



Moorsway Federation

The Erme Primary School / Cornwood C of E Primary School

SCIENCE CURRICULUM OVERVIEW



“Somewhere, something incredible is waiting to be known.”

Carl Sagan, Astronomer

VISION At the Moorsway Federation, being a good scientist means that our children are curious investigators, asking questions and digging deeper to understand the world around them. We want our children to be independent, critical thinkers and show passion for science that is relevant now and to their lives beyond school.

Asking questions Making observations and taking measurements Performing tests

Identifying and classifying Answering questions and drawing conclusions Gathering and recording data Using evidence

EYFS	EYFS	Learn new vocabulary. CL Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. CL Use new vocabulary in different contexts. CL Explore the natural world around them. UW Understand the effect of changing seasons on the natural world around them. UW Describe what they see, hear and feel while they are outside. UW Recognise some environments that are different to the one in which they live. UW Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. CL Know and talk about the different factors that support their overall health and wellbeing: • regular physical activity • healthy eating • tooth brushing • sensible amounts of ‘screen time’ • having a good sleep routine • being a safe pedestrian PSED
	ELG	Explore the natural world around them. UW Make comments about what they have heard and ask questions to clarify their understanding. CL Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. PSED Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. UW Explore the natural world around them, making observations and drawing pictures of animals and plants. UW Make comments about what they have heard and ask questions to clarify their understanding. CL Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. PSED

KS1 Year A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit overview	Everyday materials (Y1) Children will learn about everyday materials including wood, plastic, metal, water and rock. Children will learn to identify and name everyday materials and will have the opportunity to explore the properties of these materials. <i>Grammarsaurus</i>	Seasonal Changes (Autumn/Winter) Children will learn about autumn and winter. They will find out about the weather in different seasons and will start to make comparisons between two seasons, as well as across all four seasons. They will observe changes across the seasons by exploring the signs of autumn and winter through nature and wildlife.	Uses of everyday materials (Y2) Children will learn about the uses of everyday materials including wood, plastic, metal, glass, brick, paper and cardboard. They will compare the suitability of different everyday materials for different purposes. They will explore how objects made of some everyday materials can change shape and how the recycling process is able to reuse some everyday materials numerous times.	Biodiversity - Minibeasts Children will learn about the importance of biodiversity and what an ecosystem is. The unit focuses on minibeasts and habitats found in the UK. Children will learn about different types of minibeasts, their microhabitats, what they need from their habitat and how living things depend on each other in order to survive. They will also learn about the benefits of minibeasts for the planet and the important roles they play, including pollination.	Living things and their habitats Children will learn about a variety of habitats and the plants and animals that live there. They will learn to tell the difference between things that are living, dead and things that have never been alive, and apply this in a range of contexts. They will make observations of a local habitat and the creatures that live there. They will find out about a range of global habitats and how the living things that live there are suited to their environments. They will start to think about the idea of dependency between plant and animal species.	Scientists and Inventors (Y2) This ‘Scientists and Inventors’ unit will teach the children about famous scientists and inventors linked to the Year 2 science curriculum.
Key Vocab	<i>Object, material, hard, soft, stretchy, shiny, dull, rough, smooth, bendy, waterproof, absorbent, transparent, opaque</i>	<i>Seasons, spring, summer, autumn, winter, weather, daylight</i>	<i>Materials, suitability, properties, John McAdam, John Dunlop, Charles Macintosh,</i>	<i>Minibeast, invertebrate, decomposer, predator minibeast, pollinator, pollination, habitat, microhabitat, biodiversity, ecosystem, depend, food chain</i>	<i>Life processes, living, dead, never living, food chain, food sources, habitat, microhabitat, depend, survive</i>	<i>Tim Smit, Nicholas Grimshaw, Jane Colden, Elizabeth Garrett Anderson, Louis Pasteur, Charles Macintosh, Rachel Carson, James Blyth</i>
Focus Scientist and Careers	Focus scientist: William Addis Careers: Materials scientist, inventor	Focus scientist: Liam Dutton Careers: Meteorologist, Climatologist	Focus scientist: Charles Macintosh Careers: Builder, Mechanical engineer	Focus scientist: Edward Osborne Wilson Careers: Countryside officer, environmental consultant, horticultural manager	Focus scientist: Rachel Carson Careers: Taxonomist, Wildlife filmmaker	Focus scientist: As above. Careers: Scientists and Inventors
Small Steps	1. What are materials? 2. How are materials different? 3. What are materials made from? 4. How can we sort materials? 5. Which material would be best for an umbrella? 6. Which material would be best for	1. How do things change between summer and autumn? 2. What’s the weather like in Autumn? 3. How do things change between autumn and winter? 4. How can we investigate wind change?	1. What uses do different materials have? 2. Which materials match this use? 3. How can materials be changed? 4. Which material is suitable? 5. Where do materials come from?	1. Which minibeasts can we find in these habitats? 2. Why are bees important? 3. Why are minibeasts important? 4. How is a microhabitat suitable for a minibeast? 5. Why are worms important for healthy soil? 6. Why are minibeasts and microhabitats important for our planet?	1. Is it alive? 2. What habitats can I find in my local area? 3. What is a microhabitat? 4. What is similar and what is different about microhabitats? 5. How are living things around the world adapted to their habitat? 6. Food chains: How do animals get their food?	1. How do greenhouses help plants grow? 2. What are the parts of plants? 3. How do doctors use science? 4. Why do we wash our hands? 5. What material should I use for a waterproof coat? 6. What is a wind turbine?

