

SCIENCE

CURRICULUM MAP

Inspiring curiosity • Developing knowledge • Shaping the future

OUR GOLDEN THREADS



PHYSICS

Understanding how the universe works through energy, forces, motion, light and sound.



BIOLOGY

Exploring living things, their structure, processes, evolution and how they interact with their environment.



CHEMISTRY

Investigating the properties of materials, how they change and the reactions that shape our world.



EARTH SCIENCE

Understanding Earth and beyond, including the planet, atmosphere, space and the systems that sustain life.



LEADERSHIP



ORGANISATION



RESILIENCE



INITIATIVE



COMMUNICATION



KINDNESS

Year 3 Science Medium Term plans

<u>Year 3</u>	<u>Plants</u> <u>Plant Detectives</u>	<u>Animals including Humans</u> <u>Healthy Bodies</u>	<u>Magnetism</u> <u>Magnet Masters</u>	<u>Lights</u> <u>Light Explorers</u>	<u>Rocks</u> <u>Rock Investigators</u>
Prior learning	• Can identify the basic parts of a plant. • Knows that plants grow from seeds and bulbs. • Knows that plants need water, light and a suitable temperature to grow. • Can observe and describe plant growth over time.	• Knows that animals have offspring which grow into adults. • Knows that living things need food, water and air to survive. • Understands the importance of a healthy diet, exercise and hygiene. • Can identify the basic needs of animals and humans.	• Can compare and describe the properties of everyday materials. • Knows that materials can be changed by squashing, bending, twisting and stretching. • Can carry out simple comparative investigations. • Can use observations to answer scientific questions.	• Can observe and describe the weather and seasonal changes. • Knows that the Sun provides light during the day. • Can make observations and identify patterns. • Can carry out simple investigations safely.	• Can identify and compare everyday materials. • Knows that materials have different properties. • Can observe, compare and classify objects. • Can carry out simple tests and record findings.
Year 3	Topic: Plants Enquiry Question How do plants grow, survive and reproduce?	Topic: Animals Including Humans Enquiry Question How do nutrition, skeletons and muscles help animals survive?	Topic: Forces and Magnets Enquiry Question How do forces and magnets affect the world around us?	Topic: Light Enquiry Question How does light help us see and create shadows?	Topic: Rocks Enquiry Question How can we identify, classify and explain different rocks?

Explore 1	WALT: identify and describe the functions of the different parts of flowering plants. Children: Explore the structure of flowering plants. Identify roots, stems, trunks, leaves and flowers. Discuss the job of each plant part. Compare different flowering plants. Vocabulary: root, stem, trunk, leaf, flower, function	WALT: identify that animals, including humans, need nutrition to survive. Children: Explore why animals need food. Discuss how food provides energy, growth and repair. Compare how animals obtain food. Identify that animals cannot make their own food. Vocabulary: nutrition, energy, growth, repair, survive	WALT: compare how things move on different surfaces. Children: Explore how objects move across different surfaces. Compare movement on carpet, wood, plastic and other materials. Investigate which surfaces create more resistance. Record observations and identify patterns. Vocabulary: force, movement, friction, surface, resistance	WALT: recognise that light is needed to see things and that darkness is the absence of light. Children: Explore different light sources. Compare light and dark environments. Investigate why we need light to see. Identify natural and artificial light sources. Vocabulary: light, dark, light source, natural, artificial	WALT: compare and group different kinds of rocks based on their appearance. Children: Explore a variety of rocks. Observe colour, texture, shape and size. Compare similarities and differences. Group rocks using observable features. Vocabulary: rock, texture, colour, appearance, classify
Explore 2	WALT: explain how roots and stems help plants survive. Children: Investigate how roots absorb water and nutrients. Explore how stems support plants. Observe water transport in plants. Explain how roots and stems work together. Vocabulary:	WALT: identify the main food groups and explain why a balanced diet is important. Children: Explore the different food groups. Sort foods into categories. Discuss the role of each food group. Explain why humans need a balanced diet. Vocabulary:	WALT: recognise that some forces require contact and others can act at a distance. Children: Investigate pushes and pulls. Compare contact and non-contact forces. Explore examples of forces in everyday life. Discuss how magnetic forces are different. Vocabulary:	WALT: investigate how light is reflected from surfaces. Children: Explore a range of reflective and non-reflective materials. Observe how light bounces from surfaces. Compare reflective materials. Explain how reflection helps us see objects. Vocabulary:	WALT: compare and group rocks based on their physical properties. Children: Investigate hardness and permeability. Test different rock samples. Compare results. Group rocks according to their properties. Vocabulary: hardness, permeability, property, absorb, durable

