



**Sheringdale Science Medium Term Plan
KS1 and KS2**

“A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics.” *National curriculum*

- Science cover page to be stuck in for each unit
- Key vocabulary displayed in the classroom
- One lesson a week for KS1, two for KS2 comprising of knowledge preparation and enquiry lessons.
- ‘Sticky knowledge’ to be included once a week
- First lesson to include ‘What is science’ to be practised at a suitable level, along with discussion about the need for scientific learning
- Challenges to be included in each lesson where possible
- Each unit to end with Headstart assessment (KS2) or when appropriate (KS1)

Science in the EYFS

The most relevant statements for science are taken from the following areas of learning:

- Communication and Language
- Personal, Social and Emotional Development
- Understanding the World

Three and Four-Year-Olds	Communication and Language	• Understand ‘why’ questions, like: “Why do you think the caterpillar got so fat?”
	Personal, Social and Emotional Development	• Make healthy choices about food, drink, activity and toothbrushing.

	Understanding the World	<ul style="list-style-type: none"> • Use all their senses in hands-on exploration of natural materials. • Explore collections of materials with similar and/or different properties. • Talk about what they see, using a wide vocabulary. • Begin to make sense of their own life-story and family's history. • Explore how things work. • Plant seeds and care for growing plants. • Understand the key features of the life cycle of a plant and an animal. • Begin to understand the need to respect and care for the natural environment and all living things. • Explore and talk about different forces they can feel. • Talk about the differences between materials and changes they notice.
Reception	Communication and Language	<ul style="list-style-type: none"> • Learn new vocabulary. • Ask questions to find out more and to check what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. • Use new vocabulary in different contexts.
	Personal, Social and Emotional Development	<ul style="list-style-type: none"> • Know and talk about the different factors that support their overall health and wellbeing: <ul style="list-style-type: none"> - regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian

	Understanding the World		<ul style="list-style-type: none"> • Explore the natural world around them. • Describe what they see, hear and feel while they are outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them.
ELG	Communication and Language	Listening, Attention and Understanding	<ul style="list-style-type: none"> • Make comments about what they have heard and ask questions to clarify their understanding.
	Personal, Social and Emotional Development	Managing Self	<ul style="list-style-type: none"> • Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.
	Understanding the World	The Natural World	<ul style="list-style-type: none"> • Explore the natural world around them, making observations and drawing pictures of animals and plants. • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Year: 1

Term: Autumn

Topic : Magnificent Me

Science NC program of study	Humans (BIOLOGY) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	Animals (BIOLOGY) Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals Identify and name a variety of common animals that are carnivores, herbivores and omnivores
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	<p>Pupils might work scientifically by: using their observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them.</p> <p>Seasonal Change Identify and investigate Autumn, describing the weather in autumn and looking at the living environment outside during the autumn season</p>	<p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p> <p>Pupils might work scientifically by: using their observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them; grouping animals according to what they eat; and using their senses to compare different textures, sounds and smells.</p>
Week 1	WALT: label parts of the body	WALT: identify types of animals
Week 2	WALT: understand the functions of body parts	WALT: identify carnivores, herbivores and omnivores
Week 3	WALT: understand that 5 senses	WALT: compare carnivores, herbivores and omnivores
Week 4	WALT: explore touch	WALT: identify the structures of animals
Week 5	WALT: explore sight and hearing	WALT: compare structures in animals
Week 6	WALT: Explore smell and taste	WALT: identify local animals and their habitats
Week 7	WALT: understand autumn	Assessment
Sticky knowledge	<ul style="list-style-type: none"> • What is this? *insert picture of body part* • What do/does the *body part* do? • What are the 5 senses? 	<ul style="list-style-type: none"> • Name 5 different types of animal (bird, mammal, reptile, amphibian, fish) Give as cloze task if appropriate • What do we call animals that eat only meat? Eat only plants? Eat both? • What do we call the animals that get eaten by other animals? Hunter and __ • Sort these animals into groups: elephant, penguin, lion, bear, bat, shark • Why do we have bones?

Year: 1

Term: Spring

Topic : All Aboard..!

<p>Science NC program of study</p>	<p>Seasonal Change Identify and investigate winter, describing the weather in winter and looking at the living environment outside during the winter season</p> <p>Everyday Materials (CHEMISTRY) Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic and 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.</p> <p>Pupils might work scientifically by: comparing and grouping materials based on properties.</p>	<p>Everyday Materials (CHEMISTRY) Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic and 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.</p> <p>Pupils might work scientifically by: performing simple tests to explore questions, for example: What is the best material for an umbrella? ...for lining a kite? ...for curtains? ...for a bookshelf? ...for a gymnast's leotard?</p> <p>Seasonal Change Identify and investigate spring, describing the weather in spring and looking at the living environment outside during the spring season</p>
Week 1	WALT: understand winter	WALT: understand spring
Week 2	WALT: identify signs of winter	WALT: identify signs of spring
Week 3	WALT: identify a range of materials	WALT: understand that water is a material (investigate a puddle)
Week 4	WALT: describe the properties of different materials	WALT: understand magnets and metal.
Week 5	WALT: sort materials based on their properties	WALT: understand the materials used in the three little pigs.
Week 6	WALT: compare similarities and differences of materials	WALT: investigate the materials used in the three little pigs.
Sticky knowledge	<ul style="list-style-type: none"> • What are the four seasons? • What would be a good material to make a _____ from? Why? Repeat • Give some of the properties of *material* • How could you sort these materials - brick, teddy bear, jumper, 	<ul style="list-style-type: none"> • What might you see in spring? • What are the four seasons? Which months are in each season? • What are important properties for an umbrella? • What kind of materials are magnetic? • Why aren't sticks a good material to build a house from?