	curtains?	5. How can we observe and describe the weather? 6. What differences are there between the seasons?	6. What can we reduce, reuse and recycle?			
Key Knowledge	Distinguish between an object and the material from which it is made Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock Describe the simple physical properties of a variety of everyday materials Compare and group together a variety of everyday materials on the basis of their simple physical properties	Name the four seasons Name different types of weather Describe the weather associated with each season Name an event or occasion which happens in each season Describe how day length varies between two seasons	Compare the uses of different everyday materials. Compare the suitability of different everyday materials. Explain the basic progress of recycling. Explain the advantages of recycling. Name the process invented by John McAdam.	Identify and name a variety of plants and animals in their habitats, including microhabitats. Describe the basic needs of animals, including humans, for survival and what factors influence this, such as their habitats. Describe how different types of animals and plants in a habitat depend on each other. Understand the idea of a simple food chain. Describe how plants need water, light and a suitable temperature to grow and stay healthy. 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 types of animals and plants.	Explore and compare the differences between things that are living, dead and never alive. Identify and name a variety of plants and animals in their habitats Describe a habitat Describe how animals get their food Explain how living things in a habitat depend on each other Identify how an animal is suited to its habitat. Describe how animals get their food from plants	Describe how the greenhouses invented at the Eden Project help plants grow healthily Describe healthy life choices Explain what Louis Pasteur found out about germs Describe how to wash our hands effectively Identify renewable and non-renewable sources of energy Describe the invention of wind turbines
Key Skills	Observe closely. Use observations to answer simple questions. Make predictions Sort objects 3 ways. Perform simple tests in designing an item for a particular need	Make observations about the weather Collect and record simple data Make observations about changes across the seasons Interpret simple data	Record observations. Classify the uses of different everyday materials.	Observe the natural world around them by making careful observations, using simple equipment. Gather and record data in a variety of ways to help in answering questions, such as simple tables. Begin to draw simple conclusions.	Classify things as living, dead and have never been alive Answer questions about things that are living, dead or have never been alive Observe and explore different habitats Investigate an animal's preferred habitat	Use a ruler to measure the height of plants Use their ideas and observations to explain how doctors use science Test materials to find out whether they are waterproof

				Use simple secondary sources to find answers. When presenting findings, use simple and scientific language appropriately.		
KS1 Year B	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit Overview	Animals including humans (Y1) Children will learn about five of the groups that scientists use to classify animals: mammals, fish, birds, reptiles and amphibians. They will learn to identify the group an animal belongs to by its features and will classify animals according to their group. They will also learn about the different diets animals eat. Children will learn about the parts of the human body and explore the five senses.	Scientists and Inventors (Y1) The children will learn about famous scientists and inventors linked to the (Y1) science curriculum.	Animals including humans (Y2) The children will look at animal young and compare them to their adults. They will look at how animals change as they grow up and be introduced to the life cycles of several varied common animals, including humans. They look in detail at how humans change as they grow older, Children are introduced to the three basic needs of animals for survival (water, food and air).	Plants (Y1) Children will have the opportunity to closely study plants and trees in the natural environment. They will plant a seed and a bulb and compare them as they grow. They will set up a comparative experiment to observe what plants need to grow well, and watch the germination process first hand by growing cress. They will begin to learn about plants we eat, and understand that farming involves creating the right conditions for food crops to grow.	Seasonal Changes (Spring/Summer) Children will learn about Spring and Summer. They will find out about the weather in different seasons and will start to make comparisons between two seasons, as well as across all four seasons. They will observe changes across the seasons by exploring the signs of Spring and Summer through nature and wildlife.	Plants (Y2) Children will have the opportunity to closely study plants and trees in the natural environment. They will have the opportunity to carry out their own investigations into what plants need to grow well. Children will also closely observe the inside of a seed and learn about the life cycle of a plant. They will also learn how plants look when they don't get the things they need. They will begin to learn about plants we eat, and understand that farming involves creating the right conditions for food crops to grow.
Key Vocab	Amphibians, birds, fish, mammals, reptiles, carnivore, herbivore, omnivore, sight, hearing, touch, taste, smell	Ole Kirk Christiansen, Mae Jemison, George Mottershead, George James Symons, Linda Brown Buck, inventor, scientist, astronaut, biologist, veterinarian	Adult, develop, life cycle, offspring, young, live young, diet, disease, exercise, germs, hygiene, nutrition, pulse	Germination, sprout, shoot, seed dispersal, sunlight, water, temperature, nutrition	Seasons, spring, summer, autumn, winter, weather, daylight	Germination, sprout, shoot, seed dispersal, sunlight, water, temperature, nutrition
Focus Scientist and Career	Focus scientist: Chris Packham Careers: Zoologist, Wildlife photographer	Focus scientist: Various Careers: Scientists and Inventors	Focus scientist: Yann Le Meur Careers: Animal behaviourist, Exercise physiologist	Focus scientist: Beatrix Potter Careers: Arborist/Botanist	Focus scientist: Liam Dutton Careers: Meteorologist, Climatologist	Focus scientist: George Washington Carver Careers: Gardener, tree surgeon