	absorb, nutrients, transport, support, anchor	carbohydrates, protein, fat, vitamins, minerals, fibre, balanced diet	force, contact force, non-contact force, push, pull	reflect, reflection, surface, reflective, non-reflective	
Investigate 1	WALT: explain how leaves help plants make food. Children: Explore the role of leaves. Investigate what plants need to make food. Discuss the process of photosynthesis. Observe leaf structures closely. Vocabulary: photosynthesis, sunlight, carbon dioxide, water, nutrition	WALT: compare the diets of herbivores, carnivores and omnivores. Children: Investigate different animal diets. Sort animals into groups. Compare how diets meet animals' needs. Explain differences between herbivores, carnivores and omnivores. Vocabulary: herbivore, carnivore, omnivore, nutrition, diet	WALT: observe how magnets attract and repel each other and attract some materials but not others. Children: Explore a range of magnets. Investigate attraction and repulsion. Test different materials. Record which materials are magnetic. Vocabulary: magnet, attract, repel, magnetic, non-magnetic	WALT: investigate how light behaves when it reflects from mirrors and passes through transparent materials. Children: Use mirrors to explore reflection. Investigate transparent, translucent and opaque materials. Compare how light behaves with different materials. Record observations. Vocabulary: mirror, transparent, translucent, opaque, transmission	WALT: identify and classify rocks using grains, crystals and fossils. Children: Use hand lenses to examine rocks closely. Identify grains, crystals and fossils. Compare rock samples. Classify rocks using observations. Vocabulary: grain, crystal, fossil, classify, observe

Investigate 2	WALT: identify the requirements of plants for life and growth. Children: Investigate what plants need to survive. Compare plants growing in different conditions. Discuss air, water, light, nutrients and space. Record observations and predictions. Vocabulary: air, water, light, nutrients, growth	WALT: identify the functions of the human skeleton. Children: Explore the human skeleton. Identify major bones. Investigate how skeletons support, protect and help movement. Compare animals with and without skeletons. Vocabulary: skeleton, support, protection, movement, bone	WALT: compare and group materials according to whether they are magnetic. Children: Test a variety of everyday objects. Sort objects into magnetic and non-magnetic groups. Identify common magnetic materials. Explain findings using evidence. Vocabulary: magnetic, non-magnetic, iron, steel, material	WALT: recognise that sunlight can be dangerous and explain how to protect our eyes. Children: Investigate the Sun as a light source. Discuss the dangers of looking directly at the Sun. Explore ways to stay safe in sunlight. Create a Sun safety guide. Vocabulary: sunlight, UV, protect, sunglasses, shade	WALT: explain how fossils are formed. Children: Explore examples of fossils. Investigate the fossilisation process. Sequence the stages of fossil formation. Explain how fossils provide evidence of the past. Vocabulary: fossil, fossilisation, sediment, evidence, extinct
Investigate 3	WALT: investigate how water is transported within plants. Children: Carry out a coloured water experiment. Observe water moving through stems. Record observations over time. Explain how water travels from roots to leaves. Vocabulary: transport, stem, roots, leaves, transpiration	WALT: explain how muscles and skeletons work together to create movement. Children: Explore how muscles are attached to bones. Observe movement in different parts of the body. Investigate antagonistic muscle pairs. Explain how muscles help us move. Vocabulary:	WALT: explain that magnets have poles and investigate how poles affect attraction and repulsion. Children: Explore north and south poles. Investigate how poles interact. Observe attraction and repulsion. Identify patterns. Vocabulary: pole, north pole, south pole, attract, repel	WALT: explain how shadows are formed. Children: Investigate how shadows are created. Explore the relationship between light sources and objects. Observe shadows made by different objects. Record findings. Vocabulary: shadow, block, light source, solid, silhouette	WALT: recognise and compare sedimentary, igneous and metamorphic rocks. Children: Explore the three main rock types. Compare how each type is formed. Identify the features of each rock group. Sort rocks into categories. Vocabulary: sedimentary, igneous, metamorphic, magma, heat