	water bottle	
Year: 1		
Term: Summer		
Topic : Food Glorious Food		
Science NC program of study	<p>Plants (BIOLOGY)</p> <p>Identify and name a variety of plants and trees, discussing leaves and seeds, sorting plants by features, investigating plants and their features, discuss the life cycle of a seed</p> <p>Pupils might keep records of how plants have changed over time, for example the leaves falling off trees and buds opening; and compare and contrast what they have found out about different plants.</p>	<p>Plants (BIOLOGY)</p> <p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>Pupils might work scientifically by: observing closely, perhaps using magnifying glasses, and comparing and contrasting familiar plants; describing how they were able to identify and group them, and drawing diagrams showing the parts of different plants including trees. Pupils might keep records of how plants have changed over time</p> <p>Seasonal Change</p> <p>Identify and investigate summer, describing the weather in summer and looking at the living environment outside during the summer season</p>
Week 1	WALT: Plant our own plants	WALT: Explore what lives in a garden.
Week 2	WALT: identify plants in school	WALT: identify parts of plants we eat
Week 3	WALT: Identify common wild and garden plants	WALT: compare plants and their products
Week 4	WALT: Identify the parts of a plant	WALT: understand summer
Week 5	WALT: identify the different stages in the life cycle of a plant	Assessment
Week 6	WALT: identify the life cycle of a tree	WALT: recap the four seasons
Week 7:	WALT: identify deciduous and evergreen trees	
Sticky knowledge	<ul style="list-style-type: none"> • What kind of plants might we find growing around the school? • What do plants grow from? • What are the different parts of a plant? 	<ul style="list-style-type: none"> • Name 3 things found in a garden. • Which parts of a plant do we eat? • How might a plant look different before we eat it?

- What are the stages of a plant's life-cycle?
- How are deciduous and evergreen trees different?

- What might you see in summer?
- What is the weather like in summer?
- Which months are in summer?

Tier 1 (every lesson words)

Question	sort	group	compare	differences
Answer	similarities	describe	measurements	tests
Observe	record			
Observing Equipment	Identify			

Tier 2 (topic linked words)

sight, smell, touch, taste, hearing, head, nose, ear, neck, shoulder, arm, elbow, wrist, hand, back, chest, hip, leg, knee, ankle, foot wing, beak, tail, fin, wood, plastic, glass, paper, metal, rock, hard, soft, rough, smooth, shinny, dull, bendy, stiff, leaf, flower, fruit, seed, roots, trunk, branches season, spring, summer, autumn, winter, month, year, day, night, sun, moon, light, dark, hard, soft, stretchy, stiff, shiny, dull, rough, smooth, bendy/not bendy, waterproof/not waterproof, push, pull, magnet

Tier 3 (technical, low frequency words)

Autumn – Animals including Humans

Amphibians, fish, reptiles, mammals, birds (+ 1 example of each) herbivore, omnivore, carnivore

Spring – Everyday Materials

absorbent, opaque, properties

Summer – Plants

deciduous, evergreen, tree, blossom, petals, bulb
stem

Year: 2

Term: Autumn

Topic : Fire and Ice

Science
NC program of
study

Uses of Everyday Materials (CHEMISTRY)

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 made from some materials can be changed by squashing, bending, twisting and stretching.

Pupils might work scientifically by: comparing the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs); observing closely, identifying and classifying the uses of different materials, and recording their observations.

Living things and their habitats (BIOLOGY)

Explore and compare the differences between things that are living, dead, and things that have never been alive.

Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.

Identify and name a variety of plants and animals in their habitats, including microhabitats.

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.

Pupils might work scientifically by: sorting and classifying things according to whether they are living, dead or were never alive, and recording their findings using charts. They should describe how they decided where to place things, exploring questions like: 'Is a flame alive? Is a deciduous tree dead in winter?' and talk about ways of answering their questions. They could construct a simple food chain that includes humans (eg, grass, cow, human). They could describe the conditions in different habitats and microhabitats (under log, on stony path, under bushes); and find out how the conditions affect the number and type(s) of plants and animals that live there.

Week 1

WALT: Identify properties of everyday materials

WALT: explore things that are living, dead and never been alive.

Week 2

WALT: Discuss the suitability of materials

WALT: understand food chains.

Week 3

WALT: investigate which materials change shape.

WALT: understand habitats.

Week 4

WALT: identify manmade and natural materials.

WALT: understand microhabitats.

Week 5	WALT: investigate which materials are waterproof	WALT: identify suitable habitats
Week 6	WALT: test how waterproof our umbrellas are.	WALT: design a bug hotel.
Week 7	Assessment	Assessment
Sticky knowledge	<ul style="list-style-type: none"> Name a material that you can see a lot of in the classroom. What is made from it? What is _____ made from? Why is this an appropriate material? When would it be better to make a spoon from plastic? How about metal? What are the ways that we can change the shape of an object? Which properties make tarmac a great material for roads? 	<ul style="list-style-type: none"> Name three things that all living things do. Give an example of a food chain. What is a habitat? What is a microhabitat? Why is the desert/arctic/rainforest/ocean the ideal habitat for *animal*? Why can't *animal* live in the desert/arctic/rainforest/ocean? What is a bug hotel and why might we make one?