Small Steps	1. Can I identify and name some common animals? 2. Can I describe and compare the structure of a variety of common animals? 3. Which animals are carnivores, herbivores and omnivores? 4. Can I name and label parts of the human body? 5. What are the 5 senses? 6. How can we sort animals?	1. Why is Lego made of plastic? 2. Who is Mae Jamison? 3. Can I sort animals into different groups? 4. Why do we like different plants? 5. How do we measure rainfall? 6. How do vets look after animals? 7. How do we keep warm? 8. How do we smell things?	1. Can I match, sort and group young animals and their adults? 2. How do animals change as they grow into adults? 3. What are the stages of the human life cycle? 4. What do animals, including humans, need to survive? 5. What are the effects of exercise on the human body? 6. Why are healthy eating and hygiene important?	1. Can I describe and compare plants, seeds and bulbs? 2. Can I name and compare the parts of plants? 3. Can I identify and name some common garden and wild plants? 4. Can I identify and name some common trees? 5. Can I name, sort and compare some common fruit and vegetable plants? 6. Can I name and compare some common plants and trees?	1. How do things change between winter and spring? 2. How can we stay safe in the sun? 3. How can we describe the weather? 4. What are seasonal changes? 5. Why do daylight hours change? 6. How do the 4 seasons compare?	1. What do plants need? 2. What's Inside a seed? 3. Can I describe the life cycle of a plant? 4. Can I explain what plants need to grow and stay healthy? 5. What happens if plants don't get all the things they need? 6. How are plants suited to their habitats?
Key Knowledge	Identify and name some common animals Compare the different classification of animals. Identify animals who are herbivores, carnivores and omnivores. Identify and label the human body. Identify which part of the body is linked to each sense Describe and compare the structures of animals groupings	Identify the material that Lego is made out of Describe properties of plastic Name 6 sensory plants Describe weather associated with the seasons. Compare a variety of common animals. Identify which materials will keep us warm	Identify and match animal offspring and their adult forms. Describe the main stages of an animal life cycles. Identify ways that humans grow and develop Name the three basic needs of all animals to survive. Describe the effects of exercise Identify several foods in basic food groups.	Describe some of the features of seeds and plants. Compare between different plants and seeds. Identify, name and begin to describe flowering plants. Identify and name a variety of common wild and garden plants. Identify and name a variety of deciduous and evergreen trees and basic parts of a tree. Identify and name a variety of fruit and vegetable plants.	Describe changes across the four seasons. Know how long a day lasts in winter and spring Identify and name signs of spring Identify and name how trees change Describe weather associated with the seasons. Give ways to stay safe in the sun	Suggest what a plant needs to grow and stay healthy. Explain which parts of a seed will grow into a plant and which part is its food. Order the life cycle of a plant and begin to explain what happens at each stage. Explain what happens if a plant does not get everything it needs. Understand how some plants are suited to their habitats.
Key Skills	Classify things as living, dead and have never been alive Answer questions about things that are living, dead or have never been alive Observe and explore different habitats Investigate an animal's preferred habitat	Sort animals into 4 groups based on their body parts Add information to a pictogram to show their favourite plant Make a rain gauge and use it to measure rainfall Record rainfall data	Sort and classify objects (animals) Use simple secondary sources to find answers to a question Ask simple questions and use scientific language to answer Carry out simple practical tests	Make careful observations of seeds and plants Explore and observe the natural world around me Identify, classify and sort plants Explain choices using scientific vocabulary Identify similarities and differences between plants	Make careful observations of seeds and plants Explore and observe the natural world around me Identify, classify and sort plants Explain choices using scientific vocabulary Identify similarities and differences between plants	Answer scientific questions. Carry out simple practical tests, using simple equipment. Observe the natural world around me. Notice links between cause and effect. Talk about my findings using evidence.

