GREEN PARK COMMUNITY PRIMARY SCHOOL

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 4 Science Medium Term plans

Year 4	Animals including humans Digestive Detectives	Animals including humans Food Chain Investigators	Electricity Electricity Engineers	Sound Sound Explorers	States of Matter Matter Investigators
Prior learning	• Knows that animals need nutrition to survive. • Understands the importance of a balanced diet. • Knows that humans have skeletons and muscles for support and movement. • Can identify the basic needs of animals and humans.	• Knows that plants need water, light, nutrients and space to grow. • Can identify herbivores, carnivores and omnivores. • Understands that animals depend on plants for food. • Can compare and classify living things.	• Knows that some materials are magnetic and others are not. • Can compare and classify materials by their properties. • Can carry out simple comparative investigations. • Can use observations and evidence to answer questions.	• Knows that light is needed to see and travels in straight lines. • Can make careful observations and identify patterns. • Can carry out comparative investigations. • Can use evidence to answer scientific questions.	• Can compare and classify different materials. • Knows that rocks and soils have different properties. • Can observe and compare changes in materials. • Can carry out simple scientific investigations.
Year 4 Topic	Topic: Animals Including Humans Enquiry Question How does food help humans and animals survive?	Topic: Living Things and Their Habitats (Food Chains) Enquiry Question How are living things connected through food chains?	Topic: Electricity Enquiry Question How do electrical circuits work?	Topic: Sound Enquiry Question How are sounds made and how do they travel?	Topic: States of Matter Enquiry Question How do materials change between solids, liquids and gases?
Explore 1	WALT: identify the main parts of the human digestive system. Children: Explore the journey food takes through the body.	WALT: Recognise that living things can be grouped in a variety of ways. Children: Explore a range of plants and animals from local and wider environments.	WALT: identify common appliances that run on electricity. Children: Explore electrical appliances found at home and school.	WALT: identify how sounds are made and recognise that sounds are caused by vibrations. Children:	WALT: compare and group materials according to whether they are solids, liquids or gases. Children: Explore a range of materials. Identify solids, liquids and gases.

	Identify the mouth, oesophagus, stomach, small intestine and large intestine. Label a diagram of the digestive system. Discuss the purpose of digestion. Vocabulary: digestive system, mouth, oesophagus, stomach, intestine	Compare similarities and differences between living things. Group living things using different criteria. Explain why they have grouped them in different ways. Skills: Compare and classify living things. Observe carefully and identify similarities and differences. Use scientific vocabulary to explain decisions. Communicate findings clearly. Vocabulary: classification, vertebrate, invertebrate, flowering, non-flowering, characteristic	Identify appliances powered by mains electricity and batteries. Discuss the importance of electricity in everyday life. Sort appliances into groups. Vocabulary: electricity, appliance, mains, battery, power	Explore a variety of sound sources. Observe vibrations in everyday objects. Investigate how sounds are created. Identify that sound is produced when objects vibrate. Vocabulary: sound, vibration, sound source, vibrate	Compare their properties. Sort materials into groups. Vocabulary: solid, liquid, gas, material, property
Explore 2	WALT: explain the functions of the main organs of the digestive system. Children: Investigate the role of each digestive organ. Explore how food is broken down. Discuss nutrient absorption.	WALT: explain how energy moves through a food chain. Children: Investigate how plants provide energy for animals. Explore the direction of energy transfer. Create simple food chain diagrams. Discuss the importance of producers.	WALT: identify and name the basic parts of a simple electrical circuit. Children: Explore cells, wires, bulbs, buzzers and switches. Investigate how components are connected. Build simple circuits. Label circuit diagrams.	WALT: explain how sounds travel to our ears. Children: Investigate how sound travels through different materials. Explore sound travelling through solids, liquids and gases. Discuss how sounds reach our ears.	WALT: describe how particles are arranged in solids, liquids and gases. Children: Explore particle models. Compare how particles behave in each state. Use diagrams and practical activities. Explain the differences between states.

