

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.



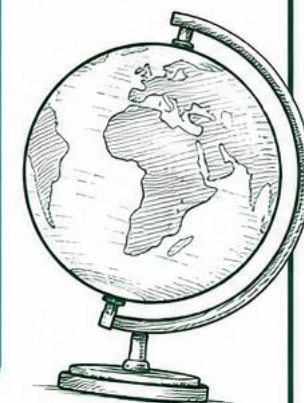
CHEMISTRY

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 6 Science Medium Term plans

<u>Year 6</u>	<u>Animals inc. Humans</u> <u>Circulation Investigators</u>	<u>Light</u> <u>Light Scientists</u>	<u>Evolution</u> <u>Evolution Explorers</u>	<u>Electricity</u> <u>Electrical Engineers</u>	<u>Living things and their habitats</u> <u>Classification Detectives</u>	<u>Scientific Enquiry</u> <u>What Happens When You Poo?</u>
Prior learning	• Knows that humans change and develop throughout their lives. • Understands that a healthy lifestyle supports good health. • Knows that nutrients are important for growth and survival. • Can explain the life processes of humans.	• Knows that light travels in straight lines. • Understands how shadows are formed. • Knows that light is reflected from surfaces. • Can carry out comparative investigations and identify patterns.	• Can compare the life cycles of plants and animals. • Knows that living things reproduce and pass on characteristics. • Understands that environments affect living things. • Can use evidence to answer scientific questions.	• Can build simple electrical circuits. • Knows the purpose of circuit components. • Can identify conductors and insulators. • Can investigate how changes affect a circuit.	• Can construct and interpret food chains. • Knows that living things depend on one another. • Can identify changes to habitats and ecosystems. • Can compare and classify living things.	• Knows the basic parts of the digestive system. • Understands that food is broken down to provide nutrients. • Knows that nutrients are absorbed into the body. • Can carry out scientific investigations and record findings.
Year 6	Topic: Animals Including Humans Enquiry Question How does the circulatory system keep us alive and healthy?	Topic: Light Enquiry Question How does light help us see the world around us?	Topic: Evolution and Inheritance Enquiry Question How have living things changed over time?	Topic: Electricity Enquiry Question How can electrical circuits be designed and improved?	Topic: Living Things and Their Habitats Enquiry Question How do scientists classify living things?	Topic: Scientific Enquiry Enquiry Question What happens to food as it travels through the digestive system?

Explore 1	WALT: identify and describe the main parts of the human circulatory system. Children: Explore the structure of the circulatory system. Identify the heart, blood vessels and blood. Investigate the functions of arteries, veins and capillaries. Explain the role of the circulatory system. Vocabulary: heart, artery, vein, capillary, blood, circulatory system	WALT: recognise that light travels in straight lines. Children: Explore a variety of light sources. Investigate how light travels using torches and practical demonstrations. Observe evidence that light travels in straight lines. Discuss how understanding light was important during WW2, including searchlights and blackout procedures. Vocabulary: light source, light ray, beam, straight line, source	WALT: recognise that living things have changed over time. Children: Explore evidence that plants and animals have changed throughout history. Investigate examples of extinct and living species. Discuss how environments influence survival. Introduce the concept of evolution. Vocabulary: evolution, adaptation, species, extinct, survive	WALT: identify and explain the components of a simple electrical circuit. Children: Revisit prior learning about circuits. Identify cells, wires, bulbs, buzzers, motors and switches. Build simple series circuits. Explain the function of each component. Vocabulary: circuit, cell, battery, bulb, motor, switch, component	WALT: describe how living things are classified into broad groups. Children: Explore the concept of classification. Identify the main groups of living things: micro-organisms, plants and animals. Compare similarities and differences between groups. Discuss why scientists classify living things. Vocabulary: classification, organism, micro-organism, plant, animal, characteristics	WALT: identify the main organs of the digestive system and explain their functions. Children: Revisit prior learning from Year 4 on digestion. Identify the mouth, oesophagus, stomach, small intestine, large intestine, rectum and anus. Explore the journey food takes through the body. Create a labelled diagram of the digestive system. Vocabulary: digestive system, mouth, oesophagus, stomach, intestine, rectum, anus
Explore 2	WALT: explain how nutrients and water are transported around the body. Children: Investigate how nutrients are absorbed.	WALT: explain that we see objects because they reflect light into our eyes. Children:	WALT: understand how fossils provide evidence of evolution. Children: Investigate fossil evidence.	WALT: investigate how the brightness of a bulb is affected by the number of cells in a circuit. Children:	WALT: classify animals into vertebrates and invertebrates. Children: Investigate the differences between vertebrates and invertebrates.	WALT: explain how food is broken down and nutrients are absorbed. Children: Investigate mechanical and chemical digestion.