			using observations to answer questions.and draw simple conclusions.			
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LKS2 Year A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit Overview	Animals including humans (Y3) Building on learning in KS1, the children will find out more about what makes a healthy, balanced diet. They will learn about the nutrients that different foods provide animals and humans. They also explore the different types of skeletons that animals have and compare these. They will learn some names of bones in the human body. They will learn about how muscles help us to move.	Electricity The children will learn about what electricity is and how it was discovered. They will identify which appliances use electricity in their homes and how to keep themselves safe. They will construct circuits, start to create pictorial circuits and conduct an investigation into how easily different types of switches can break and reconnect a circuit.	Animals including humans (Y4) The children will learn about the digestive system in humans and animals and the functions of teeth. They will learn more about herbivores, carnivores and omnivores in the context of teeth, digestion and the food chain. They will extend their understanding of food chains to more complex chains and food webs.	Light The children will learn about light, reflections and shadows, different sources of light, and that we need light to see. They will investigate reflective materials and find out more about reflective surfaces. They will learn that the sun's light can be dangerous. They will find out which objects are opaque and will learn how shadows change when the distance between the object and light source changes.	Scientists and inventors (Yr4) This unit will teach the children about famous scientists and inventors linked to the Y4 science curriculum.	Sound The children will learn about how vibrations cause sounds and how sounds travel, as well as how sounds can change pitch and loudness. They will learn how sounds are made and explore pitch. They will investigate how sounds change over distance and through different materials. <i>Grammarsaurus</i>
Key vocabulary	<i>Healthy, nutrients, energy, saturated fats, unsaturated fats, vertebrate, invertebrate, muscles, tendons, joints</i>	<i>Electricity, generate, renewable, non-renewable, appliances, battery, circuit</i>	<i>Teeth, tongue, stomach, oesophagus, intestine, liver, pancreas, canine, incisor, molar, consumer, herbivore, carnivore, omnivore, producer, predator, prey</i>	<i>Light, light source, dark, reflection, reflect, reflective, ray, pupil, retina, shadow, opaque, translucent, transparent</i>	<i>Gerald Durrell, Alexander Graham Bell, James West and Gerhard M. Sessler, Maria Telkes, Garrett Morgan, Antoine Lavoisier and Joseph Priestley, Thomas Edison, Washington Sheffield, Lord Kelvin, Lewis Howard Latimer, conservationist, endangered species, solar powered, respiration, oxygen</i>	<i>Vibration, sound wave, volume, amplitude, pitch, ear, particles, distance, soundproof, absorb sound, vacuum, eardrum</i>
Focus scientist and career	Focus scientist: Wilhelm Rontgen Careers: Physiologist, dietician	Focus scientist: Michael Faraday Careers: Electrical engineer, Physicist	Focus scientist: Ivan Pavlov Careers: Orthodontist, Nutritionist	Focus scientist: Ibn al-Haytham Careers: Astronomer, optician		Focus scientist: Evelyn Glennie Careers: Audiologist, sound engineer
Small Steps/ Learning Focus	1. How can we classify foods and why is each group important? 2. How do we know the nutritional values of different foods? 3. How are skeletons similar and different? 4. How to classify living things with different types of skeletons?	1. Which common appliances run on electricity? 2. Can I identify circuit components and build working circuits? 3. How do I know if circuits are complete or incomplete? 4. Which materials are electrical conductors or insulators? 5. How does a switch	1. What causes tooth decay? 2. What are the functions of different types of teeth? 3. What are the simple functions of the basic parts of the digestive system in humans? 4. What is the process of digestion? 5. Can I construct and explain food chains for	1. How does light help us to see? What is the dark? 2. Which surfaces reflect light? 3. How does a mirror reflect light? 4. How and why should we protect our eyes from the sun? 5. How are shadows made? 6. Can shadows be changed?	1. Madagascar in Danger: What are the dangers of deforestation in Madagascar? 2. Alexander Graham Bell: Who was Alexander Graham Bell and why is he famous? 3. Discovering Oxygen: How was Oxygen discovered? 4. Absolute Zero: What did Lord Kelvin call 'Absolute Zero'?	1. How are sounds made? 2. What are sound vibrations? 3. What are the main parts of the ear? 4. How does the size of the pinnae affect the volume of sound? 5. What is pitch? 6. Can I explore volume patterns? 7. Which material is the best at muffling sound?

	5. How have animal skeletons adapted to help animals move? 6. How do bones and muscles work together?	work in a circuit? 6. Can I discuss and solve problems about electricity?	different habitats? 6. Is there a link between the teeth of an animal and its role in the food chain?		5. Thomas Edison and Lewis Latimer: How did inventions by Thomas Edison and Lewis Latimer change people's lives?	
Key Knowledge	Talk about what animals/humans need to stay healthy Talk about different balances of nutrients and gather/understand a information from food labels Name the features of different types of skeleton Name the parts of the skeleton Give a simple explanation of how muscles work	Identify appliances that are mains- or battery powered. Identify different circuit components and explain what they do. Build series circuits, identifying and if they are complete or not. Explain what electrical conductors and insulators are I can identify different switches	Explain what tooth decay is and how to look after our teeth. Name the different types of teeth found in human and explain their function. Describe the functions of the digestive system parts in humans. Construct and interpret a variety of food chains.	Understand what dark is Understand how surfaces reflect light. Recognise that a mirror appears to reverse an image. Recognise light is dangerous and how we can protect our eyes. Identify opaque, translucent and transparent objects. Know how shadows change size.	Investigate describe the dangers of deforestation Give key facts about Bell's life and work Describe the achievements of Telkes and Morgan Share facts about who discovered oxygen and explain effect on burning; Explore Kelvin's work, take temperatures and convert from C to Kelvin Identify changes to scientific ideas around electricity	Describe and identify sounds around them (including high, low, loud and quiet) Know how different sounds are made using vibrations Explain how sounds change over distance Recognise which materials absorb and amplify sound Recognise that vibrations travel through a medium to the ear.
Key Skills	Group and classify foods into food groups and identify the nutrients that different foods provide Present data from food labels in a table to help in answering questions Group and classify animal skeletons and use vocabulary to discuss Set up a fair test and draw simple conclusions from their results Show understanding by using scientific language/labelled diagrams Set up and carry out a test that is fair, including making decisions about what measurements to take	Group and classify things (appliances) and record my findings using labelled diagrams. Set up a simple practical enquiry. Make predictions. Record findings using labelled diagrams Report and present results and conclusions to others. I can use scientific evidence to answer questions. I can identify similarities, differences, patterns and changes relating to simple scientific ideas and processes.	Draw conclusions from results and suggest improvements to tests. Record findings using drawings/keys. Use scientific evidence to answer questions or to support findings. Gather, record, classify and present data to help in answering questions. Set up and carry out comparative and fair tests, observing changes over time. Identify similarities, differences, patterns and changes relating to simple scientific ideas and processes.	Set up an investigation into shadows and make predictions. Draw conclusions and find patterns when exploring how shadows change size	Present findings to a group Explain how inventions by inventors, such as Thomas Edison and Lewis Latimer, changed people's lives; Carry out a test to compare the effectiveness of different toothpastes	Observe how different sounds are made Conduct an investigation in which we will Make predictions about which materials will absorb sound Make observations about how different materials affect sound Analyse gathered information to draw conclusions on which materials absorb sound best

