Title** **Plants** **(Biology)** **Links to NC** Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.	**Cross - Curriculum Links:** **Literacy:** Hedgehog Story - use drama to create an alternative ending to the Hedgehog (shadow puppets). Biography of Mary Anning **Curriculum:**

	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 based on whether they are attracted to a magnet and identify some magnetic materials. Describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing. **Key Vocabulary** Magnet, force, push, pull, attract, repel, magnetic, metal. **Sequence of Lessons** **Magnets** **AfL – Baseline Assessment - True or False?** Statements that the children have to discuss and explain why they are true or false. **Scientific Enquiry - Magnets** L.O. I am learning to identify which metals are magnetic. To ask relevant questions and using different types of scientific enquiries to answer them To set up simple practical enquiries, comparative and fair tests. To make systematic and careful observations and where appropriate, taking accurate measurements; using a range of equipment. To gather, record, classify and present data in a variety of ways to help in answering questions To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. **Investigation – Magnets (2 lessons)** L.O. I am learning to explore how magnetic forces act at a distance.	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. **Key Vocabulary** Igneous, sedimentary, metamorphic, permeable, impermeable, fossil, loam, clay, sand, chalk. **Sequence of Lessons** **Rocks** **AfL – Baseline Assessment - Big question** How are rocks made? (Teacher made) L.O. I am learning to identify and describe the properties of rocks (human/manmade) L.O. I am learning to classify rocks (sedimentary, metamorphic, igneous). **AfL - Mid-Point Review – Chocky Rocks** The little book of experiments – page 17 **Investigation (2 lessons)** L.O. I am learning to describe in simple terms how fossils are formed when things that have lived are trapped within rock. - What is sedimentary rock? - How do fossils get trapped? - How do we find them today? To set up simple practical enquiries To make systematic and careful observations To gather, record, classify and present data in a variety of ways to help in answering questions To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables To use straightforward scientific evidence to support their findings. L.O. I am learning to research Mary Anning. L.O. I am learning to use research write a biography	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. **Key Vocabulary** Roots, tuber, stem, bulb, trunk, branch, leaf, flower, fruit, germination, growth, flowering, fertilisation/seed production. **Sequence of Lessons** **AfL – Baseline Assessment – BIG QUESTION** 'What do plants need to live and grow?' **Ongoing Investigation – Cress (plan)** L.O. I am learning to 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. To ask relevant questions and using different types of scientific enquiries to answer them. To set up simple practical enquiries. L.O. I can identify the main parts of different flowering plants. L.O. I can explain the functions of the different parts of a flowering plant. **Ongoing Investigation – Cress (Do & Record))** L.O. I am learning to 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. To make systematic and careful observations. To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. **Investigation – Carnations**	Italy and the Romans: made gelato in a bag using salt and ice. Stone Age: types of rock for making tools **Trips/Workshops/Visitors:** Science off the Page – Rocks Workshop **Whole-School Themed Days** Science Day – 7th October 2023 **WORKING SCIENTIFICALLY THREADS** **Plan** To ask relevant questions and using different types of scientific enquiries to answer them To set up simple practical enquiries, comparative and fair tests. **Do** To make systematic and careful observations and where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers **Record** To gather, record, classify and present data in a variety of ways to help in answering questions To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables

	L.O. I am learning to identify which magnet is the most powerful. To ask relevant questions and using different types of scientific enquiries to answer them To set up simple practical enquiries, comparative and fair tests. To make systematic and careful observations and where appropriate, taking accurate measurements; using a range of equipment. To gather, record, classify and present data in a variety of ways to help in answering questions To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. To use straightforward scientific evidence to answer questions or to support their findings. **Investigation – Slime and Iron Filings (2 lessons)** L.O. I am learning to explore how magnetic forces act through different materials. To ask relevant questions and using different types of scientific enquiries to answer them To set up simple practical enquiries, comparative and fair tests. To make systematic and careful observations and where appropriate, taking accurate measurements; using a range of equipment. To gather, record, classify and present data in a variety of ways to help in answering questions To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. To use straightforward scientific evidence to answer questions or to support their findings. To identify differences, similarities or changes related to simple scientific ideas and processes. **AfL - Mid-Point Review - Concept Cartoon** Recycling plant with a magnet. **Forces** **Scientific Enquiry - Ramps** LO. I am learning to compare how an object moves on different surfaces.	**Soils** L.O. I am learning to recognise that soils are made from rocks and organic matter. L.O. I am learning to identify and name different soils. To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. **AfL - End of unit Assessment** End of unit test **How does this link build on previous learning?** Distinguish between an object and the material from which it is made. (Y1 - Everyday materials) Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials) Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials) Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials) Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials) **Topic Title** **Animals including humans (Biology)** **Links to NC** 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	L.O. I am learning to investigate the way in which water is transported within plants. To ask relevant questions and using different types of scientific enquiries to answer them. To set up simple practical enquiries. To make systematic and careful observations. To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. To report on findings from enquiries, include oral and written explanations, displays or presentations of results and conclusions. **AfL - Mid-Point Review – True or False** Children to sort statements and explain how they know. L.O. I can describe the life cycle of a flowering plant; including pollination and seed formation. L.O. I am learning to explore the part that flowers play in seed dispersal. **Ongoing Investigation – Cress (Record & Review)** L.O. I am learning to 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. To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. To report on findings from enquiries, include oral and written explanations, displays or presentations of results and conclusions. **AfL - End of unit Assessment** End of unit test. **How does this link build on previous learning?**	**Review** To report on findings from enquiries, include oral and written explanations, displays or presentations of results and conclusions To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions To identify differences, similarities or changes related to simple scientific ideas and processes To use straightforward scientific evidence to answer questions or to support their findings. **KNOWLEGDE THREADS** **Biology** Animals including humans Living things and their habitats Evolution and inheritance Seasons **Physics** Electricity Light Earth and Space Forces Sound **Chemistry** **Properties and changes of materials** **States of matter** **Rocks**