	Explore how blood transports substances. Explain the movement of oxygen, nutrients and waste. Link circulation to healthy body function. Vocabulary: nutrient, oxygen, transport, absorption, circulation	Investigate reflective and non-reflective materials. Explore mirrors and reflective surfaces. Trace the journey of light from a source to an object and then to the eye. Explain how reflection allows us to see objects. Vocabulary: reflection, reflect, mirror, eye, light source	Compare fossils with modern organisms. Explore how scientists use fossils to understand the past. Discuss what fossils tell us about extinct species. Vocabulary: fossil, evidence, extinct, prehistoric, evolution	Build circuits with different numbers of cells. Observe changes in brightness. Record results. Identify patterns and explain findings. Vocabulary: brightness, voltage, cell, power, circuit	Explore the five vertebrate groups. Sort animals using observable characteristics. Justify classification decisions. Vocabulary: vertebrate, invertebrate, mammal, bird, reptile, amphibian, fish	Explore the role of saliva, stomach acid and digestive juices. Learn how nutrients enter the bloodstream. Model the digestive process using practical activities. Vocabulary: digestion, nutrient, absorption, saliva, enzyme, bloodstream
Investigate 1	WALT: investigate the effect of exercise on the circulatory system. Children: Measure pulse rates before and after exercise. Record results. Compare findings. Explain how exercise affects the body. Vocabulary: pulse, exercise, heart rate, circulation, fitness	WALT: explain how light travels from light sources to our eyes. Children: Explore different scenarios involving light and vision. Use diagrams to show the path of light. Investigate what happens when light is blocked.	WALT: explain how animals and plants adapt to their environments. Children: Investigate adaptations in a variety of habitats. Compare how different species survive. Explore structural and behavioural adaptations. Explain how adaptations improve chances of survival. Vocabulary:	WALT: investigate how components affect the performance of a circuit. Children: Compare circuits containing different components. Investigate the effect of adding bulbs, buzzers and motors. Record observations. Draw conclusions from evidence. Vocabulary:	WALT: classify plants into different groups. Children: Explore flowering and non-flowering plants. Compare characteristics of different plants. Sort plants into groups. Explain classification choices using evidence. Vocabulary: flowering plant, non-flowering plant, fern, moss, classification	WALT: investigate how nutrients and water are transported around the body. Children: Explore the link between the digestive and circulatory systems. Investigate how nutrients move from the intestines into the blood. Explain how the body uses nutrients for energy, growth and repair.

		Explain how we see objects using scientific vocabulary. Vocabulary: light path, source, object, eye, vision	adaptation, habitat, environment, survival, characteristic	component, output, circuit, performance, energy		Record findings using diagrams and explanations. Vocabulary: circulatory system, nutrient, absorption, blood, transport
Investigate 2	WALT: explain the impact of diet and lifestyle on the body. Children: Explore healthy and unhealthy lifestyles. Investigate the effects of diet. Discuss the impact of smoking, alcohol and drugs. Use evidence to explain findings. Vocabulary: lifestyle, diet, drugs, alcohol, health	WALT: investigate how shadows are formed. Children: Explore how opaque objects block light. Investigate the formation of shadows. Compare shadows created by different objects. Explain why shadows are formed using scientific reasoning. Vocabulary: shadow, opaque, block, light source, silhouette	WALT: understand how characteristics are inherited from parents. Children: Compare inherited and environmental characteristics. Investigate family traits. Explore similarities and differences between offspring and parents. Discuss inheritance in plants and animals. Vocabulary: inheritance, offspring, parent, characteristic, variation	WALT: use recognised symbols when representing circuits. Children: Learn and identify standard circuit symbols. Draw simple circuit diagrams. Match diagrams to real circuits. Explain why symbols are useful. Vocabulary: symbol, diagram, cell, lamp, motor, buzzer	WALT: use classification keys to identify living things. Children: Explore branching databases and classification keys. Use keys to identify unknown organisms. Create simple classification keys. Test their keys with others. Vocabulary: classification key, branching database, identify, characteristics	WALT: explain what happens to food that the body cannot use. Children: Investigate the role of the large intestine. Explore how water is reabsorbed into the body. Understand how waste products are formed. Discuss why waste removal is important for health. Vocabulary: waste, large intestine, water absorption, faeces, excretion