LKS2 Year B	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit Overview	Living things and their habitats (Y4) The children will use a variety of ways to identify, sort, group and classify living things. They will learn how animals are split into 'vertebrates' and 'invertebrates' and begin to consider the differences between living things within these classifications. They will group, identify and name living things from the local habitat and beyond.	States of Matter The children will learn about the differences between solids, liquids and gases, classifying objects and identifying their properties. They will explore in-depth how water changes state, exploring melting, freezing, condensing and evaporation. They will learn about the stages of the water cycle.	Rocks The children will discover the different types of rocks and how they are formed. They will compare and group rocks based on appearance and simple properties. They will learn how fossils are formed and learn about the contribution of Mary Anning to the field of palaeontology. Children will find out how soil is formed and investigate the permeability of different types of soil.	Forces and magnets The children will learn about forces, friction and magnetic attraction. They will learn about forces in the context of pushing and pulling and will identify different actions as pushes or pulls. They will investigate friction and identify magnetic materials. They will investigate the strength of different types of magnet and explore the way the magnetic poles attract and repel.	Scientists and Inventors (Y3) This unit will teach the children about famous scientists and inventors linked to the Y3 science curriculum.	Plants The children will learn the names of different parts of plants and the jobs they do. They will investigate what plants need to grow well and will find out about the transportation of water within plants. They will identify the parts of a flower and explore the different stages of the life cycle of a flowering plant.
Key vocab	<i>Organisms, life processes, respiration, sensitivity, reproduction, excretion, nutrition, habitat, environment, endangered species, extinct, classification, vertebrates, invertebrates, specimen, characteristics.</i>	<i>States of matter, solids, liquids, gases, water vapour, melt, freeze, evaporate, condense, precipitation</i>	<i>Igneous, sedimentary, metamorphic, magma, lava, sediment, permeable, impermeable, fossilisation, palaeontology, erosion</i>	<i>Forces, friction, surface, magnet, magnetic, magnetic field, poles, repel, attract</i>	<i>Seismology, geology, botanist, magma</i>	<i>Roots, stem, leaves, flowers, nutrients, evaporation, fertilisation, petal, stamen, carpel (pistil), sepal, pollination, pollinator, germination, seed dispersal</i>
	Focus scientist: Gladys West Careers: Conservationist, Ecologist	Focus scientist: Daniel Fahrenheit Careers: Nanoscientist, Science teacher	Focus scientist: Mary Anning Careers: Geologist, volcanologist	Focus scientist: William Gilbert Careers: Architect, Astronautical engineer, Seismologist	Focus scientist: Sir Joseph Banks, Jeanne Baret, Marie Curie, William Smith, David Douglas, Tom Hart Dyke, George Washington Carver, Inge Lehmann,	Focus scientist: Ahmed Mumin Warfa Careers: Horticulturist, irrigation engineer
Small Steps	- How can we group living things? - How can we identify, group and classify vertebrates? - How do careful observations help us classify invertebrate species? - What is a classification key?	- Solid, liquid or gas? - What are the properties of gases? - How do materials change through heating and cooling? - What happens when water evaporates? - What are the different stages of the water cycle?	- What are rocks? - How can rocks be grouped? - How do rocks change over time? - How are fossils formed? - What is soil? - What is soil permeability and why is it important?	- What are pushes and pulls? - How do objects move on different surfaces? Planning - How do objects move on different surfaces? Testing - What is a magnetic force? - Are all magnets the same strength?	- How did new plants arrive in our country? - How did Marie Curie's work on x-rays help us identify bones? - How did George Washington Carver help farmers grow crops? - How can fossils be used to find the age of rocks?	- What do different parts of flowering plants do? - What do plants need to grow well? Setting up - What do plants need to grow well? Recording observations - How is water transported in plants? - What is the role of different parts of a