	L.O. I am learning that some forces need contact between two objects, but magnetic forces can act at a distance. L.O. To set up simple practical enquiries, comparative and fair tests L.O. To make systematic and careful observations and where appropriate. To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. To use straightforward scientific evidence to answer questions or to support their finding. **AfL - End of unit Assessment** End of unit test **How does this link build on previous learning?** Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials) **Topic Title** **Light** **(Physics)** **Links to NC** 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 a solid object. Find patterns in the way that the size of shadows change. **Key Vocabulary**	movement. **Key Vocabulary** Herbivores, carnivores, omnivores, muscle, skeleton, endoskeletons, exoskeletons, hydroskeleton **Sequence of Lessons** **AfL – Baseline Assessment – Match it!** Children matching definitions with meanings in small groups (BB) USE WORDS FROM KEY VOCAB + Y2 WORDS) L.O. I am learning to explain how many portions of food from different food groups we should eat in a day. To identify and classify. L.O. I am learning to identify that animals, including humans get nutrition from what they eat. (e.g carbohydrates – high energy) To identify and classify. L.O. I am learning to recognise and explain the functions of the human skeleton and identify its main bones. To record findings using simple scientific language, drawings, labelled diagrams. To use straightforward scientific evidence to answer questions or to support their findings. **AfL - Mid-Point Review - Concept Cartoon** Active assessment page 33, and concept cartoons page 17) Extra game – The skeleton game Active assessment page 69 L.O. I am learning to explain how muscles work. To record findings using simple scientific language, drawings, labelled diagrams. To use straightforward scientific evidence to answer questions or to support their findings. L.O. I am learning to match animals to their skeletons.	Observe and describe how seeds and bulbs grow into mature plants. (Y2 - Plants) Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. (Y2 - Plants)	

	Light, shadow, light source, non-light source, reflector, transparent, translucent, opaque. **Sequence of Lessons** **AfL – Baseline Assessment - Concept Cartoon** At the beginning to start (general to topic – Concept cartoon page 137) L.O. I am learning to identify a light source. L.O. I am learning to identify whether an object is a light source or a reflector. **Scientific Enquiry** L.O. I am learning to understand how shadows are formed. To ask/answer relevant questions and using different types of scientific enquiries to answer them. To make systematic and careful observations. **AfL - Mid-Point Review - Odd One Out** Active assessment page 109 (written, pictures, verbal with scribes) **Investigation -Shadow Puppets Unit (2/3 lessons)** L.O. I am learning to recognise that shadows are formed when the light from a light source is blocked by an opaque object. L.O. I am learning to group objects according to whether they are transparent, translucent or opaque. L.O. I am learning to explore how moving a light source changes the size of an object's shadow. L.O. To set up simple practical enquiries. L.O. To make systematic and careful observations and where appropriate. To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. To gather and present data in a variety of ways to help in answering questions. To identify differences, similarities or changes related to simple scientific ideas and processes.	To record findings using simple scientific language, drawings, labelled diagrams. To use straightforward scientific evidence to answer questions or to support their findings. L.O. I am learning to identify that animals, including humans have skeletons and muscles for support, protection and movement. To identify and classify. **AfL - End of unit Assessment** End of unit test **How does this link build on previous learning?** Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals, including humans) Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans) Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 - Animals, including humans) Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Y2 - Animals, including humans) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - Animals, including humans)		