Year: 2

Term: Spring

Topic : Heroes of the World

Science NC program of study	Animals, Including Humans (BIOLOGY) Find out about and describe the basic needs of 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. Pupils might work scientifically by: observing, through video or first-hand observation and measurement, asking questions about what things humans need for survival and what humans need to stay healthy; investigate the effects of exercise on the body and suggesting ways to find answers to their questions.	Animals, Including Humans (BIOLOGY) Notice that animals, including humans, have offspring which grow into adults, similarities and differences between offspring and adults Find out about and describe the basic needs of animals and the lifecycle of animals. Pupils might work scientifically by: observing, through video or first-hand observation and measurement, how different animals, including humans, grow; asking questions about what things animals need for survival	
	Week 1	WALT: identify the basics needs of animals and humans.	WALT identify similarities and difference between adults and offspring.
	Week 2	WALT: understand how to eat healthily.	WALT: understand the life cycle of a hen.
	Week 3	WALT: explore the importance of exercise	WALT: understand the life cycle of a frog.

Week 4	WALT: explore how to be hygienic	WALT: understand the life cycle of a person.
Week 5	WALT: explain how to live a healthy lifestyle.	WALT: compare the heights of year 2 and year 6 children.
Week 6	WALT: identify animals and their offspring.	Assessment
Sticky knowledge	<ul style="list-style-type: none"> • What are the basic needs of a human? • What are the food groups? Can you give examples? • What are some ways that exercise is good for your body? • Why is it important to maintain good hygiene? • Why is it important to get plenty of sleep? 	<ul style="list-style-type: none"> • What are the offspring of horses/sheep/cows/lions/humans called? • What are the stages of the life-cycle of a hen? • What are the stages of the life-cycle of a frog? • Why should we be careful when grouping animals? (think dolphins/fish) • What are the stages of the life-cycle of a human?

Year: 2

Term: Summer

Topic : Location Location!

Science NC program of study	Plants (BIOLOGY) Investigate different seeds, discovering how seeds and bulbs grow. Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Pupils might work scientifically by: observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth; setting up a comparative test to show that plants need light and water to stay healthy.	Plants (BIOLOGY) Investigate plants that we eat and where different vegetables come from. Find out and describe how plants are dispersed by wind. Pupils might work scientifically by: observing and recording, with some accuracy, the growth of a variety of edible plants.	
	Week 1	WALT: grow our own plants (sunflowers)	WALT: evaluate what a plant needs to grow
	Week 2	WALT: label parts of a plant	WALT: explore garden flowers
	Week 3	WALT: explore what is inside a seed. (pumpkin, cress, bean, bulb)	WALT: compare different plants

Week 4	WALT: understand the life cycle of a plant	WALT: observe growth of our plants
Week 5	WALT: understand what plants need to grow	WALT: understand wind dispersal.
Week 6	WALT: investigate what plants need to grow.	WALT: explore how plants grow in hot and cold places.
Week 7		Assessment
Sticky knowledge	<ul style="list-style-type: none"> • What are the parts of a flower? Give picture • What is inside a seed? • What are the stages of a plant's life-cycle? • What do plants need to grow? • Could you grow a plant in the dark? 	<ul style="list-style-type: none"> • What might be growing in a garden? • How could I categorise these plants? Give examples from previous lesson • Why might different plants grow at different speeds? • How might the wind help with the lifecycle of a plant?

Tier 1 (every lesson words)

Question	sort	group	compare	differences
Answer	similarities	describe	measurements	tests
Observe	record			
Chart	Observing Equipment	Identify		

Tier 2 (topic linked words)

Pictogram, property, solid, waterproof, squash, bend, flexible, twist, stretch push, pull, roll, slide, bounce, Waterproof, fabric, rubber, cars, rock, paper, cardboard, wood, metal, plastic, glass, brick, twisting, squashing, bending, matches, cans, spoons, Tally Chart, living, dead, never alive, food, food chain, leaf litter, shelter, seashore, woodland, ocean, rainforest, conditions, desert, damp, shade, classify, rain, hail, snow, tornado, hurricane, tsunami, sun, heat wave, light, battery, cell, wire, buzzer, bulb, electricity, electrical circuit, circuit,

<p><u>Tier 3 (technical, low frequency words)</u> <u>Autumn – Uses of everyday materials Living things and their habitats</u></p> <p>absorbent, opaque, transparent, translucent, habitats, micro-habitats, off- spring, predator, prey</p>	<p><u>Spring – Animals including Humans</u></p> <p>Life cycle, humans, animals, growth, offspring, hygiene, exercise, healthy</p>	<p><u>Summer – Plants</u></p> <p>growth, germinate, light, temperature, reproduce, lifecycle, seedling, plant cycle</p>
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Year: 3

Term: Autumn

Topic : Stones and Bones

Science NC program of study	Animals including Humans (BIOLOGY) Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. Identify that humans and some other animals have skeletons and muscles for support, protection and movement. Pupils might work scientifically by: identifying and grouping animals with and without skeletons and observing and comparing their movement; exploring ideas about what would happen if humans did not have skeletons. They might compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat. They might research different food groups and how they keep us healthy, and design meals based on what they find out.	Rocks (CHEMISTRY) Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter. Pupils might work scientifically by: observing rocks, including those used in buildings and gravestones, and exploring how and why they might have changed over time; using a hand lens or microscope to help them to identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them. Pupils might research and discuss the different kinds of living things whose fossils are found in sedimentary rock and explore how fossils are formed. Pupils could explore different soils and identify similarities and differences between them and investigate what happens when rocks are rubbed together or what changes occur when they are in water. They can raise and answer questions about the way soils are formed.
Week 1	WALT: identify bones and explain human bones and explain the skeleton	WALT: understand what rocks are and their properties
Week 2	WALT: understand how bones and muscles work together	WALT: identify different rock properties
Week 3	WALT: Identify vertebrates and invertebrates	WALT: understand uses of manmade and natural rocks
Week 4	WALT: identify organs	WALT: explore fossils
Week 5	WALT: identify human and animal body differences	WALT: understand soil formation
Week 6	WALT: understand food groups	WALT: explore geodes