	5. <i>What changes and dangers are there in the local area?</i> 6. <i>What dangers do endangered animals face?</i>			6. <i>How do magnets attract and repel?</i>	5. <i>How do images change in concave and convex mirrors?</i> 6. <i>How do Electromagnets</i>	<i>flower in pollination and fertilisation?</i> 6. <i>What are the stages of the life cycle of a flowering plant?</i>
Key Knowledge	Describe how living things can be grouped Use a key to identify invertebrates by looking at their characteristics. Identify dangers to wildlife in the local and wider environment. Identify and groups animals in the local environment. Identify environments that can change and how they pose a danger	Use the terms solid, liquid and gas, and explain the features of each Explain that melting and freezing are opposite processes Explain what causes evaporation and condensation Describe how water changes state Identify the stages of the water cycle	Name three different types of rock State the four different types of matter that soil is made of Explain the main processes of fossilising Identify the importance of Mary Anning's work Explain the difference between a fossil and a bone Describe how soil is formed	Identify forces as pushes and pulls Compare how things move on different surfaces Describe how magnets can act at a distance Explain that magnets produce an invisible pulling force Name items which are magnetic/not magnetic Identify the different poles of a bar magnet	Identify plants in local area Give the names of four people who brought new plants to Britain Give four facts about Curie and Lehmann's life and work Explain how scientists use fossils to date rocks today and how igneous rocks are made identify concave/convex mirrors Describe how electromagnets were developed and name a scientist who worked on them	Explain the functions of the different parts of plants. Identify different parts of a flower. Identify and describe the stages of the life cycle of flowering plants. Investigate how water moves through plants Explore the life cycle of a flower.
Key Skills	Sort living things into a Venn diagram and Carroll diagram. Use questions to sort animals using a key. Show the characteristics of living things in a table. Record observations in a table. Write a report and present findings to the class.	<i>Sort and classify materials into solid, liquid or gas</i> <i>Carry out a range of tests linked to states of matter, focusing on fair testing</i> <i>Record data in tables and graphs</i> <i>Make observations and use this to draw conclusions</i>	<i>Make careful observations</i> <i>Use simple scientific vocabulary to explain</i> <i>Group rocks by properties and identify similarities and differences</i> <i>Make and record observations accurately</i>	<i>Make observations about how magnets behave</i> <i>Make predictions</i> <i>Carry out an investigation into the strength of a magnet</i> <i>Construct a bar chart to show results</i> <i>Draw conclusions about magnets using key vocabulary and results</i>	<i>Design a new plant and answer questions about it</i> <i>Participate in an investigation into convex and concave mirrors</i> <i>Recognise that inventions and discoveries come from all over the world</i> <i>Give an example of how some things are invented to make people's lives easier</i>	<i>Be able to answer questions based on their learning.</i> <i>Set up an investigation and make predictions.</i> <i>Make observations and draw conclusions</i>

UKS2 Year A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit Overview	Evolution & Inheritance (Y6) The children will learn about variation and adaptation. They will explore how both Charles Darwin and Alfred Wallace separately developed their theories of evolution. They will examine the scientific evidence from plants and animals that has been gathered to support the theory of evolution.	Light (Y6) The children will learn about light, how we see, shadows, reflection and refraction. They will learn how light travels and how this enables us to see objects. They will find out about mirrors and the angles of reflection and incidence. They will investigate refraction, looking at the effects of bending light. They will learn how light creates the colours we see.	Properties/Changes of Materials The children will learn about different materials, their uses and their properties, as well as dissolving, separating mixtures and irreversible changes, sort and classify objects according to their properties and will explore the properties of materials. They will find out about the best electrical conductor and explore dissolving. They will find out about different ways to separate mixtures of materials.	Living Things and Their Habitats (Y5) The children will explore the processes of sexual and asexual reproduction in plants, find out about sexual reproduction in animals, investigate the differences in the life cycles of different animals, find out about the work of naturalists	Living Things and Their Habitats (Y6) The children will learn about the classification of living things, including micro-organisms. They will sort animals into groups based on their similarities and differences and find out about the standard system of classification. They will learn about micro-organisms.	Scientists and inventors (Y5) The children will learn about famous scientists and inventors linked to the Upper Key Stage 2 science curriculum.
Key Vocab	<i>Offspring, inheritance, variations, characteristics, adaptation, habitat, environment, evolution, natural selection, fossil, adaptive traits, inherited traits</i>	<i>Light, light source, reflection, incident ray, reflected ray, the law of reflection, refraction, visible spectrum, prism, shadow, transparent, translucent, opaque</i>	<i>Materials, solids, liquids, gases, melting, freezing, evaporating, condensing, conductor, insulator, transparency</i>	<i>Asexual reproduction, fertilise, gestation, life cycle, metamorphosis, pollination, reproduction, sexual reproduction</i>	<i>Characteristics, classify, taxonomist, key, bacteria, microorganism, microscope, species</i>	<i>Biology, chemistry, chromatography, DNA, geology, naturalist, physicist,</i>
Focus Scientist and Career	Focus scientist: Rosalind Franklin, Charles Darwin Careers: Archaeologist, geneticist, palaeontologist	Focus scientist: CV Raman Careers: Architect, ophthalmologist	Focus scientist: Becky Shroeder Careers: Chemical engineer, biochemist	Focus scientist: Malaika Vaz Careers: Farmer, oceanographer	Focus scientist: Carl Linneus Careers: Microbiologist, Plant geneticist	Focus scientist: David Attenborough, Eva Crane, Stephanie Kwolek Leonardo da Vinci, Margaret Hamilton, Neil deGrasse Tyson Careers: CSI technician, forensic scientist
Small Steps	1. What is inheritance? 2. What is adaptation? 3. How does mutation and natural selection lead to evolution? 4. What is the theory of evolution? 5. What do fossils tell us about evolution? 6. How have humans evolved?	1. How do we see things? 2. How does the human eye respond to light? 3. Mirrors and reflections 4. How does a prism change a ray of light? 5. How does light enable us to see colours? 6. Why do shadows have the same shape as the objects that cast them?	1. How can we group and classify materials by their properties? 2. What would make a suitable thermal insulator? 3. Which materials are conductors and insulators? 4. Do materials disappear or dissolve?	1. How do plants reproduce? 2. What are the life cycles of different mammals? 3. What did Jane Goodall discover about chimpanzees? 4. How do the life cycles of amphibians and insects compare?	1. How can we classify plants and animals based on specific characteristics? 2. What is the Linnaean system of classification? 3. What are the key characteristics of different plants? 4. What are microorganisms? 5. What are helpful and harmful microorganisms?	1. What do we learn from naturalists and animal behaviourists? 2. How is evidence used to solve crimes? 3. How did Margaret Hamilton contribute to the mission to the moon? 4. What is in our solar system?