		muscle, tendon, movement, contract, relax			
Reflect 1	WALT: explain how plants reproduce and continue their life cycle. Children: Explore the role of flowers. Investigate pollination and seed formation. Compare different methods of seed dispersal. Answer the enquiry question using scientific evidence. Vocabulary: pollination, seed formation, seed dispersal, reproduction, life cycle	WALT: explain how nutrition, skeletons and muscles help animals survive and thrive. Children: Revisit learning from the unit. Compare different animals. Discuss how body systems work together. Answer the enquiry question using scientific evidence. Vocabulary: nutrition, skeleton, muscle, survive, thrive	WALT: use knowledge of magnets and forces to explain how magnets are used in everyday life. Children: Investigate the everyday uses of magnets. Explain how magnetic properties make magnets useful. Apply knowledge to solve problems. Answer the enquiry question using scientific evidence. Vocabulary: magnetism, force, attraction, repulsion, application	WALT: investigate and explain how shadows change size. Children: Explore how moving a light source affects a shadow. Identify patterns in shadow size. Make predictions and test ideas. Answer the enquiry question using scientific evidence. Vocabulary: distance, pattern, prediction, shadow, evidence	WALT: explain how rocks change over time and how soils are formed. Children: Investigate weather and erosion. Explore how soils are made from rocks and organic matter. Compare different soil types. Answer the enquiry question using scientific evidence. Vocabulary: weathering, erosion, soil, organic matter, environment
Assessment	Enquiry Question How do plants grow, survive and reproduce? Children will demonstrate understanding by:	Enquiry Question How do nutrition, skeletons and muscles help animals survive?	Enquiry Question How do forces and magnets affect the world around us? Children will demonstrate understanding by:	Enquiry Question How does light help us see and create shadows? Children will demonstrate understanding by:	Enquiry Question How can we identify, classify and explain different rocks? Children will demonstrate understanding by:

	Identifying the functions of plant parts. Explain what plants need to grow. Describe how water is transported within plants. Explaining pollination and seed formation. Comparing different methods of seed dispersal.	Children will demonstrate understanding by: Explaining why animals need food. Identifying the main food groups. Comparing animal diets. Describing the functions of skeletons. Explaining how muscles and skeletons work together.	Explain how surfaces affect movement. Identifying contact and non-contact forces. Recognising magnetic and non-magnetic materials. Explaining attraction and repulsion. Describing the role of magnetic poles. Explaining everyday uses of magnets.	Identifying light sources. Explaining that darkness is the absence of light. Describe how light reflects from surfaces. Explain how shadows form. Identifying patterns in shadow size. Explain how to stay safe in sunlight.	Comparing and grouping rocks. Describe physical properties of rocks. Identifying fossils, grains and crystals. Explain how fossils form. Recognising sedimentary, igneous and metamorphic rocks. Explain how weathering and erosion change rocks.
End Point	Children understand how plants grow, survive and reproduce by exploring plant structures, requirements for growth, water transport and life cycles. By the end of this unit, children will understand the functions of the different parts of flowering plants and explain how plants obtain water and nutrients, make food and reproduce. They will be able to describe pollination, seed formation and seed dispersal as part of a plant's life cycle.	Children understand that animals, including humans, need nutrition to survive and that skeletons and muscles work together to support, protect and enable movement. By the end of this unit, children will understand that animals need nutrition for energy, growth and repair. They will be able to explain the functions of skeletons and muscles and describe how these systems work together to help animals survive, grow and move.	Children understand how forces affect movement and how magnets work. They can identify magnetic materials, explain attraction and repulsion and recognise how magnets are used in everyday life. By the end of this unit, children will understand that forces affect how objects move and that friction can slow movement. They will explain how magnets create non-contact forces, identify magnetic materials and use their knowledge of poles to predict whether magnets will attract or repel. They will also recognise how magnets are used in everyday life.	Children understand that light is needed to see, that light reflects from surfaces and that shadows are formed when light is blocked. They can explain how shadows change size and how to stay safe in sunlight. By the end of this unit, children will understand that light is needed for sight and that darkness occurs when light is absent. They will explain how light reflects from surfaces, how mirrors work and how shadows are formed and change size. They will also understand how to protect their eyes from harmful sunlight.	Children identify, compare and classify rocks using their appearance and physical properties. They understand how fossils form, recognise the three main rock types and explain how weathering contributes to soil formation. By the end of this unit, children will be able to identify and classify different rocks using their appearance and properties. They will explain how fossils are formed, recognise the three main rock types and understand that rocks change over time through weathering and erosion. They will also know that soils are made from rocks and organic matter.