Week 7	Assessment	
Sticky knowledge	<ul style="list-style-type: none"> • Why do we need a skeleton? • What is the difference between a vertebrate and an invertebrate? • How do our muscles allow us to move? • Name as many internal organs as you can. • What are the different food groups? • What is a carnivore/herbivore/omnivore? Give examples 	<ul style="list-style-type: none"> • What do we call a small/medium/large rock? • What are the three types of rock? • What is a fossil? How is it formed? • What are the three kinds of fossil? • What is soil made of?

Year: 3
Term: Spring

Topic : Marvellous Inventions

<p>Science NC program of study</p>	<p>Forces and Magnets (PHYSICS) – Building on from Year 1 Compare how things move on different surfaces Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. Describe magnets as having 2 poles. Predict whether 2 magnets will attract or repel each other, depending on which poles are facing.</p> <p>Pupils might work scientifically by: comparing how different things move and grouping them; raising questions and carrying out tests to find out how far things move on different surfaces, and gathering and recording data to find answers to their questions; exploring the strengths of different magnets and finding a fair way to compare them; sorting materials into those that are magnetic and those that are not; looking for patterns in the way that magnets behave in relation to each other and what might affect this, for example, the strength of the magnet or which pole faces another; identifying how these properties make magnets useful in everyday items and suggesting creative uses for different magnets.</p>	<p>Light (PHYSICS) 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 sizes of shadows change.</p> <p>Pupils might work scientifically by: looking for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes.</p>
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Week 1	WALT: identify forces	WALT: understand light sources
Week 2	WALT: explore contact and non-contact forces	WALT: understand opaque, transparent and translucent
Week 3	WALT: understand forces between objects	WALT: understand light and shadows
Week 4	WALT: explore uses of magnets	WALT: understand reflective materials
Week 5	WALT: understand magnetic and non-magnetic	WALT: create a reflective hat
Week 6	WALT: explore magnetic poles	WALT: understand how to protect our eyes and skin from the sun
Sticky knowledge	<ul style="list-style-type: none"> • What is a force? • What are some contact and non-contact forces? • Which kinds of surface create the most friction? • What is magnetism? • What are the two types of magnetic force? Add image of magnets attracting/repelling • When/why might you use a magnet? 	<ul style="list-style-type: none"> • What is a light source? Give examples • Explain what is meant by opaque/transparent/translucent • How might a shadow change if the object is closer to or further from the light source? • Why might you need reflective materials? • Why is it important to use sunscreen? • Is it safe to look at the sun? What if you wear sunglasses?

Year: 3

Term: Summer

Topic : The Romans Rule

Science NC program of study	<p>Plants (BIOLOGY) 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.</p> <p>Pupils might work scientifically by: looking for patterns in the structure of fruits that relate to how the seeds are dispersed. They might observe how water is transported in plants, for example, by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers.</p>	<p>Plants (BIOLOGY) Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.</p> <p>Pupils might work scientifically by: comparing the effect of different factors on plant growth, for example, the amount of light, the amount of fertiliser; discovering how seeds are formed by observing the different stages of plant life cycles over a period of time.</p>
Week 1	WALT: identify and explain parts of a plant	WALT: explore seed dispersal
Week 2	WALT: identify parts of a flower	WALT: explore how seeds are formed
Week 3	WALT: understand what plants need to grow	WALT: understand that plants make their own food
Week 4	WALT: explore water transportation	WALT: explore edible parts of a plant
Week 5	WALT: evaluate what plants need to grow	WALT: understand soil formation

Week 6	Assessment	Assessment
Sticky knowledge	<ul style="list-style-type: none"> • Draw and label the parts of a plant (give image to base it on) • Draw and label the parts of a flower (give image to base it on) • What do plants need to grow? • How is water transported through a plant? 	<ul style="list-style-type: none"> • What are some ways that seeds can be dispersed? • What are the stages of a plant's lifecycle? Repeat this if necessary • How do plants make their own food? • What are some ways that soil is important?

Tier 1 (every lesson words)

Question	Equipment sort	Identify group	compare	differences
Answer		similarities	describe	measurements tests
Observe		record		
Observing	Sensible questions, predict, observation, research, fair test, accurate, measure, classify, diagrams, graphs, tables, charts, conclusion, explain			

Tier 2 (topic linked words)

Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, skull, ribs, spine, muscles, joints, Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, soil, sandy/chalk/clay soil, light, light source, darkness, reflect, reflective, mirror, shadow, block, direction, Force, push, pull, twist, magnet, strength, metal, iron, steel, poles, north pole, south pole, air, light, water, nutrients, soil, support, anchor, flower, energy, growth, seedling, carbon dioxide, oxygen, sugar, material,

Tier 3 (technical, low frequency words)

Autumn – Animals including Humans

and Rocks

Sandstone

Peat

Marble

Granite

Slate

endoskeleton, exoskeleton,
hydrostatic skeleton, vertebrates,
invertebrates

Spring – Light and plants

Transparent,
translucent, opaque,
rays

Photosynthesis, plant
function,

Summer – forces and magnets and plants

Non-contact force, magnetic force, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, contact force, magnetic field, reproduction, pollination, dispersal, transportation, chlorophyll