Investigate 3	WALT: use evidence to investigate how lifestyle choices affect health. Children: Analyse data and case studies. Compare different lifestyle choices. Draw conclusions from evidence. Present findings scientifically. Vocabulary: evidence, data, conclusion, health, risk	WALT: explain why shadows have the same shape as the objects that cast them. Children: Investigate the relationship between objects and their shadows. Explore how the position of a light source affects shadow size. Identify patterns. Explain observations using the idea that light travels in straight lines. Vocabulary: shadow, shape, position, pattern, light ray	WALT: explain how natural selection contributes to evolution. Children: Explore how advantageous adaptations can improve survival. Investigate simple examples of natural selection. Discuss how species change over long periods of time. Use evidence to explain evolutionary change. Vocabulary: natural selection, adaptation, survival, evolution, species	WALT: design and test an electrical circuit for a specific purpose. Children: Plan a circuit to solve a problem. Select appropriate components. Build and test their design. Evaluate effectiveness using evidence. Vocabulary: design, evaluate, test, component, circuit	WALT: compare living things from different habitats. Children: Investigate organisms from a variety of habitats. Compare similarities and differences. Present findings using charts and diagrams. Explain how classification can be subdivided further. Vocabulary: habitat, compare, classify, subgroup, diversity	WALT: carry out a scientific enquiry about digestion and healthy eating. Children: Plan and carry out an investigation linked to digestion (e.g. effect of chewing, absorbency, food groups). Collect and record data. Present findings using scientific methods. Draw conclusions using evidence. Vocabulary: investigation, evidence, conclusion, data, enquiry
Reflect 1	WALT: explain how the circulatory system keeps us alive and healthy. Children: Revisit learning from the unit.	WALT: explain how light helps us see the world around us. Children: Revisit learning from the unit.	WALT: explain how living things change over time. Children: Revisit learning from the unit. Explain how fossils, adaptation and	WALT: explain how electrical circuits can be designed and improved. Children: Revisit learning from the unit.	WALT: explain how scientists classify living things. Children: Revisit learning from the unit.	WALT: explain what happens to food as it travels through the digestive system. Children: Revisit learning from the unit.

	Explain how the circulatory system works. Discuss healthy lifestyle choices. Answer the enquiry question using scientific evidence. Vocabulary: circulation, heart, blood vessels, health	Explain reflection, vision and shadow formation. Use scientific diagrams and evidence. Answer the enquiry question using scientific understanding. Vocabulary: light, reflection, shadow, vision, source	inheritance provide evidence for evolution. Discuss how species change over time. Answer the enquiry question using scientific evidence. Vocabulary: evolution, inheritance, adaptation, fossil, species	Explain how circuits function. Evaluate different circuit designs. Answer the enquiry question using scientific evidence. Vocabulary: circuit, electricity, component, design, evaluation	Use classification keys and scientific vocabulary. Explain how living things are grouped. Answer the enquiry question using scientific evidence. Vocabulary: classification, organism, characteristics, group, species	Sequence the digestive process. Explain digestion, absorption and waste removal. Answer the enquiry question using scientific evidence. Vocabulary: digestion, absorption, nutrient, waste, digestive system
Assessment	Enquiry Question How does the circulatory system keep us alive and healthy? Children will demonstrate understanding by: Identifying the main parts of the circulatory system. Explaining how blood transports substances. Describing the effects of exercise. Explaining how lifestyle choices affect health.	Enquiry Question How does light help us see the world around us? Children will demonstrate understanding by: Explaining how light travels. Explaining how we see objects. Describing reflection. Explaining how shadows form. Explaining why shadows have the same shape as the	Enquiry Question How have living things changed over time? Children will demonstrate understanding by: Explaining what evolution is. Describing how fossils provide evidence. Explaining adaptation. Identifying inherited characteristics. Explaining how natural selection contributes to evolution.	Enquiry Question How can electrical circuits be designed and improved? Children will demonstrate understanding by: Building simple circuits. Explaining the role of circuit components. Drawing circuit diagrams using symbols. Investigating how changes affect a circuit.	Enquiry Question How do scientists classify living things? Children will demonstrate understanding by: Identifying broad groups of living things. Classifying animals and plants. Using classification keys. Comparing organisms from different habitats. Explaining classification decisions using evidence.	Enquiry Question What happens to food as it travels through the digestive system? Children will demonstrate understanding by: Identifying digestive organs. Explaining digestion. Describing nutrient absorption. Explaining waste formation and removal. Applying scientific enquiry skills.