			5. <i>How can we separate mixtures?</i> 6. <i>What's the difference between a reversible and irreversible change?</i>	5. <i>How do the life cycles of amphibians, birds, mammals and insects compare?</i>	6. <i>How can we classify organisms found in our local habitat?</i>	5. <i>What did Eva Crane discover about bees?</i> 6. <i>What did Stephanie Kwolek discover about materials?</i> 7. <i>What did Leonardo Da Vinci suggest the perfect proportions were?</i> 8. <i>What does evidence suggest about Stonehenge?</i>
Key Knowledge	Identify inherited and adaptive traits. Understand the development of evolutionary ideas and theories over time. Explain how human evolution has occurred. Compare modern humans with those of the same genus and family. Understand that adaptation and evolution is not a uniform process Give examples of selective and crossbreeding.	Explain how light travels and objects reflect light. Identify angles of incidence/reflection. Understand refraction Explain how a prism allows us to see the visible spectrum. Understand that colours are a result of light reflecting off an object. Understand how shadows change. Understand that shadows are the same shape as casting object	Describe the uses of thermal and electrical conductors and insulators. Order materials according to their electrical conductivity. I can explain and investigate dissolving. Describe the processes used to separate mixtures. Identify and explain irreversible changes.	Explain function of parts of a flower. Give two differences between sexual and asexual reproduction. Identify the features of plants pollinated by insects or the wind. Describe the stages of reproduction. Describe the differences between the three types of mammals. Give four facts about Jane Goodall. Describe the stages of life cycles Identify similarities and differences between the life cycles of different plants and animals.	Give reasons for the classification of animals. Match groups of animals to their characteristics. Design a creature that has a specific set of characteristics. Describe the useful and harmful effects of different microorganisms. Describe the characteristics of different microorganisms. Describe the characteristics of groups of organisms.	Explain how Margaret Hamilton's software inventions changed the way computer programmes were used. Explain Neil deGrasse Tyson's ideas about Pluto. Identify the largest and smallest planets in our solar system. Describe the life cycle of bees. Order facts about Stephanie Kwolek's life.
Key Skills	Examine fossil evidence supporting the idea of evolution Identify how evidence changes opinions	Make observations and draw conclusions. Answer questions based on my learning.	Test the properties of materials. Identify variables in an investigation. Predict what will happen in an investigation. Make observations and conclusions. Answer questions based on my learning.	Use evidence to explain and back up new ideas and learning	Classify living things using the Linnaean system. Classify creatures based on their characteristics. Identify the variables in an investigation into harmful microorganisms. Draw conclusions based on the results of my investigation.	Use chromatography to separate mixtures. Identify a mixture by analysing its components. Explain whether evidence supports or refutes ideas. Record their results accurately and explain what they show. Use their results to make new predictions. Identify evidence that supports or refutes the idea