Year: 4

Term: Autumn

Topic : Buckle up! Life's a journey

Science NC program of study	States of Matter (CHEMISTRY) 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. Pupils might work scientifically by: grouping and classifying a variety of different materials; exploring the effect of temperature and taking accurate measurements using standard units on substances such as chocolate, butter, cream (for example, to make food such as chocolate crispy cakes and ice-cream for a party). They could research the temperature at which materials change state, for example, when iron melts or when oxygen condenses into a liquid. They might observe and record evaporation over a period of time, for example, a in the playground or washing on a line, and investigate the effect of temperature on washing drying or snowmen melting.	Electricity (PHYSICS) Identify common appliances that run on electricity (revising and building on Year 2 learning). 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. Pupils might work scientifically by: observing patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.
Week 1	WALT: identify solids, liquids and gasses	WALT: explore electricity and electrical safety
Week 2	WALT: describe the particle arrangement of materials	WALT: Identify common appliances that run on electricity
Week 3	WALT: understand how temperature affects different substances	WALT: Identify the components of a simple circuit
Week 4	WALT: understand the process of evaporation	WALT: identify complete and incomplete circuits
Week 5	WALT: understand the process of condensation	WALT: Understand the function of a switch
Week 6	WALT: understand the process of freezing	WALT: Identify common conductors and insulators
Week 7	WALT: understand the water cycle	Assessment

Sticky knowledge	<ul style="list-style-type: none"> • What are the three states of matter? • Draw the particle arrangements of solids/liquids/gases • What is the process called when a solid turns to a liquid / liquid turns to a solid? • What is the process called when a liquid turns to a gas / gas turns to a liquid? • What are the stages of the water cycle? 	<ul style="list-style-type: none"> • What is electricity? • How is electricity generated? • What are some tips for electrical safety? • Draw out a complete and an incomplete circuit. • How does a switch work in an electrical circuit? • What are some materials that conduct or insulate electricity?
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Year: 4
Term: Spring

Topic : Blue Abyss

Science NC program of study	Living things and their habitats (BIOLOGY) - Land Recognise that living things can be grouped in a variety of ways. Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things. Pupils might work scientifically by: using and making simple guides or keys to explore and identify local plants and animals; making a guide to local living things; raising and answering questions based on their observations of animals and what they have found out about other animals that they have researched.	Living things and their habitats (BIOLOGY) - Sea 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 the oceans, layers of the ocean, exploring ocean habitats and changes to them. Recognise that environments can change and that this can sometimes pose dangers to living things. Pupils might work scientifically by: researching changes to ocean habitats, investigate life cycles of different ocean animals.
Week 1	WALT: understand life processes	WALT: understand classification keys
Week 2	WALT: group living things	WALT: classify vertebrates
Week 3	WALT: explore ocean organisms	WALT: explore desertification
Week 4	WALT: explore ocean habitats	WALT: explore habitats in the local environment
Week 5	WALT: understand dangers to ocean habitats	WALT: understand dangers to local habitats
Week 6	Assessment	Assessment
Sticky knowledge	<ul style="list-style-type: none"> • What are the life processes? MRS GREN • What are some different ways that we could group animals? 	<ul style="list-style-type: none"> • What kind of question might we ask in a classification key for *choose animals*?

- What are the five layers of the ocean?
- What are the main dangers affecting ocean habitats?
- Why don't we find the same animals in the sunlight zone as in the abyss?

- What is desertification?
- How is climate change affecting polar habitats?
- How might changes to local habitats affect living things?

Year: 4

Term: Summer

Topic : Sands of Time

Science NC program of study	Sound (PHYSICS) Identify how sounds are made, associating some of them with something vibrating. 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. Pupils might work scientifically by: finding patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses. They might make earmuffs from a variety of different materials to investigate which provides the best insulation against sound. They could make and play their own instruments by using what they have found out about pitch and volume.	Animals, Including Humans (BIOLOGY) 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. Pupils might work scientifically by: comparing the teeth of carnivores and herbivores and suggesting reasons for differences; finding out what damages teeth and how to look after them. They might draw and discuss their ideas about the digestive system and compare them with models or images.
Week 1	WALT: explore sound sources	WALT: understand the digestive system
Week 2	WALT: Understand how sound is made	WALT: explore the digestive system
Week 3	WALT: explore how sound travels	WALT: explore human teeth
Week 4	WALT: Explore how volume can be changed	WALT: investigate teeth damage
Week 5	WALT: explore how pitch can be changed	WALT: compare the teeth of carnivores, omnivores and herbivores
Week 6	WALT: understand sound insulators	WALT: explore food chains.