Substantive Knowledge (What children need to remember)	Children will know: Roots absorb water and nutrients and anchor the plant. Stems transport water and nutrients around the plant. Leaves make food through photosynthesis. Flowers are responsible for reproduction. Plants need air, water, light, nutrients and space to grow. Different plants have different requirements for growth. Water travels through the stem from roots to leaves. Pollination leads to seed formation. Seeds are dispersed in different ways, including wind, water and animals.	Children will know: Animals need food for energy, growth and repair. Animals cannot make their own food. Humans need a balanced diet containing different food groups. Herbivores, carnivores and omnivores have different diets. Skeletons provide support, protection and movement. Humans have a skeleton made up of many bones. Muscles are attached to bones. Muscles and skeletons work together to allow movement.	Children will know: A force is a push or a pull. Different surfaces affect movement in different ways. Friction is a force that slows movement. Some forces require contact and some act at a distance. Magnetic forces are non-contact forces. Magnets attract some materials, including iron and steel. Magnets have two poles: north and south. Opposite poles attract and like poles repel. Magnets are used in many everyday objects.	Children will know: Light is needed for us to see things. Darkness is the absence of light. Some objects are light sources and some reflect light. Light reflects from shiny surfaces and mirrors. Transparent materials allow light to pass through. Opaque materials block light. Sunlight can damage eyes if viewed directly. Shadows are formed when light is blocked by an opaque object. The size of a shadow changes when the distance between the light source and object changes.	Children will know: Rocks can be compared using appearance and physical properties. Different rocks have different levels of hardness and permeability. Some rocks contain fossils, grains or crystals. Fossils are formed when living things become trapped within rock. There are three main types of rock: sedimentary, igneous and metamorphic. Rocks change over time through weathering and erosion. Soils are made from rocks and organic matter. Different soils have different properties.
Disciplinary Knowledge (Thinking like a scientist)	Children will: Observe plants closely. Ask scientific questions. Carry out comparative and observational investigations. Observe changes over time. Gather and record data. Identify patterns. Use evidence to answer questions.	Children will: Ask scientific questions. Observe and compare. Identify and classify. Gather and record data. Use evidence to answer questions. Recognise patterns. Communicate findings using scientific vocabulary.	Children will: Ask scientific questions. Observe closely and systematically. Carry out comparative tests. Identify and classify materials. Gather and record data. Identify patterns. Make predictions. Use evidence to answer questions.	Children will: Ask scientific questions. Make observations. Carry out comparative investigations. Identify patterns. Make predictions. Gather and record data. Use evidence to answer questions.	Children will: Observe closely using hand lenses and simple equipment. Ask scientific questions. Compare and classify rocks. Carry out simple tests. Gather and record data. Identify patterns. Use evidence to answer questions.

	Communicate findings using scientific vocabulary.		Communicate findings using scientific vocabulary.	Communicate findings using scientific vocabulary.	Communicate findings using scientific vocabulary.
Adaptive Teaching	Support Labelled plant diagrams. Vocabulary mats. Practical investigations with real plants. Structured recording sheets. Adult support during experiments. Challenge Explain why different plants need different growing conditions. Design their own plant investigation. Compare plant adaptations. Use scientific vocabulary independently. Justify conclusions using evidence.	Support Labelled skeleton diagrams. Food group sorting activities. Vocabulary mats. Practical movement investigations. Adult-guided discussion. Challenge Compare different animal skeletons. Explain why different animals need different diets. Investigate how muscles work in pairs. Use scientific vocabulary independently. Justify conclusions using evidence.	Support Hands-on exploration with magnets. Vocabulary mats and visual aids. Structured recording sheets. Adult support during investigations. Magnetic and non-magnetic sorting activities. Challenge Predict outcomes before testing. Design their own magnet investigation. Explain magnetic behaviour using scientific vocabulary. Compare multiple materials independently. Justify conclusions using evidence.	Support Practical demonstrations using torches and mirrors. Vocabulary mats and visual aids. Structured recording sheets. Adult support during investigations. Real-life examples of reflective materials. Challenge Explain patterns in shadow size. Design their own shadow investigation. Compare reflective and non-reflective materials independently. Use scientific vocabulary accurately and independently. Justify conclusions using evidence.	Support Rock identification cards. Vocabulary mats and labelled diagrams. Adult support during investigations. Structured observation sheets. Real rock and fossil samples for hands-on exploration. Challenge Explain why rocks are grouped together. Compare rock properties using scientific language. Design their own rock classification system. Make links between rock properties and uses. Justify conclusions using evidence from investigations.

Assessment for Learning	Assessment for Learning Throughout the unit, teachers will assess understanding through: Plant labelling activities. Water transport investigations. Discussion and questioning. Observation records. Retrieval quizzes. Comparative investigations. End-of-unit reflection activities.	Assessment for Learning Throughout the unit, teachers will assess understanding through: Food group sorting activities. Skeleton labelling tasks. Discussion and questioning. Practical investigations into movement. Retrieval quizzes. Observation records. End-of-unit reflection activities.	Assessment for Learning Throughout the unit, teachers will assess understanding through: Friction investigations. Magnetic material sorting activities. Prediction tasks. Discussion and questioning. Observation records. Retrieval quizzes. End-of-unit reflection activities.	Assessment for Learning Throughout the unit, teachers will assess understanding through: Shadow investigations. Reflection experiments. Discussion and questioning. Observation records. Prediction activities. Retrieval quizzes. End-of-unit reflection activities.	Assessment for Learning Throughout the unit, teachers will assess understanding through: Rock sorting and classification tasks. Fossil investigations. Discussion and questioning. Observation records. Comparative testing activities. Retrieval quizzes. End-of-unit reflection activities.
National Curriculum	Pupils should be taught to: Identify and describe the functions of different parts of flowering plants: roots, stems, leaves and flowers. Explore the requirements of plants for life and growth (air, light, water, nutrients from soil and room to grow) and how they vary from plant to plant. Investigate the way in which water is transported within plants. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	Pupils should be taught to: Identify that animals, including humans, need the right types and amount of nutrition and that they cannot make their own food. Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	Pupils should be taught to: Compare how things move on different surfaces. Notice that some forces need contact between two objects, but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet. Describe magnets as having two poles. Predict whether two magnets will attract or repel each other,	Pupils should be taught to: Recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the Sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a light source is blocked by an opaque object. Find patterns in the way that the size of shadows change.	Pupils should be taught to: 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.