	L.O. I am learning to explain how the Sun can be dangerous and ways we can protect ourselves. **AfL - End of unit Assessment - own teacher made** End of unit test **How does this link build on previous learning?** Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans) Describe the simple physical properties of a variety of everyday materials. (Y1 - Materials)			
Year 4	**Topic Title** Classification (Biology) **Links to NC** 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 constantly changing and that this can sometimes pose dangers to specific habitats **Key Vocabulary** Classify, key, organism, habitat, vertebrate, invertebrate, insect, millipede, centipede, mammal, bird, reptile, amphibian, fish, flowering plant **Sequence of Lessons** **AfL – Baseline Assessment - Play Guess who**? Begin by playing with the class-aim is for children to ask questions with simple yes or no answers to eliminate pupils as in the game guess who. Move on to playing with animals.	**Topic Title** States of Matter (Chemistry) **Links to NC** 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. **Key Vocabulary** Solid, liquid, gas, matter, temperature, thermometer, melting, freezing, melting point, freezing point, evaporation, boiling, boiling point, condensing, water cycle **Sequence of Lessons** **AfL- Baseline Assessment - Sorting** Materials into solids, liquids gases. P. 30 Active assessment. Supplementary pictures and charts available on twinkl	**Topic Title** Electricity (Physics) **Links to NC** 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 or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit Recognise some common conductors and insulators, and associate metals with being good conductors. **Key Vocabulary** Battery, bulb, mains, rechargeable, circuit, components, terminals, wire, switch, conductor, insulator	**Cross - Curriculum Links:** **Literacy:** Autumn Rainforest Poetry Non-Chronological report about Rainforest creature (Curriculum) Summer Cracking Contraptions – explanation texts. **Curriculum:** Autumn Rainforest Unit Rainforest Art Jigsaw – Healthy Me Spring Trumpet Lessons (Pitch, Volume etc) Summer DT – design and make torches. **Trips/Workshops/Visitors:** Visit to Twycross Zoo **Whole-School Themed Days** Science Day – 7th October 2023

	LO I am learning to explain how living things can be classified. To make careful observations. To sort and classify. LO I am leaning to recognise how a simple key helps identify living things. To ask relevant questions. To make careful observations. To sort and classify. **Scientific Enquiry – Bug Hunt** LO I am learning to observe key features of living things. L.O. I am learning to recognise that environments can change and that this can sometimes pose dangers to living things. To make careful observations. LO I am learning to ask questions that can be used to construct a key. To ask relevant questions. To make careful observations. **Afl - Mid-Point Review - Construct** Children to make a simple flowchart using questions to identify creatures. LO I am learning to explore and use classification keys to help group, identify and name a variety of living things in my local environment. To ask relevant questions. To make careful observations. To construct a simple key; to sort and classify. **AfL - End of Unit Assessment** End of unit test **How does this link build on previous learning?** Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants)	LO I am learning to identify the properties of solids, liquids and gases. L.O. I am learning to recognise the processes of changes in states of matter. (solid to liquid, liquid to gas). **Investigation - Solid to Liquid (2 lessons)** L.O. I am learning to explore the effect of temperature on the processes in states of matter. To ask relevant questions and using different types of scientific enquiries to answer them; to set up simple practical enquiries, comparative and fair tests; To make systematic and careful observations and where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers; To gather, record, classify and present data in a variety of ways to help in answering questions; to record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables To report on findings from enquiries, include oral and written explanations, displays or presentations of results and conclusions; to use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions; to identify differences, similarities or changes related to simple scientific ideas and processes; to use straightforward scientific evidence to answer questions or to support their findings. **AfL - Mid-Point Review - Sequencing** Fill in the diagram to show how water changes it's state. P. 133 Active assessment. LO I am learning to identify the part played by evaporation and condensation in the water cycle. To use simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.	**Sequence of Lessons** **AfL – Baseline Assessment - Sorting** Children using pictures of household objects sort them in two groups - those that use mains electricity or batteries. LO I am learning to identify common appliances that run on electricity. LO I am learning to classify and record appliances as mains or battery operated. LO I am learning to understand the difference between mains and battery-operated appliances. LO I am learning to understand that electricity can be dangerous. LO I am learning to recognise what is needed in order to make a bulb light in a circuit. LO I am learning to recognise and name some of the components that can be used to make a circuit. (buzzers, switches, motors, lights) **AfL - Mid-Point Review - Make it** Making a simple circuit. Give children equipment and see if they can make a circuit to light a bulb/ make a buzzer sound/spin a propeller. LO I am learning to recognise some common conductors and insulators. **Investigation** LO I am learning to recognise some common conductors and insulators. To ask relevant questions and using different types of scientific enquiries to answer them To set up simple practical enquiries, comparative and fair tests. To make systematic and careful observations and where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.	**WORKING SCIENTIFICALLY THREADS** **Plan** To ask relevant questions and using different types of scientific enquiries to answer them To set up simple practical enquiries, comparative and fair tests **Do** To make systematic and careful observations and where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers **Record** To gather, record, classify and present data in a variety of ways to help in answering questions To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. **Review** To report on findings from enquiries, include oral and written explanations, displays or presentations of results and conclusions To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions To identify differences, similarities or changes related to simple scientific ideas and processes