Week 7	Assessment	Assessment
Sticky knowledge	<ul style="list-style-type: none"> • How are all sounds created? • Why do sounds get quieter over distance? • How are the vibrations different in loud and quiet sounds? • What is pitch? How is it different from volume? • What kinds of material would make good sound insulators? 	<ul style="list-style-type: none"> • Name the parts of the digestive system • What is the purpose of the *part of digestive system* • Name the different types of human teeth? • What is tooth decay? • How would the teeth of a herbivore differ from the teeth of a carnivore? • Create a food chain with 5 stages

Tier 1 (every lesson words)

Question	sort	group	compare	differences
Answer	similarities	describe	measurements	tests
Observe	record	secondary sources, comparative tests, fair tests, careful, accurate, observations, equipment, gather, measure, record, data, evidence, results, keys, bar charts, table, results, conclusions, predictions, support, thermometers		
				Observing Equipment Identify

Tier 2 (topic linked words)

States of matter, solid, liquid, gas, air, oxygen, powder, grainular/grain, crystals, change state, ice/water/steam, heating, cooling, temperature, degrees celcius, melt, freeze, solidify, melting point, boil, boiling point, Electricity, appliance, device, mains, plug, electrical circuit, complete circuit, circuit diagram, circuit symbol, components, cell, battery, positive/negative, connect, connection, short circuit, wire, crocodile clip, bulb, bright/dim, switch, buzzer, motor, faster/slower, metal/non metal, sound, sound source, noise, vibration, travel, solid, liquid, gas, pitch, tune, high, low, volume, loud, quiet, fainter, muffle, strength of vibrations, insulation, instrument, percussion, strings, bass, woodwind, tuned instrument, digestive system, nutrition, mouth, teeth, tongue, rip, tear, chew, grind, cut,

Tier 3 (technical, low frequency words)
Autumn – states of matter and electricity

Vapour, evaporation, condensation, precipitation, transpiration, water cycle

Conductor, insulator

Spring – sound and animals, including humans

Amplitude

Ocean, layers, sunlight, twilight, midnight zone, abys, trenches, habitats

Summer – animals including humans and living things and their habitats

canine, incisor, molar, pre-molar, saliva, oesophagus (gullet), stomach, small intestine, large intestine, rectum, anus, carnivore, herbivore, omnivore, producer, consumer, predator, prey, food chain

Year: 5

Term: Autumn

Topic : Laudable London

Science NC program of study	Properties and Changes of Materials (CHEMISTRY) 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 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, including changes associated with burning and the action of acid on bicarbonate of soda. Pupils might work scientifically by: carrying out tests to answer questions, for example, 'Which materials would be the most effective for making a warm jacket, for wrapping ice cream to stop it melting, or for making blackout curtains?' They might compare materials in order to make a switch in a circuit. They could observe and compare the changes that take place, for example, when burning different materials or baking bread or cakes. They might research and discuss how chemical changes have an impact on our lives, for example, cooking, and discuss the creative use of new materials such as polymers, super-sticky and super-thin materials.	Living things and their habitats (BIOLOGY) - animals Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Describe the life process of reproduction in some plants and animals. Pupils should study and raise questions about their local and London environment throughout the year. They should find out about the work of naturalists and animal behaviourists, for example, David Attenborough and Jane Goodall. Pupils should find out about different types of reproduction, including sexual and asexual reproduction in plants, and sexual reproduction in animals. Pupils might work scientifically by: observing and comparing the life cycles of plants and animals in their local environment with other plants and animals around the world (in the rainforest, in the oceans, in desert areas and in prehistoric times), asking pertinent questions and suggesting reasons for similarities and differences. They might try to grow new plants from different parts of the parent plant, for example, seeds, stem and root cuttings, tubers, bulbs. They might observe changes in an animal over a period of time (for example, by hatching and rearing chicks), comparing how different animals reproduce and grow.
Week 1	WALT: compare everyday materials	WALT: explore the life cycle of birds
Week 2	WALT: explore uses of everyday materials	WALT: explore the life cycle of a insects
Week 3	WALT: explore soluble and insoluble	WALT: explore life cycle of amphibians
Week 4	WALT: explore reversible changes	WALT: explore life cycle of mammals

Week 5	WALT: explore irreversible changes	WALT: understand the work of Jane Goodall
Week 6	WALT: explore thermal conductors and insulators	WALT: understand the gestation period of animals
Week 7	Assessment	WALT: understand sexual reproduction
Sticky knowledge	<ul style="list-style-type: none"> • What would be the ideal properties of a material used for a roof/window/teapot etc.? • What are soluble and insoluble materials? • Give examples of reversible changes. • Give examples of irreversible changes. • What is a thermal conductor? Explain and give an example. 	<ul style="list-style-type: none"> • What are the stages of the lifecycle of a bird? • How are complete and incomplete metamorphosis different? • What are the stages of the lifecycle of an amphibian? • What are the stages of the lifecycle of a mammal? • What is a gestation period?

Year: 5

Term: Spring

Topic : Champions of Change

Science NC program of study	<p>Living things and their habitats (BIOLOGY) - plants</p> <p>Describe how plants reproduce sexually and asexually, the life cycle of a plant in more detail from Year 3,</p> <p>Pupils might work scientifically by: investigating the difference between sexual and asexual reproduction, compare the life cycle and reproduction of different plants and investigate how strawberries grow, identifying what conditions are needed for fruit to grow</p>	<p>Forces (PHYSICS)</p> <p>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Identify the effects of air resistance, water resistance and friction, that act between moving surfaces Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p> <p>Pupils might work scientifically by: exploring falling paper cones or cupcake cases, and designing and making a variety of parachutes and carrying out fair tests to determine which designs are the most effective. They might explore resistance in water by making and testing boats of different shapes. They might design and make products that use levers, pulleys, gears and/or springs and explore their effects.</p>
Week 1	WALT: understand asexual reproduction	WALT: understand what forces are
Week 2	WALT: explore pollination and fertilisation	WALT: explore gravity
Week 3	Assessment	WALT: understand friction

Week 4	Forces L1	WALT: explore air resistance
Week 5	Forces L2	WALT: explore water resistance
Week 6	Forces L3	WALT: understand gears
		WALT: understand levers and pulleys
		Assessment
Sticky knowledge	<ul style="list-style-type: none"> • What is sexual reproduction in plants? • What is asexual reproduction in plants? • What is a pollinator? Give examples 	<ul style="list-style-type: none"> • What are balanced forces? • What are unbalanced forces? • What is gravity? • What kind of device measures forces and in what unit? • How can we increase or reduce air resistance? • What shape of objects are likely to sink fastest? • Why might we use gears? • Why might we use pulleys?