	Using scientific evidence to support explanations.	objects that cast them.		Designing and evaluating electrical systems. By the end of this unit, children will be able to construct and explain electrical circuits, use recognised circuit symbols and evaluate how changes to a circuit affect its performance. They will apply their knowledge to design and improve circuits for specific purposes.		
End Point	Children understand how the circulatory system transports substances around the body and explain how lifestyle choices affect health. By the end of this unit, children will be able to describe the functions of the heart, blood vessels and blood, explain how nutrients and water are transported around the body and evaluate how diet, exercise and lifestyle choices affect health and wellbeing.	Children understand that light travels in straight lines and use this knowledge to explain reflection, vision and the formation of shadows. By the end of this unit, children will understand that light travels in straight lines and use this knowledge to explain how we see objects, how light is reflected and how shadows are	Children understand that living things have evolved over time and can explain how fossils, inheritance and adaptation provide evidence for evolutionary change. By the end of this unit, children will understand that living things have changed over time through evolution. They will explain how fossils provide evidence of past life, how characteristics are inherited and how adaptations help	Children understand how electrical circuits work and can design, build and evaluate circuits for different purposes.	Children understand how scientists classify living things using observable characteristics and can use classification keys to identify and group organisms. By the end of this unit, children will be able to classify living things into broad groups and use observable characteristics to justify their decisions. They will confidently use classification keys and explain how scientists organise living things to	Children understand the journey food takes through the body and explain how digestion, absorption and waste removal help keep humans healthy. By the end of this unit, children will be able to explain the complete journey of food through the digestive system. They will describe how food is broken down, how nutrients are absorbed into the bloodstream and how waste products are removed from the body.

		formed. They will apply scientific reasoning to explain everyday phenomena involving light.	organisms survive and reproduce in changing environments.		help understand biodiversity.	They will use scientific vocabulary confidently and apply enquiry skills to investigate aspects of digestion.
Substantive Knowledge (What children need to remember)	Children will know: The circulatory system is made up of the heart, blood vessels and blood. The heart pumps blood around the body. Blood transports oxygen, nutrients and water. Blood vessels carry blood to and from the heart. Exercise strengthens the circulatory system. Diet and lifestyle choices affect health. Drugs, alcohol and smoking can have harmful effects on the body.	Children will know: Light travels in straight lines. Light sources emit light. Objects are seen because they reflect light in our eyes. Light travels from a source to an object and then to the eye. Shadows are formed when light is blocked by an opaque object. Shadows have the same shape as the object that casts them. The position of a light source affects shadow size and position.	Children will know: Living things have changed over time. Fossils provide evidence of organisms that lived in the past. Characteristics can be inherited from parents. Adaptations help organisms survive in their environments. Species evolve over many generations. Natural selection increases the chance of advantageous characteristics being passed on. Environmental conditions influence survival and reproduction.	Children will know: Electrical circuits require a complete pathway. Cells provide energy to a circuit. Different components have different functions. Increasing the number of cells can affect brightness and volume. Circuit diagrams use recognised symbols. Circuits can be designed to perform specific tasks. Electrical systems can be improved through testing and evaluation.	Children will know: Living things can be classified into broad groups. Classification is based on observable characteristics. Animals can be grouped into vertebrates and invertebrates. Vertebrates can be classified as mammals, birds, reptiles, amphibians or fish. Plants can be classified into flowering and non-flowering groups. Classification keys help scientists identify organisms. Classification systems can be subdivided into increasingly specific groups. Scientists use classification to understand biodiversity.	Children will know: The digestive system breaks food down into nutrients. Digestion begins in the mouth. The stomach uses acids and enzymes to help digestion. Nutrients are absorbed in the small intestine. Nutrients enter the bloodstream and are transported around the body. Water is reabsorbed in the large intestine. Waste materials leave the body as faeces. Digestion and circulation work together to keep the body healthy.