			depending on which poles are facing.		
--	--	--	--------------------------------------	--	--

WORKING SCIENTIFICALLY PROGRESSION

Developing scientific enquiry skills from curious explorers to confident scientists



EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
 Explore and Notice - Explore the world around them. - Use their senses to make observations. - Notice changes over time. - Talk about what they have found out. 	 Observe and Identify - Observe closely using simple equipment. - Identify and name what they see. - Ask simple questions. - Record observations in pictures and words. 	 Compare and Classify - Compare and group objects and materials. - Look for similarities and differences. - Use simple tests to help answer questions. - Record results in simple charts and tables. 	 Predict and Investigate - Ask relevant questions. - Make predictions based on prior knowledge. - Plan and carry out simple tests. - Record and present findings using tables and diagrams. 	 Measure and Record - Take accurate measurements using standard units. - Use a range of equipment. - Record results clearly using tables, graphs and diagrams. - Identify patterns and relationships. 	 Plan and Enquire - Plan fair tests and comparative investigations. - Identify variables and control fairly. - Collect and analyse data. - Draw conclusions based on evidence. 	 Analyse and Evaluate - Plan and carry out complex enquiries. - Evaluate methods and make improvements. - Analyse and interpret data confidently. - Draw reasoned conclusions and explain why. 

OUR WORKING SCIENTIFICALLY SKILLS



ASK QUESTIONS

Thinking of questions and deciding what to find out.



MAKE PREDICTIONS

Using what we already know to guess what might happen.



SET UP TESTS

Planning simple tests to find answers fairly.



OBSERVE & MEASURE

Using our senses and equipment to make careful observations.



RECORD DATA

Writing down and showing what we find out.



ANALYSE

Looking for patterns and explaining our results.