Year: 5

Term: Summer

Topic : Raiders and Traders

Science NC program of study	<p>Earth and Space (PHYSICS)</p> <p>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.</p> <p>Pupils might work scientifically by: comparing the time of day at different places on the Earth through internet links and direct communication; creating simple models of the solar system; constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day; finding out why some people think that structures such as Stonehenge might have been used as astronomical clocks.</p>	<p>Animals, including Humans (BIOLOGY)</p> <p>Describe the changes as humans develop to old age.</p> <p>Pupils should draw a timeline to indicate stages in the growth and development of humans. They should learn about the changes experienced in puberty.</p> <p>Pupils could work scientifically by: researching the gestation periods of other animals and comparing them with humans; by finding out and recording the length and mass of a baby as it grows.</p> <p>SRE</p> <p>Objectives from PSHE map: Explain how boys and girls change during puberty and why looking after</p>
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		<p>myself physically and emotionally is important. I can also summarise the process of conception.</p> <p>Express how I feel about the changes that will happen to me during puberty, and that I accept these changes might happen at different times to my friends.</p>
Week 1	WALT: explore theories about space	WALT: explore the human life cycle
Week 2	WALT: identify planets in the solar system	WALT: understand gestation periods
Week 3	WALT: explore planets orbiting the sun	WALT: understand physical and mental well-being
Week 4	WALT: explore the phases of the moon	WALT: understand puberty in boys and girls
Week 5	WALT: understand the Earth's rotation	WALT: understand the later stages of human life
Week 6	WALT: understand leap years	Assessment
Week 7	Assessment	
Sticky knowledge	<ul style="list-style-type: none"> • Name the planets of our solar system in order. • Give me a fact about *planet*. • What are the phases of the moon? • Why do we have day and night? • What do we call the model of our solar system with the Sun in the centre? • Why do we have leap years? 	<ul style="list-style-type: none"> • What are the 7 stages of the human lifecycle after fertilisation? • What are some of the changes that happen to the human body during puberty? • Why is mental health important? • What are some of the changes that happen to the human body during old age?

Tier 1 (every lesson words)

Question sort group compare differences Answer similarities describe measurements tests Observe record secondary sources, comparative tests, fair tests, careful, accurate, observations, equipment, gather, measure, record, data, evidence, results, keys, bar charts, table, results, conclusions, predictions, support, thermometers

Observing independent variable, dependent variable, controlled variable, accuracy, precision, degree of trust, classification keys, scatter graphs, line graphs, causal relationships, support/refute, data logger Equipment Identify

Tier 2 (topic linked words)

Earth, Sun, Moon, Axis, Rotation, Day, Night, Phases of the Moon, star, planets, solar system, day, night, life cycle, insect, bird, fish, reptile, eggs, live young, all, Earth, gravity, weight, mass, air resistance, water resistance, friction, moving surfaces, mechanisms, levers, pulleys, gears, force, transfers, Baby, Toddler, Teenager, Elderly, Growth, Development, Solid, liquid, gas, particles, state, materials, properties, matter, melt, freeze, water, ice, temperature, process, condensation, evaporation, water vapour, energy, collection, rigid, hard, soft, stretchy, flexible, waterproof, melting, dissolve, burning, rustling,

Tier 3 (technical, low frequency words)

Autumn – properties and changes of materials and living things and their habitats (animals)

precipitation, absorbent, electrical/thermal conductivity, solution, insoluble, solute, solvent, particle, mixture, filtering, sieving, residue, reversible/non reversible changes,

life cycle, mammal, amphibian, Jane Goodall

Spring – forces and Earth and Space

Newtons, streamline, cog
constellation, waxing, waning, crescent, gibbous.
Mercury, Venus, Mars, Jupiter, Saturn, Uranus,
Neptune, rotate, orbit, axis, spherical, geocentric,
heliocentric.

Summer – living things and their habitats (plants) and animals including humans

reproduction, sexual, asexual, germination, pollination, seed formation, seed dispersal, pollen, stamen, stigma, plantlets,

foetus, Embryo, Womb, Gestation, Puberty, Hormone, Physical, Emotional,

Year: 6

Term: Autumn

Topic : Darwin's Delights

Science NC program of study	Living things and their habitats (BIOLOGY) Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals Give reasons for classifying plants and animals based on specific characteristics. Pupils might find out about the significance of the work of scientists such as Carl Linnaeus, a pioneer of classification. Pupils might work scientifically by: using classification systems and keys to identify some animals and plants in the immediate environment. They could research unfamiliar animals and plants from a broad range of other habitats and decide where they belong in the classification system.	Evolution and Inheritance (BIOLOGY) Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. Pupils might work scientifically by: observing and raising questions about local animals and how they are adapted to their environment; comparing how some living things are adapted to survive in extreme conditions, for example, cactuses, penguins and camels. They might analyse the advantages and disadvantages of specific adaptations, such as being on 2 feet rather than 4, having a long or a short beak, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers.
Week 1	WALT: classify organisms	WALT: Understand the theory of evolution
Week 2	WALT: distinguish organisms with similar characteristics	WALT: explain inheritance
Week 3	WALT: classify plants by their characteristics	WALT: understand how traits are inherited
Week 4	WALT: classify species	WALT: investigate how fossils support evolution
Week 5	WALT: explore micro-organisms	WALT: understand human evolution
Week 6	WALT: consider the features of class	WALT: identify environmental adaptations of animals
Week 7	Assessment	Assessment
Sticky knowledge	<ul style="list-style-type: none">• What categories can we use for invertebrates?• How many different groups can you name that are used to classify animals?	<ul style="list-style-type: none">• Does something being a theory mean it hasn't been proven? Explain• What is natural selection?