Disciplinary Knowledge (Thinking like a scientist)	Children will: Plan investigations. Collect and record data. Interpret evidence. Identify patterns. Draw conclusions. Evaluate reliability. Present findings scientifically.	Children will: Observe carefully. Use models and diagrams. Plan and carry out investigations. Identify patterns. Use evidence to support explanations. Communicate findings using scientific vocabulary. Draw conclusions from observations.	Children will: Use evidence to support explanations. Compare and classify. Interpret scientific information. Identify patterns and relationships. Draw conclusions from evidence. Communicate findings using scientific vocabulary. Evaluate scientific ideas and theories.	Children will: Plan investigations. Carry out fair tests. Record results accurately. Identify patterns. Draw conclusions from evidence. Design and evaluate solutions. Communicate findings using scientific vocabulary.	Children will: Observe carefully. Compare and classify. Identify patterns. Use classification keys. Gather and present information. Use evidence to support decisions. Communicate findings using scientific vocabulary.	Children will: Ask scientific questions. Plan investigations. Gather and record data. Use models to explain scientific processes. Identify patterns. Draw conclusions from evidence. Communicate findings using scientific vocabulary.
Adaptive Teaching	Support Labelled diagrams. Vocabulary mats. Practical investigations. Structured recording sheets. Adult support. Challenge Interpret complex data. Evaluate evidence critically. Explain causal relationships. Justify conclusions scientifically.	Support Practical demonstrations with torches. Visual diagrams showing light paths. Vocabulary mats. Structured recording sheets. Adult-supported investigations. Challenge Explain observations using scientific reasoning. Draw accurate ray diagrams. Predict outcomes before investigations.	Support Fossil photographs and examples. Adaptation sorting activities. Vocabulary mats. Visual timelines of evolutionary change. Adult-supported discussions. Challenge Analyse complex examples of adaptation. Explain evolutionary change using evidence. Compare different species and their adaptations. Evaluate scientific evidence.	Support Pre-built circuit examples. Circuit symbol mats. Step-by-step circuit guides. Adult support during investigations. Practical demonstrations. Challenge Design increasingly complex circuits. Explain results using scientific reasoning. Evaluate the reliability of investigations. Apply knowledge to real-world problems.	Support Classification cards and sorting activities. Visual classification charts. Vocabulary mats. Adult-guided use of classification keys. Structured recording sheets. Challenge Create their own classification keys. Classify unfamiliar organisms. Explain increasingly complex classifications. Justify decisions using scientific evidence.	Support Labelled diagrams. Practical digestion models. Vocabulary mats. Sequencing activities. Adult-supported investigations. Challenge Explain links between body systems. Design independent investigations. Interpret scientific data. Evaluate evidence. Use scientific vocabulary precisely in explanations.

		Apply knowledge to unfamiliar situations. Justify conclusions using evidence.	Justify conclusions using scientific reasoning.	Justify design decisions using evidence.	Evaluate different methods of classification.	
Assessment for Learning	Assessment for Learning Pulse investigations. Discussion and questioning. Data analysis tasks. Retrieval quizzes. Vocabulary checks.	Assessment for Learning Practical investigations. Questioning and discussion. Ray diagram activities. Retrieval quizzes. Vocabulary checks. Observation records. End-of-unit reflection.	Assessment for Learning Fossil investigations. Adaptation classification activities. Discussion and questioning. Retrieval quizzes. Vocabulary checks. Evidence-based explanations. End-of-unit reflection.	Assessment for Learning Practical circuit building. Circuit diagram activities. Discussion and questioning. Retrieval quizzes. Investigation write-ups. Design evaluations. End-of-unit reflection.	Assessment for Learning Sorting and classification activities. Classification key investigations. Discussion and questioning. Retrieval quizzes. Diagram and chart creation. Vocabulary checks. End-of-unit reflection.	Assessment for Learning Digestive system labelling. Sequencing activities. Practical investigations. Discussion and questioning. Retrieval quizzes. Scientific explanations. End-of-unit reflection.
National Curriculum	Pupils should be taught to: Identify and name the main parts of the human circulatory system and describe their functions. 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	Pupils should be taught to: 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.	Pupils should be taught to: 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	Pupils should be taught to: Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in a circuit. Compare and give reasons for variations in how components function.	Pupils should be taught to: 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 should be taught to: Plan different types of scientific enquiries. Control variables where necessary. Take measurements with increasing accuracy. Record data and results using scientific diagrams and tables. Report and present findings.

	within animals, including humans.	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.	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.	Use recognised symbols when representing a simple circuit in a diagram.		Use evidence to support conclusions. Links to Animals Including Humans Pupils revisit and apply understanding of: Nutrient absorption. Transport of substances within the body. Healthy lifestyles. The interaction between body systems.
--	-----------------------------------	--	--	---	--	---

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.