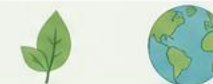


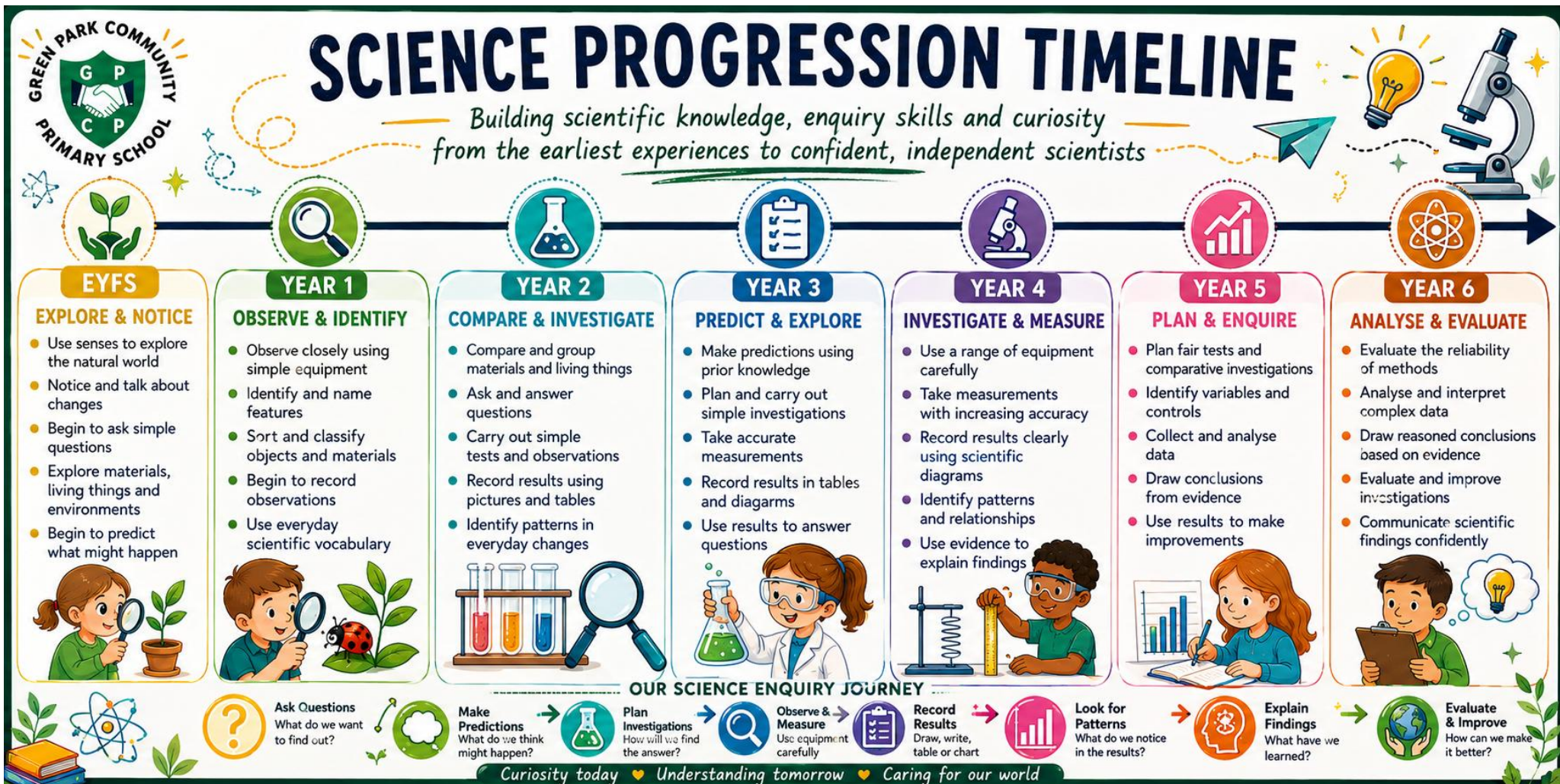
EVALUATE

Deciding what worked well and how we can improve.



Curiosity today • Understanding tomorrow • Shaping the future







WORKING SCIENTIFICALLY PROGRESSION

— Developing scientific enquiry skills from early explorers to confident scientists —



	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
ASKING QUESTIONS	Ask simple questions about what they notice.	Ask simple questions about what they observe.	Ask questions about what they want to find out.	Ask relevant questions to find out more.	Ask scientific questions about how and why things happen.	Ask questions that can be investigated scientifically.	Formulate scientific questions and define problems clearly.
MAKING PREDICTIONS	Begin to make guesses about what might happen.	Make simple predictions based on what they already know.	Make predictions using simple scientific knowledge.	Make predictions and give reasons for them.	Use scientific knowledge to make predictions.	Make predictions using evidence and scientific understanding.	Use a range of evidence to make predictions and justify them.
PLANNING INVESTIGATIONS	Explore and find out about things.	With support, decide how to find out about something.	Decide how to find out and what to observe.	Plan simple investigations to answer questions.	Plan investigations with more than one step.	Plan fair tests identifying variables to change and measure.	Plan and refine investigations ensuring they are fair and valid.
OBSERVING & MEASURING	Use their senses to make observations.	Observe closely using simple equipment.	Make careful observations and simple measurements.	Take accurate measurements using a range of equipment.	Take a range of measurements using standard units.	Take precise measurements using appropriate equipment.	Take precise and repeatable measurements with accuracy.
RECORDING DATA	Talk about what they have found.	Record observations in pictures, words or simple charts.	Record data in simple tables and charts.	Record results in tables, charts and simple diagrams.	Record results clearly using tables, charts, diagrams and graphs.	Choose the most appropriate way to record data.	Record data systematically using a range of methods.
ANALYSING DATA	Talk about what happened.	Say what they found out.	Look at results and say what they show.	Look for patterns in results.	Identify patterns and relationships.	Compare and analyse results.	Analyse results identifying trends and relationships.
CONCLUSION & EVALUATION	Begin to understand what they found out.	Say what they found out and how they found it out.	Say what they found out and if it was what they thought.	Draw simple conclusions.	Draw conclusions using results and evidence.	Draw conclusions explaining whether they were right.	Evaluate methods and suggest improvements for the future.

OUR SCIENCE GOLDEN THREADS



WORKING SCIENTIFICALLY
Asking questions, investigating and evaluating to discover answers.



SCIENTIFIC KNOWLEDGE
Building knowledge and understanding of key scientific concepts.



UNDERSTANDING THE WORLD
Exploring the natural world and how science helps us make sense of it.



SUSTAINABILITY & RESPONSIBILITY
Making choices that help protect our planet and living things.



CURIOSITY & RESILIENCE
Being curious, persevering and learning from our experiences.