	<ul style="list-style-type: none"> • How might we classify different plants? • What are the three 'kingdoms' of the Linnaean system? • Give some examples of micro-organisms. • Any classification question with given living things 	<ul style="list-style-type: none"> • What is 'inheritance' (in science)? • Why might someone use selective breeding for pets? • How do fossils help us learn about evolution? • If we evolved from apes, why are apes still apes?
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Year: 6
Term: Spring

Topic : Does the Heart Ever Stop?

Science NC program of study	Animals, including Humans (BIOLOGY) 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. Pupils might work scientifically by: exploring the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.	Electricity (PHYSICS) 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. Pupils might work scientifically by: systematically identifying the effect of changing one component at a time in a circuit; designing and making a set of traffic lights, a burglar alarm or some other useful circuit.
Week 1	WALT: identify the elements of blood and their function	WALT: recognise and draw circuit symbols
Week 2	WALT: explore the structure and function of the human heart	WALT: test voltage and bulb brightness
Week 3	WALT: understand what a heart rate is	WALT: compare variations in component function
Week 4	WALT: dissect a heart	WALT: understand the use of a switch
Week 5	WALT: understand how the circulatory and respiratory systems work	WALT: explore the effect of multiple components
Week 6	Assessment	Assessment
Sticky knowledge	<ul style="list-style-type: none"> • Name the three types of blood vessel. • Name the four parts of blood. • Which factors can affect heart rate? • What are the four stages of the respiratory system? 	<ul style="list-style-type: none"> • Draw and label as many circuit symbols as you can. • Explain voltage. • How might a circuit change using different components? • What is the difference between an open and a closed circuit?

- What are the four chambers of the heart called?

- Draw a closed and an open circuit. Use correct symbols.
- List some electrical dangers in the home.

Year: 6

Term: Summer

Topic : Is it ever right to fight?

Science
NC program of study

Light (PHYSICS)

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.

Pupils might work scientifically by: deciding where to place rear-view mirrors on cars; designing and making a periscope and using the idea that light appears to travel in straight lines to explain how it works. They might investigate the relationship between light sources, objects and shadows by using shadow puppets. They could extend their experience of light by looking a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water, and coloured filters (they do not need to explain why these phenomena occur).

SRE

Objectives from PSHE map:

Describe how a baby develops from conception through the nine months of pregnancy, and how it is born.

Recognise how I feel when I reflect on becoming a teenager and how I feel about the development and birth of a baby.

Science Project/challenge

Pupils might work scientifically by:

Planning different types of scientific enquires to answer questions, including recognising and controlling variables where necessary

Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate

Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs

Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations

Using test results to make predictions to set up further comparative and fair tests

Week 1

WALT: understand how we see light

WALT:

Week 2

WALT: understand how light travels

WALT:

Week 3

WALT: understand light and shadows

WALT:

Week 4

WALT: understand what refraction is

WALT:

Week 5

WALT: understand how refraction creates colours

WALT:

Week 6	WALT: understand light and shadows	WALT:
Sticky knowledge	<ul style="list-style-type: none"> • How does light travel? • Draw a diagram to show how light allows us to see things. • What are the differences between diffuse and specular reflection? • Why might a pencil or other object appear crooked when placed in water? • Why do we see a rainbow when light is refracted? 	Base questions on previous lessons. Not needed for last term/previous learning.

Tier 1 (every lesson words)

Question sort group compare differences Answer similarities describe measurements tests Observe record secondary sources, comparative tests, fair tests, careful, accurate, observations, equipment, gather, measure, record, data, evidence, results, keys, bar charts, table, results, conclusions, predictions, support, thermometers

Observing independent variable, dependent variable, controlled variable, accuracy, precision, degree of trust, classification keys, scatter graphs, line graphs, causal relationships, support/refute, data logger Equipment Identify

Tier 2 (topic linked words)

fish, amphibians, reptiles, birds, mammals, insects, spiders, snails, worms, flowering, non-flowering, offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, species, fossils, fossil record, organism, adaptation, species, environment, conditions, unique, camouflage, heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, water, muscles, diet, exercise, drugs, lifestyle, Light, straight lines, light rays, reflect, angle, object, eye, brain, signal, reflect, straight, reflect, light, travel, darkness, shadows, Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage

<p><u>Tier 3 (technical, low frequency words)</u> <u>Autumn –living things and their habitats and Evolution</u></p> <p>Vertebrate, invertebrate, classification, evolution, common ancestor, DNA, chromosome, genes, adaptation, inherited, variation,</p>	<p><u>Spring – animals including humans and Electricity</u></p> <p>circulatory system, oxygen, carbon dioxide, respiratory system</p> <p>Voltage, switch, cell, battery</p>	<p><u>Summer – Light</u></p> <p>illuminate, ambient, specular, diffuse, incident ray, scatter, transparent, absorb, refraction</p>
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