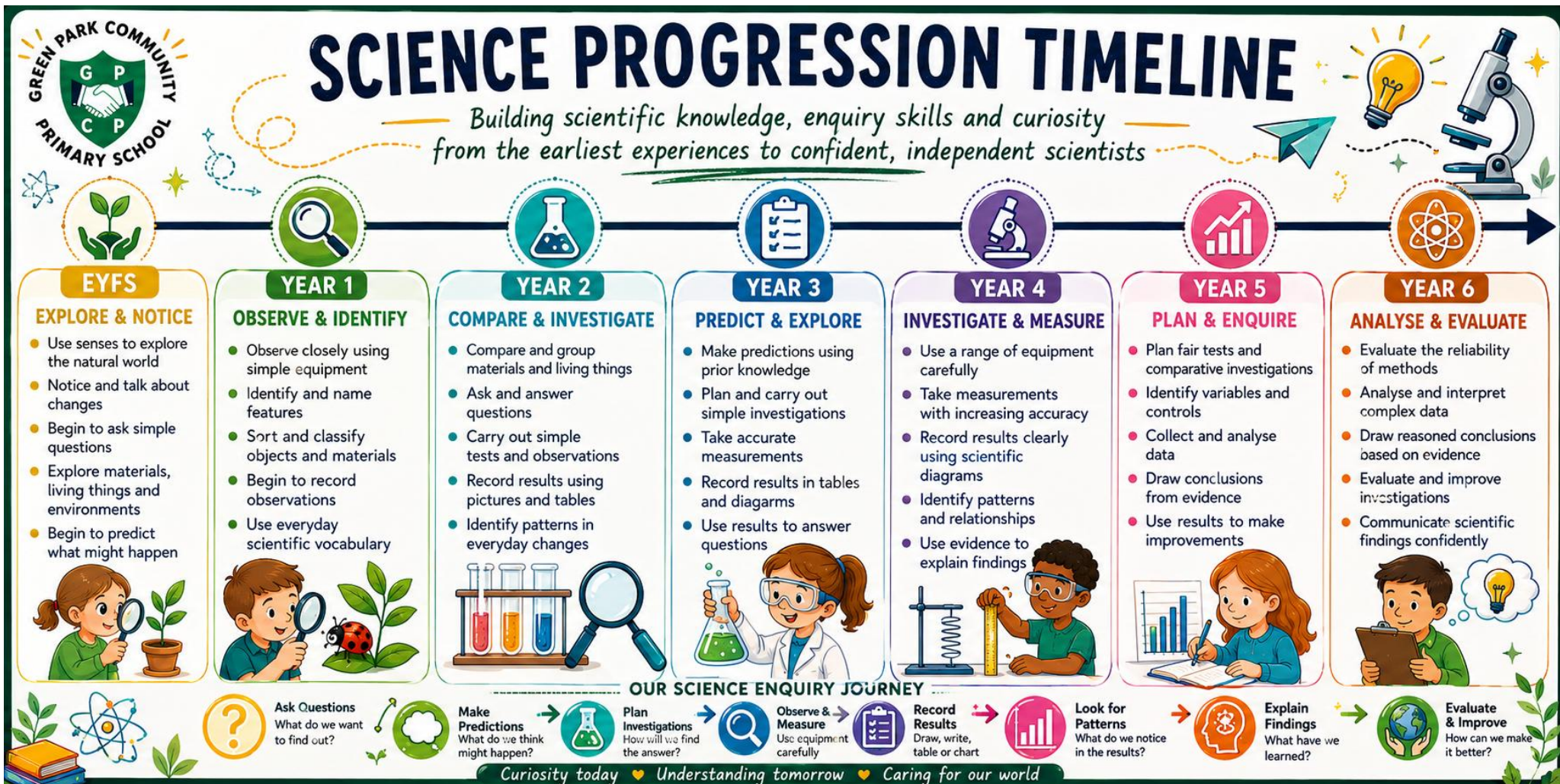
EVALUATE

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 based on their properties. - Understand how materials dissolve to form solutions. - Separate mixtures.	- 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.