Curiosity today • Understanding tomorrow • Shaping the future



SCIENTIFIC ENQUIRY TYPES

Different types of enquiry help scientists answer questions about the world around us.



ENQUIRY TYPE	OBSERVING OVER TIME	COMPARATIVE TESTING	FAIR TESTING	IDENTIFYING & CLASSIFYING	PATTERN SEEKING	RESEARCH USING SECONDARY SOURCES
WHAT DOES IT INVOLVE?	 Observing changes that happen over a period of time.	 Comparing two or more things to see what is the same or different.	 Changing one thing at a time to see what effect it has.	 Sorting, grouping and naming things based on their features.	 Looking for patterns and relationships in data or observations.	 Finding out information from books, websites and other sources.
EXAMPLE	 Observing how a seed grows into a plant.	 Comparing which material is best for an umbrella.	 Testing which surface makes a toy car travel the furthest.	 Classifying animals as mammals, birds or reptiles.	 Recording daily weather and looking for patterns over a week.	 Finding out about planets using books or the internet.
PROGRESSION THROUGH THE YEARS	• EYFS – Notice changes in the natural world. • Y1 – Observe changes in plants and animals. • Y2 – Observe changes in materials over time. • Y3 – Observe seasonal changes. • Y4 – Observe patterns in sound or light. • Y5 – Observe changes in environments. • Y6 – Observe changes in the body or habitats.	• EYFS – Compare amounts and objects. • Y1 – Compare materials and animals. • Y2 – Compare how materials change. • Y3 – Compare the effects of forces. • Y4 – Compare the brightness of bulbs. • Y5 – Compare life cycles. • Y6 – Compare the effects of exercise.	• EYFS – Explore and talk about what they notice. • Y1 – Test simple ideas. • Y2 – Test which material is the strongest. • Y3 – Test how magnets work best. • Y4 – Test circuits and sound. • Y5 – Test materials and forces. • Y6 – Test how exercise affects heart rate.	• EYFS – Identify and name objects and materials. • Y1 – Identify animals and plants. • Y2 – Classify materials and living things. • Y3 – Classify rocks and plants. • Y4 – Classify living things in groups. • Y5 – Use keys to classify living things. • Y6 – Classify using scientific keys.	• EYFS – Notice patterns in the world. • Y1 – Notice patterns in weather and seasons. • Y2 – Look for patterns in data. • Y3 – Identify patterns in results. • Y4 – Look for patterns in sound and light. • Y5 – Identify patterns in habitats. • Y6 – Look for trends in data and results.	• EYFS – Listen to stories and talk about facts. • Y1 – Find simple information. • Y2 – Use books to find facts. • Y3 – Research using simple sources. • Y4 – Use sources to answer questions. • Y5 – Use multiple sources to research. • Y6 – Research and use evidence.



WHY IT MATTERS

Scientists use these enquiry types every day to explore, discover and understand the world. By practising them, we become curious, confident and capable scientists!



Be curious



Ask questions



Test ideas



Find patterns



Share findings



Understand our world

Remember:

Good scientists use more than one type of enquiry!



Curiosity today • Understanding tomorrow • Shaping the future





SCIENCE VOCABULARY PROGRESSION

Building scientific language step by step



THEME	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
LIVING THINGS	- animal - plant - grow - life - healthy	- mammal - bird - fish - reptile - offspring - body	- survive - baby - adult - food - senses - exercise	- skeleton - muscles - nutrition - herbivore - carnivore - omnivore	- teeth - digestion - food chain - producer - consumer - habitat	- life cycle - reproduction - metamorphosis - puberty - organ - function	- circulatory system - vascular - inheritance - evolution - adaptation - species
PHYSICAL PROCESSES	- push - pull - move - fast - slow	- light - dark - sound - loud - quiet	- change - float - sink - heat - cold	- force - magnet - attract - repel - friction	- vibration - volume - pitch - electricity - circuit	- gravity - air resistance - water resistance - mechanism - mechanical	- current - resistance - voltage - component - symbol
MATERIALS	- material - hard - soft - rough - smooth	- wood - plastic - metal - glass - waterproof	- object - material - squash - bend - twist	- opaque - transparent - absorbent - magnetic - non-magnetic	- solid - liquid - gas - melting - freezing	- dissolve - solution - mixture - separate - thermal conductor	- irreversible - reversible - conductor - insulator - property
EARTH & SPACE	- weather - sun - rain - wind - season	- spring - summer - autumn - winter - day - night	- hot - cold - cloudy - storm - rainbow	- sun - moon - star - planet - weather	- planet - orbit - rotation - shadow - eclipse	- solar system - Earth - Moon - Sun - orbit	- galaxy - universe - axis - time zone - latitude/longitude
WORKING SCIENTIFICALLY	- observe - notice - look - talk - question	- observe - identify - compare - sort - record	- compare - test - predict - measure - results	- investigate - record - evidence - pattern - conclusion	- measure - data - table - graph - explain	- fair test - variable - accuracy - conclusion - evaluate	- reliability - valid - hypothesis - analyse - evaluate

OUR SCIENCE GOLDEN THREADS



WORKING SCIENTIFICALLY

Asking questions, investigating, observing, measuring, recording and evaluating.