	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals including humans) Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Animals, including humans) Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats) **Topic Title** Teeth and Eating (Biology) **Links to NC** Describe the simple functions of the basic parts of the digestive system in humans Identify the different types of teeth in humans and their simple functions. Construct and interpret a variety of food chains, identifying producers, predators and prey **Key Vocabulary** Molar, canine, incisor, enamel, decay, digestion, mouth, oesophagus, stomach, small intestine, large intestine, anus, nutrients, energy, carnivore, omnivore, herbivore **Sequence of Lessons** **AfL – Baseline Assessment – Agree or Disagree?** Do you agree with Ranju? Add 3 questions of your own. P. 89 Active assessment. LO I am learning to classify and identify different types of teeth and their functions.	**Afl - End of Unit Assessment** End of unit test **How does this link build on previous learning?** Distinguish between an object and the material from which it is made. (Y1 - Everyday materials) Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials) Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials) Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials) Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials) Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials) **Topic Title** Sound (Physics) **Links to NC** Identify how sounds are made, associating some of them with something vibrating.	To gather, record, classify and present data in a variety of ways to help in answering questions To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions To use straightforward scientific evidence to answer questions or to support their findings. **AfL - End of Unit Assessment** End of unit test **How does this link build on previous learning?** Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal)	To use straightforward scientific evidence to answer questions or to support their findings. **KNOWLEGDE THREADS** **Biology** Animals including humans Living things and their habitats Evolution and inheritance Seasons **Physics** **Electricity** **Light** **Earth and Space** **Forces** **Sound** **Chemistry** **Properties and changes of materials** **States of matter** **Rocks**

	To make observations and form conclusions. To use scientific language and label diagrams. To identify differences, similarities or changes; L.O. I am learning to identify the parts and functions of a tooth. To use scientific language and label diagrams. **Investigation – Eggshells & Liquids** LO. I am learning to explore the importance of cleaning your teeth. To set up simple practical enquiries, comparative and fair tests To make systematic and careful observations To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables; To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. To report on findings from enquiries, include oral and written explanations, displays or presentations of results and conclusions. To identify differences, similarities or changes related to simple scientific ideas and processes. LO I am learning to identify why and how we must take good care of our teeth. To make observations and form conclusions. To record findings using scientific language and labelled diagrams; **Afl - Mid-Point Review - True or False?** Statements about different types of teeth and their functions. Teacher made. Can the children explain and discuss using the correct vocabulary? LO I am learning to describe the functions of parts of the human digestive system. To record findings using scientific language and labelled diagrams. LO I am learning to recognise what a food chain represents.	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. **Key Vocabulary** Vibration, volume, pitch, high, low, loud, quiet, ear, sound insulation, instrument, tune **Sequence of Lessons** **AfL – Baseline Assessment - Pair Up** Children to have vocab cards and definition cards, ask them to pair the cards up. (use the vocab above) What do they know? **Scientific Enquiry** LO I am learning to observe and name a variety of sources of sound. LO I am learning to identify how sounds are made, associating some of them with something vibrating. To make systematic and careful observations To record findings using simple scientific language. To report on findings from enquiries, include oral and written explanations, displays or presentations of results and conclusions. LO I am learning to identify the parts of the ear. **Scientific Enquiry -** (carousel practical exploration) LO I am learning to recognise that vibrations from sounds travel through a medium to the ear. To make systematic and careful observations To record findings using simple scientific language.		

	LO I am learning to construct and interpret a variety of food chains. LO I am learning to identify producers, predators and prey. To make observations and form conclusions. To record findings using scientific language and labelled diagrams To identify differences, similarities or changes related to simple scientific ideas and processes; **AfI - End of Unit Assessment** End of unit test – teeth/digestion **How does this link build on previous learning?** Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans) Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Y2 - Animals, including humans) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - Animals, including humans) 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. (Y3 - Animals, including humans)	To report on findings from enquiries, include oral and written explanations, displays or presentations of results and conclusions. **AfI - Mid-Point Review - True or False?** Can the children identify and explain why the sentences are true or false? (focus on sources of sound, parts of the ear – teacher made). LO I am learning to understand how amplitude changes due to the strength of the vibrations that produce it. LO I am learning to understand how pitch changes due to the features of the object that produced it. **Investigation – using decibel metres** LO I am learning to recognise that sounds get fainter as the distance from the sound source increases. To ask relevant questions and using different types of scientific enquiries to answer them To set up simple practical enquiries, comparative and fair tests. To make systematic and careful observations and where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. To gather, record, classify and present data in a variety of ways to help in answering questions To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions To use straightforward scientific evidence to answer questions or to support their findings. **AfI - End of Unit Assessment** End of Unit Test **How does this link build on previous learning?**		

		Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans)		
Year 5	**Topic Title** Space **Links to NC** 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 **Key Vocabulary** Solar system, universe, satellite, rotation, orbit, planet, asteroid, meteoroid, star, astronaut, full moon, waxing gibbous, half moon, waxing crescent, new moon, waning crescent, half moon waning gibbous. **Sequence of Lessons** **AfL – Baseline Assessment** Odd One Out Sun, Earth or Moon Active Assessment – Teacher Made LO: I am learning to order the planets. LO: I am learning to compare the size and shape of the Sun, Moon and Earth. LO: I am learning to describe the distance, size and movement of all the planets relative to the sun (heliocentric/geocentric). To use scientific enquiry to answer questions, including recognising and controlling variables where necessary.	**Topic Title** Materials **Links to NC** Compare and group together everyday materials based on evidence from comparative and fair tests, 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 particular uses of everyday materials, including metals, wood and plastic. 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, include changes associated with burning and the action of acid on bicarbonate of soda. **Key Knowledge & Vocabulary** Wood, metal, brick, plastic, stone, paper, fabric, water, ice, glass, temperature, electrical conductor, insulator, reversible, irreversible, separating, mixture, soluble, insoluble, absorbent, permeable, translucent, flexible. Hard, flammable, insulating, transparent.	**Topic Title** Living things and their habitats **Links to NC** Describe the difference 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 **Key Vocabulary** Plant, animals, rainforest, oceans, deserts, reproduction, sexual, asexual, mammal, amphibian, insect, bird, Jane Goodall, metamorphosis. **Sequence of Lessons** **AfL – Baseline Assessment** Concept Cartoons (eggs and seeds p.25 and p.26) **Investigation – Seeds (plan)** L.O. I am learning to compare the stages of seed growth (asexual – sexual) To use scientific enquiry to answer questions, including recognising and controlling variables where necessary. To use test results to make predictions to set up further comparative and fair tests. **Investigation – Seeds (do) Weekly Recording** L.O. I am learning to compare the stages of seed growth (asexual – sexual) To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. LO: I am learning to describe how some plants reproduce.	**Cross – Curricular Links** **Literacy:** The Way Back Home Neil Armstrong biography **Curriculum:** Topic - Space Topic - Crime and Punishment D&T - Sewn microorganism. Geography- Water Cycle **Trips/Workshops/Visitors:** Trip to the National Justice Museum. Space Dome Trip to Jodrell Bank Trip to butterfly farm in Stratford. **Whole-School Themed Days** Science Day – 7th October 2023 **WORKING SCIENTIFICALLY THREADS** **Plan** To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. **Do** To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. To use test results to make predictions to set up further comparative and fair tests.

	LO: I am learning to use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. To make systematic and careful observations. **AfL - Mid-Point Review** Drawing and annotation drawing Active Assessment P. 65 (teacher adapted) LO: I am learning about the rotation and orbit of the moon and how we can see it in the sky. LO: To investigate what stars are and their constellations. **Investigation (1-2 lessons)** L.O. I am learning investigate the impact made to a surface by objects falling from space. I am learning to take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. To record data and results of increasing complexity using scientific diagrams and labels. To report and present findings from enquiries, including conclusions, explanations in oral and written forms such as displays and other presentations. **AfI - End of Unit Assessment** End of unit test. **How does this link build on previous learning?** Children have been learning about the different seasons (Y1 – Seasons). Children have previously considered the sun as a light source, the dangers and ways to protect ourselves (Y3 Light) **Topic Title** Forces **Links to NC**	**Sequence of Lessons** **AfL – Baseline Assessment – Concept Cartoon** Concept Cartoon to establish prior knowledge from year 4 Liquids p.46 LO: I am learning to compare everyday materials according to their properties and explain why they have been used. To use scientific enquiries to answer questions. To make systematic and careful observations. To report and present findings from enquiries. **Investigation – Bulb Brightness (1-2 lessons)** LO: I am learning about electrical conductors. To use scientific enquiry to answer questions, including recognising and controlling variables where necessary; To use test results to make predictions to set up further comparative and fair tests. To use a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. To record data and results of increasing complexity using tables and labels. To identify scientific evidence that has been used to support or refute ideas or arguments. **Investigation – Insulators (1-2 lessons)** LO: I am learning about thermal conductors. To use scientific enquiry to answer questions, including recognising and controlling variables where necessary. To use test results to make predictions to set up further comparative and fair tests. To use a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. To record data and results of increasing complexity using tables and labels. To identify scientific evidence that has been used to support or refute ideas or arguments. **AfI - Mid-Point Review (1 lesson)**	L.O: I am learning how seeds germinate. LO: I am designing a new plant. **AfI - Mid-Point Review** Spot the deliberate mistake. Active Assessment p.58 L.O: I am learning to describe the life cycles of different mammals. LO: I am learning to compare the life cycle of amphibians and insects. LO: I am learning to compare life cycles of plants, mammals, amphibians, insects and birds. LO: I learning to explain what Jane Goodall discovered about chimpanzees. **Investigation – Seeds (record & review)** L.O. I am learning to compare the stages of seed growth (asexual – sexual) To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs To report and present findings from enquiries, including conclusions, causal relationships and explanations and degree of trust in results, in oral and written forms. **AfI - End of Unit Assessment** End of unit test. **How does this link build on previous learning?** Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals, including humans) Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants) **Topic Title**	**Record** To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs **Review** To report and present findings from enquiries, including conclusions, causal relationships and explanations, results, explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. To identify scientific evidence that has been used to support or refute ideas or arguments. **KNOWLEGDE THREADS** **Biology** Animals including humans Living things and their habitats Evolution and inheritance Seasons **Physics** Electricity Light Earth and Space Forces Sound **Chemistry** **Properties and changes of materials** **States of matter** **Rocks**

	Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Identify the effect 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 **Key Vocabulary** Friction, force, balanced, gravity, newton, air resistance, water resistance, buoyancy streamlined, lever, pulley, gear, mechanism and equal. **Sequence of Lessons** **AfL – Baseline Assessment - Definitions** Word definitions p. 145 Active Assessment (return to this at the end of unit) Plus Falling stone p. 137 Active Assessment LO: I am learning to identify forces acting on objects. **Practical Enquiry (whole-class)** LO: I am learning to explore the impact gravity has between falling objects and the Earth. To use scientific enquiries to answer questions. To report and present findings from enquiries, including conclusions. **Investigation – Parachutes (1-2 lessons)** LO: I am learning to explore the effects of air resistance. To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary; To use test results to make predictions to set up further comparative and fair tests. To record data in a table. To report and present findings from enquiries, including conclusions. **Alf - Mid-Point Review**	Conductors and Insulators – Active Assessment Page 46 **Investigation (Independent) – Dissolving (1-2 lessons)** LO: I am learning about soluble and insoluble materials. To use scientific enquiry to answer questions, including recognising and controlling variables where necessary. To use test results to make predictions to set up further comparative and fair tests. To use a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. To record data and results of increasing complexity using tables and labels. To identify scientific evidence that has been used to support or refute ideas or arguments **Practical Enquiry – Separating Mixtures** LO: I am learning to use different processes to separate mixtures of materials. L.O. I am learning to use a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. To record data and results using scientific diagrams. LO: I am learning to identify reversible and irreversible changes. **Afl - End of Unit Assessment** End of unit test. **How does this link build on previous learning?** Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials) Find out how the shapes of solid objects made from some materials can be changed by squashing,	Animals including humans **Links to NC** Describe the changes as humans develop to old age **Key Vocabulary** Human, development, baby, toddler, child, teenager, adult, puberty, gestation, length, mass, grows and growing. **Sequence of Lessons** **AfL – Baseline Assessment** Sequence human life cycle stages LO: I am learning to describe the stages of human development. L.O: I am learning to explain how a baby changes physically as it grows, and also what it is able to do. LO: I am learning to describe and explain the main changes that occur during puberty. LO: I am learning to identify changes that occur in old age. **End of unit** End of unit test. **How does this link build on previous learning?** Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals, including humans)	

	Concept Cartoon Space Rocket p.92 **Practical Scientific Enquiry** LO: I am learning to explore the effects of water resistance. To record data and results of increasing complexity using scientific diagrams and labels. **Investigation - Ramps** LO: I am learning to explore the effects of friction. To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. To record data and results of increasing complexity using scientific diagrams and labels, tables, bar and line graphs. To identify scientific evidence that has been used to support or refute ideas arguments (Polar Bear from Plan Assessment) LO: I am learning to explore mechanisms. LO: I am learning to identify situations where I will need a lever, pulley or gear. **AfI - End of Unit Assessment** End of unit test **How does this link build on previous learning?** Compare how things move on different surfaces. (Y3 - Forces and magnets) Notice that some forces need contact between two objects, but magnetic forces can act at a distance. (Y3 - Forces and magnets) Observe how magnets attract or repel each other and attract some materials and not others. (Y3 - Forces and magnets) 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. (Y3 - Forces and magnets)	bending, twisting and stretching. (Y2 - Uses of everyday materials) 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. (Y3 - Forces and magnets) Compare and group materials together, according to whether they are solids, liquids or gases. (Y4 - States of matter) 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). (Y4 - States of matter) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. (Y4 - States of matter) **Topic Title** Super Scientist (Optional Extra Unit) **Links to NC** Pupils might work scientifically by carrying out tests to answer questions **Key Vocabulary** Forensic, Fingerprint, Chromatography, Microscope DNA, Evidence **Sequence of Lessons** **AfI – Baseline Assessment** Draw and write about what a scientist looks like. LO: I am learning to describe what a scientist is and the different ways in which they work. LO: I am learning to carry out some forensics tests. LO: I am learning to use forensic tests to solve a crime.		