						that Stonehenge was used as an astronomical calendar. Explain their own theories and ideas.
UKS2 Year B	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit Overview	Electricity (Y6) The children will learn to represent circuits using symbols in a diagram. They will develop their understanding of what electricity is and how to measure it.	Earth & Space (Y5) The children will learn about Earth and its place in our Solar System.	Animals including Humans (Y5) The children will learn about the life cycle of a human being. They will find out about the development of babies and compare the gestation period of humans and other animals. They will learn about the changes experienced during puberty and why these occur. They will find out about the changes to the body as humans get older, as well as comparing the life expectancy of different animals.	Forces (Y5) The children will learn about types of forces such as gravity, friction, water resistance and air resistance. They will find out about the use of mechanisms such as levers, gears and pulleys. They will identify forces and find out about Isaac Newton and his discoveries about gravity. They will find out about levers, gears and pulleys.	Animals including Humans (Y6) The children will build on their knowledge and understanding of different systems within the body. They will find out about the parts and functions of the circulatory system and how nutrients are transported around the human body. They will explore how a healthy lifestyle supports the body to function and how different types of drugs affect the body.	Scientists and inventors (Y6) The children will learn about famous scientists and inventors linked to the Upper Key Stage 2 science curriculum.
Key Vocab	<i>Voltage, brightness, volume, switches, danger, series circuit, circuit diagram, switch, bulb, buzzer, motor, recognised symbols</i>	<i>Sun, star, moon, planet, sphere, spherical bodies, satellite, orbit, rotate, axis, geocentric model, heliocentric model, astronomer</i>	<i>Fertilisation, prenatal, gestation, reproduce, asexual reproduction, sexual reproduction, life cycle, adolescence, puberty, menstruation, adulthood, life expectancy</i>	<i>Forces, gravity, Earth's gravitational pull, weight, mass, friction, air resistance, water resistance, buoyancy, streamlined, mechanism, upthrust</i>	<i>Circulatory system, heart, blood vessels, oxygenated blood, deoxygenated blood, drug, alcohol, nutrients</i>	<i>Astrophysicist, black holes, classification, invertebrates, cholesterol, evolution, hominins</i>
Key Scientist and Career	Focus scientist: Nikola Tesler Careers: Electrician, Renewable energy engineer	Focus scientist: Mai Jemison Careers: Astronaut, Astrophysicist	Focus scientist: Sigmund Freud Careers: Physiotherapist, Psychiatrist	Focus scientist: Isaac Newton Careers: Aeronautical engineer, builder, mechanical engineer	Focus scientist: Mary M Daly Careers: Cardiologist, Haematologist	Focus scientist: Stephen Hawking, Libbie Hyman, Marie Maynard Daly, Alexander Fleming, Mary Leaky, Dr Daniel Hale Williams, Steve Jobs Careers: Various
Small Steps	1. What discoveries has been made about electricity?	1. Can we describe the movements of the Sun, Earth and Moon?	1. How do gestation periods differ? 2. How do humans develop from fertilisation to birth?	1. Which forces are acting on different objects?	1. What is the circulatory system and what does it do? 2. What important job does blood do?	1. What were Stephen Hawking's theories on black holes?

	2. How do we use circuit symbols when drawing circuits? 3. What is the effect of differing volts in a circuit? 4. Investigating variations in circuits x 3 lessons	2. How does the rotation of the Earth create day and night? 3. How does the Earth's tilt create seasons? 4. What are the phases of the moon? 5. How have theories about the solar system changed? 6. Which planets are within our solar system?	3. How do babies grow and develop into children? 4. What are the main changes that occur during puberty? 5. What changes take place in late adulthood? 6. What are the stages of human development?	2. What effect does gravity have on an object? 3. What are the effects of friction? 4. What are the effects of air resistance? 5. What are the effects of water resistance? 6. How do mechanisms work?	3. How does exercise affect the heart? 4. What are the benefits of exercise? 5. How do diet and exercise affect the body? 6. What impact do drugs and alcohol have on the way the body functions?	2. What did Libbie Hyman show about classification? 3. What did Alexander Fleming discover? 4. What did Mary Leaky discover about fossils? 5. What were Dr Daniel Hale Williams' accomplishments? 6. How did Steve Jobs use electronics?
Key Knowledge	Describe the major discoveries linked to electricity. Know the main circuit symbols Draw circuit diagrams using the correct symbols Explain how understanding of electricity has changed over time Describe how the brightness of a bulb can be changed	Understand that the sun, Earth and moon are spherical bodies Describe the movement of the Earth, and other planets, relative to the sun in the solar system Explain the concept of day and night using the idea of the Earth's rotation and explain why timings vary Describe the movement of the moon relative to the Earth.	Name the 6 stages of human development. Describe Changes as humans head to old age Give reasons why changes occur during puberty Further describe changes in old age. Report findings from enquiries Record data in greater complexity.	Identify and explain forces acting on objects Explain Newton's role in discovering gravity Explain the effects of air and water resistance Identify streamlined shapes Explain the effects of friction	State the main parts of the circulatory system and describe the job of the heart Describe the job of vessels and blood Explain how exercise affects heart rate Know that regular exercise is important for a healthy body Know how diet and exercise affects the body Discuss the impact of drugs and lifestyle on the way bodies function	Share facts and key information about studied scientists Describe invertebrates Explain how saturated fat links to high cholesterol Know main parts and function of heart Identify some food sources Discuss how microorganisms could develop antibiotic resistance, and the implications of this Describe some stages in the evolution of humans
Key Skills	Make observations about changing circuits Carry out a thorough investigation into variations in circuits Gather and record data during investigation Draw conclusions about changes in circuits	Using evidence to support my understanding of Earth and Space Gather and record data linked to daylight hours in different parts of the world Answer questions and draw conclusions from my results.	Compare graph types and select which is most appropriate for my data. Analyse and report findings in written explanations	Measure an object's weight and mass Investigate the effects of friction Identify the variables in an investigation Make observations and draw conclusions about forces Answer questions based on learning	Focused enquiry: exercise Explore evidence based on the impact of drugs and alcohol identify scientific evidence that has been used to support or refute ideas record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.	Carry out an enquiry into black holes Draw diagrams of observations from enquiry into black holes Construct a scatter graph Classify invertebrates Answer questions about the effects of penicillin