SCIENTIFIC KNOWLEDGE

Building knowledge and understanding of key scientific concepts.



UNDERSTANDING THE WORLD

Exploring the world around us and how science helps us make sense of it.



SUSTAINABILITY & RESPONSIBILITY

Making choices that help protect our planet and living things.



CURIOSITY & RESILIENCE

Being curious, persevering and learning from our experiences.



Curiosity today • Understanding tomorrow • Shaping the future





SCIENCE NATIONAL CURRICULUM COVERAGE MAP

Building scientific knowledge and skills across the primary years



 OUR AIM To ensure all pupils develop the scientific knowledge and working scientifically skills they need to understand the world and make a positive impact on the future.							
	EYFS (Understanding the World)	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	- Explore the natural world around them. - Know some similarities and differences between living things.	- Identify and name a variety of common animals. - Identify and name common plants. - Identify, name, draw and label basic plant parts.	- 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. - Describe how animals obtain their food. - Describe how plants grow and stay healthy.	- Identify and describe functions of plant parts. - Explore requirements of plants for life and growth. - Describe life cycles of plants and animals. - Describe the importance of nutrition for humans and animals. - Describe the simple functions of the basic parts of the digestive system.	- Recognise that living things can be grouped in a variety of ways. - Explore and use classification keys. - Recognise that environments can change and pose dangers. - Describe the simple functions of the basic parts of the digestive system. - Identify different types of teeth in humans.	- Describe the life process of reproduction in some plants and animals. - Describe the changes as humans develop to old age.	- Describe the circulatory system. - Describe the impact of diet, exercise, drugs and lifestyle. - Describe the ways in which nutrients and water are transported. - Describe how living things are classified. - Understand evolution and inheritance.
	 BIOLOCS (Living things and their habitats)	- Explore how things work. - Use all their senses in hands-on exploration.	- Distinguish between an object and the material from which it is made. - Describe the simple physical properties of everyday materials.	- Identify and compare the suitability of a variety of everyday materials. - Find out how the shapes of solid objects can be changed.	- 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. - Describe the effects of friction.	- Identify common appliances that run on electricity. - Construct a simple electrical circuit and identify components. - Recognise that sound is produced by vibrations. - Identify how sounds travel. - Compare and group materials.	- Explain that unsupported objects fall towards the Earth because of gravity. - Identify the effects of air and water resistance. - Describe the movement of the moon relative to the Earth.
	 CHEMISTRY (Materials)	Explore a variety of materials, tools and techniques.	Identify and name a variety of everyday materials.	Describe how the shape of solid objects can be changed by squashing, bending, twisting and stretching.	- Compare and group together different kinds of rocks. - Observe and compare soils. - Describe simple properties of rocks and soils.	- Compare and group materials. - Investigate states of matter. - Observe that some materials change state.	- Know that some materials will dissolve in liquid to form a solution. - Use knowledge of solubility to separate mixtures.
	 EARTH & SPACE (Earth and space)	Talk about the features of their own environment.	- Observe changes across the four seasons. - Observe and describe weather associated with seasons.	- Observe changes across the four seasons. - Observe and describe different types of weather.	Describe the movement of the Earth, and other planets, relative to the Sun.	- Compare and group various rocks based on appearance. - Explore fossils.	- Describe the movement of the Earth and other planets. - Describe the movement of the Moon relative to Earth.
 WORKING SCIENTIFICALLY (Throughout all strands)	Explore & notice → Observe & identify → Ask & compare → Investigate & record → Measure & analyse → Plan & evaluate → Evaluate & explain						



COVERAGE STATEMENT

This map shows when key National Curriculum objectives are taught or revisited. Learning is built upon progressively each year to deepen knowledge and strengthen skills.



WORKING SCIENTIFICALLY

Asking questions, investigating, observing, measuring and evaluating.



SCIENTIFIC KNOWLEDGE

Building and connecting key scientific concepts.



UNDERSTANDING THE WORLD

Exploring the natural world and how science helps us.



SUSTAINABILITY & RESPONSIBILITY

Making choices that protect our planet and living things.



CURIOSITY & RESILIENCE

Being curious, persevering and never giving up.



WHY IT MATTERS

A strong science education inspires curiosity, builds understanding and prepares children to be informed, responsible citizens.