	Describe magnets as having two poles. (Y3 - Forces and magnets) Predict whether two magnets will attract or repel each other, depending on which poles are facing. (Y3 - Forces and magnets)	**AfL – End – Point Review - Cartoon Strip** Cartoon strip of a crime scene to say how they would solve who did it?		
Year 6	**Topic Title** Classifying Critters (Biology) **Links to NC** Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals Give reasons for classifying plants and animals based on specific characteristics. **Key Vocabulary** Flora/ Fauna/ Vertebrate/ Invertebrate/Mammal/Bird/Amphibian/Reptile/Fish/Fungi/Mushroom/ Toadstool/Fermentation/ Microbe/Bacteria/Species/ Genus/ Organisms/ Bacteria **Sequence of Lessons** **AfL - Baseline Assessment - Odd one out** Give the children a variety of different series of animal pictures and they have to spot the odd one out. Explain why? Teacher made. Chance to check understanding of animal groups and features. LO: I am learning to classify organisms (vertebrates and invertebrates) To record data using classification keys. LO: I am learning to classify similar organisms. To use closed questions to answer scientific enquiries.	**Topic Title** Let It Shine (Physics) **Links to NC** 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 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. **Key Vocabulary** Light ray/Cornea:/ Pupil/ Iris/Reflection/ Symmetry/Rainbow **Sequence of Lessons** **AfL – Baseline Assessment – Concept Cartoon** Shadow Screen – Page 100 LO: I am learning to explain how we see. To record using simple scientific language, drawings, labelled diagrams. **Investigation – How can you change the size of a shadow?**	**Topic Title** Electrifying (Physics) **Links to NC** 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. **Key Vocabulary** Component/. Cell/ Complete/Electron/ Fuse/Blow/ Filament/ Cell/ Battery/ Renewable/Solar **Sequence of Lessons** **AfL – Baseline Assessment - Poster** Our poster about how a bulb lights up an electric circuit. What do you think? P. 114 Active Assessment **Scientific Enquiry – How do circuits work?** LO: I am learning to recognise what is needed to make a circuit work. L.O. I am learning to use recognised symbols when representing a simple circuit in a diagram. **Investigation – Bulb Brightness (2 lessons)** L.O. I am learning to explore the brightness of a lamp with the number and voltage of cells used in	**Cross - Curriculum Links:** **Literacy**: The Peppered Moth **Curriculum:** **DT** – making light up cards using circuits **PE** – exercise measuring heartrate, effects of exercise on the heart **Trips/Workshops/Visitors:** **Evolution - CSI workshop** Children looked into DNA and how everybody has a unique fingerprint – even identical twins. **Light** Science Dome - visit to hook children into the topic. This session covers the whole unit in a snapshot. **Whole-School Themed Days** Science Day – 7th October 2023 **WORKING SCIENTIFICALLY THREADS** **Plan** To plan different types of scientific enquiries to answer questions,

	To record data using classification keys. LO: I am learning to classify plants. To record data using classification keys. LO: I am learning to describe how living things are classified based upon specific characteristics – Linnaeus. To use closed questions to answer scientific enquiries. To record data using scientific diagrams and labels. **Afl - Mid-Point Review – Concept Cartoons** **Page 37 – Making Bread** (this activity leads into the lesson & investigation) **Investigation – Yeast – Big Book (whole class)** LO: I am learning to identify the characteristics of different types of microorganisms. LO: I am learning to describe and investigate helpful and harmful micro- organisms. To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary To use test results to make predictions to set up further comparative and fair tests To record data and results using scientific diagrams, labels and tables. To report and present findings from enquiries, including conclusions, causal relationships and explanations, results, in oral and written forms. To identify scientific evidence that has been used to support or refute ideas or arguments. **Investigation – Bread Mold (2 lessons)** LO: I am learning to identify the characteristics of different types of microorganisms. LO: I am learning to describe and investigate helpful and harmful micro- organisms. To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.	LO: I am learning to explain why shadows have the same shape as the object that casts them. To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. To use test results to make predictions to set up further comparative and fair tests. To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate To record data and results. To report and present findings from enquiries, including conclusions. **Practical Enquiry – Using Mirrors** LO: I am learning to understand how mirrors reflect light. To plan different types of scientific enquiries to answer questions (plan and record a short video) To report and present findings from enquiries, including conclusions (short video) LO: I am learning to investigate how refraction changes the direction in which light travels. To use scientific enquiry to answer questions, including recognising and controlling variables where necessary. To use test results to make predictions. To record data and results. To report and present findings from enquiries, including conclusions. **Afl - Mid-Point Review - Annotated Drawings** **How We See - Active Assessment – Page 66** **Scientific Enquiry – Using Prisms** LO: I am learning to investigate how a prism changes a ray of light. To use scientific diagrams and labels. **Scientific Enquiry – Using Colour Paddles** LO: I am learning to investigate how light enables us to see colours.	the circuit and give reasons for variations in how the components function. To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. To use test results to make predictions to set up further comparative and fair tests. To take measurements, using a range of scientific equipment, with increasing accuracy and precision. To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. To report and present findings from enquiries, including conclusions and results, explanations of and degree of trust in results, in oral and written forms. To identify scientific evidence that has been used to support or refute ideas or arguments. **Investigation – Buzzer Loudness (2 lessons)** L.O. I am learning to explore the volume of a buzzer the number and voltage of cells used in the circuit and give reasons for variations in how the components function. To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. To use test results to make predictions to set up further comparative and fair tests. To take measurements, using a range of scientific equipment, with increasing accuracy and precision. To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. To report and present findings from enquiries, including conclusions and results, explanations of and degree of trust in results, in oral and written forms. To identify scientific evidence that has been used to support or refute ideas or arguments. **Afl – End of Unit Assessment** End of unit test **How does this link build on previous learning?**	including recognising and controlling variables where necessary **Do** To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. To use test results to make predictions to set up further comparative and fair tests. **Record** To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs **Review** To report and present findings from enquiries, including conclusions, causal relationships and explanations, results, explanations of and degree of trust in results, in oral and written forms such as displays and other presentations; To identify scientific evidence that has been used to support or refute ideas or arguments. **KNOWLEGDE THREADS** **Biology** Animals including humans Living things and their habitats Evolution and inheritance Seasons **Physics** **Electricity**

	To use test results to make predictions to set up further comparative and fair tests To record data and results using scientific diagrams, labels and tables. To report and present findings from enquiries, including conclusions, causal relationships and explanations, results, in oral and written forms. To identify scientific evidence that has been used to support or refute ideas or arguments. LO: I am learning to investigate the work of scientists (Linnaeus). **Afl - End of Unit Assessment** End of Unit Test **How does this link build on previous learning?** Recognise that living things can be grouped in a variety of ways. (Y4 - Living things and their habitats) Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. (Y4 - Living things and their habitats) Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 - Living things and their habitats) Describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats) _____ **Topic Title** We are Evolving (Biology) **Links to NC** 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	LO: I am learning to explore the work of Newton. **Afl - End of Unit Assessment** End of unit test. **How does this link build on previous learning?** Recognise that they need light in order to see things and that dark is the absence of light. (Y3 - Light) Notice that light is reflected from surfaces. (Y3 - Light) Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Y3 - Light) Recognise that shadows are formed when the light from a light source is blocked by an opaque object. (Y3 - Light) Find patterns in the way that the size of shadows change. (Y3 - Light) Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. (Y5 - Properties and changes of materials) **Topic Title** Staying Alive (Biology) **Links to NC** 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 Describe the ways in which nutrients and water are transported within animals, including humans.	Identify common appliances that run on electricity. (Y4 - Electricity) Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. (Y4 - Electricity) Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. (Y4 - Electricity) Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. (Y4 - Electricity) Recognise some common conductors and insulators, and associate metals with being good conductors. (Y4 - Electricity)	**Light** **Earth and Space** **Forces** **Sound** **Chemistry** **Properties and changes of materials** **States of matter** **Rocks**

	Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. **Key Vocabulary** Variety/Inherited Evolution/ Adaptation/ Natural selection/ Fossil/ Dinosaur/ Prehistoric **Sequence of Lessons** **AfL – Baseline Assessment – True or False** Children to sort statements based on previous key stage knowledge, oral discussions important here to gauge prior knowledge. Teacher made. LO: I am learning to recognise that living things produce offspring of the same kind. LO: I am learning to explain adaptation. **Scientific Enquiry – Beaks** LO: I am learning to recognise that living things evolve over time (Darwin). To use test results to make predictions. To record data using scientific diagrams and labels. LO: I am learning to recognise that living things evolve over time. (Peppered Moth) To present evidence about how environmental changes affected the population of peppered moths. **Afl - Mid-Point Review – Creation** Design a new plant or animal to live in a particular habitat. LO: I am learning to use fossils to understand how living things have evolved over time. LO: I am learning to explain how adaptations can result in both advantages and disadvantages.	**Key Vocabulary** Heart/Lungs/ Blood/ Oxygen/ Vein/Artery/ Heart/ Exercise/ Addiction/ Nicotine **Sequence of Lessons** **AfL – Baseline Assessment – Labelling** Children to label the human digestive system and explain the parts' functions. LO: I am learning to identify and name the main parts of the human circulatory system. LO: I am learning to describe the functions of the circulatory system. LO: I am learning to explain how water and nutrients are transported within the body. LO: I am learning to describe how diet and exercise impact on the body. **Afl - Mid-Point Review** Poster explaining the effects of diet and exercise on the body-show positive and negative effects. **Investigation – Pulse Rate** L.O. I am learning to investigate the impact of exercise on the body. To plan a scientific enquiry to answer questions. To use test results to make predictions to set up further comparative and fair tests. To take measurements with increasing accuracy and precision, taking repeat readings when appropriate. To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. To report and present findings from enquiries, including conclusions, causal relationships and explanations, results, explanations of and degree of trust in results, in oral and written forms such as displays and other presentations; To identify scientific evidence that has been used to support or refute ideas or arguments.		

	Ongoing throughout topic: LO: I am learning to investigate the work of famous scientists/paleontologists (Anning/Darwin) **AfI - End of Unit Assessments** End of unit test. **How does this link build on previous learning?** 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. (Y2 - Living things and their habitats) Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals, including humans) Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants) Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Y3 - Rocks) Recognise that environments can change and that this can sometimes pose dangers to living things. (Y4 - Living things and their habitats) Describe the life process of reproduction in some plants and animals. (Living things and their habitats - Y5)	LO: I am learning to explain the impact of drugs and alcohol on the body. **AfI - End of Unit Assessment** End of unit test **How does this link build on previous learning?** Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - Animals, including humans) 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. (Y3 - Animals, including humans) Describe the simple functions of the basic parts of the digestive system in humans. (Y4 - Animals, including humans) Identify the different types of teeth in humans and their simple functions. (Y4 - Animals, including humans)		

Working Scientifically threads	Key Knowledge Threads
Plan **Do** **Record** **Review**	**Biology** Animals including humans Living things and their habitats Evolution and inheritance Seasons **Physics** Electricity Light

	Earth and Space Forces Sound **Chemistry** Properties and changes of materials States of matter Rocks