	Create a digestion flow chart. Vocabulary: digestion, absorb, nutrients, digestive organs	Vocabulary: energy, producer, consumer, transfer, organism	Vocabulary: circuit, cell, wire, bulb, buzzer, switch	Compare different ways sound travels. Vocabulary: sound wave, medium, travel, ear, vibration	Vocabulary: particle, arrangement, movement, state
Investigate 1	WALT: identify and describe the different types of human teeth. Children: Explore incisors, canines, premolars and molars. Investigate the shape and position of teeth. Compare teeth types. Label a diagram of human teeth. Vocabulary: incisor, canine, premolar, molar, enamel	WALT: Use classification keys to identify and name living things. Children: Explore simple branching classification keys. Identify local plants and animals using keys. Create their own simple classification key. Explain how classification keys help scientists. Skills: Use classification keys accurately. Observe and identify characteristics. Gather and record information. Use evidence to identify living things. Vocabulary: classification key, identify, classify, characteristic, branching key	WALT: investigate what makes a complete electrical circuit. Children: Build complete and incomplete circuits. Predict whether bulbs will light. Test ideas. Record results and explain findings. Vocabulary: complete circuit, incomplete circuit, connection, electricity	WALT: investigate how the pitch of a sound can be changed. Children: Explore instruments and sound-making objects. Investigate how changing length, thickness or tension affects pitch. Compare high and low sounds. Record findings. Vocabulary: pitch, high, low, tension, frequency	WALT: investigate how materials change state when heated or cooled. Children: Observe melting and freezing. Compare changes caused by heating and cooling. Record observations. Explain what happens to particles. Vocabulary: melting, freezing, heating, cooling, change of state

Investigate 2	WALT: explain how different teeth help digestion. Children: Investigate how teeth cut, tear and grind food. Compare human teeth with animal teeth. Link teeth types to diet. Discuss adaptations. Vocabulary: grind, tear, chew, adaptation, herbivore	WALT: Investigate how changes to environments affect living things. Children: Explore how changes such as pollution, flooding, deforestation and climate change affect habitats. Predict what might happen when environments change. Investigate how changes affect plants and animals. Use evidence to explain findings. Skills: Make predictions. Interpret evidence. Identify patterns and relationships. Explain findings using scientific vocabulary. Vocabulary: environment, habitat, pollution, climate change, adaptation, survival	WALT: explain how switches control electrical circuits. Children: Explore different types of switches. Investigate how switches open and close circuits. Observe the effect on bulbs and buzzers. Explain findings using scientific vocabulary. Vocabulary: switch, open circuit, closed circuit, control	WALT: investigate how the volume of a sound can be changed. Children: Explore loud and quiet sounds. Investigate how stronger vibrations affect volume. Compare different sound sources. Record observations. Vocabulary: volume, loud, quiet, vibration, strength	WALT: measure and investigate the temperatures at which materials change state. Children: Use thermometers safely. Investigate freezing and boiling points. Record temperatures. Compare findings. Vocabulary: temperature, thermometer, freezing point, boiling point
Investigate 3	WALT: To understand the importance of dental health. Children: Explore how sugar affects teeth.	WALT: Investigate how humans can protect and improve environments. Children: Explore how human activities can have positive and negative impacts on habitats.	WALT: To investigate which materials are electrical conductors and insulators. Children: Test a variety of materials.	WALT: To investigate how distance affects the volume of sound. Children: Measure sounds from different distances.	WALT: To explain evaporation and condensation as part of the water cycle. Children: Explore the stages of the water cycle.

	Investigate healthy dental habits. Discuss tooth decay. Create a dental health guide. Vocabulary: decay, hygiene, plaque, dentist	Investigate examples of conservation projects. Discuss ways to protect local habitats. Suggest actions that help living things survive. Skills: Gather and interpret information. Use evidence to support ideas. Communicate scientific understanding. Apply scientific knowledge to real-life situations. Vocabulary: conservation, pollution, habitat loss, protect, biodiversity	Predict which materials will conduct electricity. Compare results. Group materials according to their properties. Vocabulary: conductor, insulator, metal, material, electricity	Observe changes in volume. Record results. Identify patterns. Vocabulary: distance, volume, sound source, pattern	Investigate evaporation and condensation. Observe changes over time. Explain how water moves around the Earth. Vocabulary: evaporation, condensation, water cycle, water vapour
Reflect 1	WALT: explain how digestion and teeth help humans obtain nutrients from food. Children: Revisit learning from the unit. Explain the journey of food. Discuss the importance of teeth and digestion.	WALT: Explain how living things can be grouped and how environmental changes affect them. Children: Use classification keys to identify living things. Explain different ways living things can be grouped. Discuss how environmental changes affect habitats and food chains. Answer the enquiry question using scientific evidence.	WALT: explain how electrical circuits work and why different materials are used. Children: Revisit learning from the unit. Explain how electricity flows around a circuit. Discuss conductors and insulators. Answer the enquiry question using scientific evidence. Vocabulary:	WALT: explain how sounds are made, travel and change. Children: Revisit learning from the unit. Explain how sound travels. Discuss pitch and volume. Answer the enquiry question using scientific evidence. Vocabulary:	WALT: explain how temperature affects the water cycle and changes of state. Children: Investigate how temperature affects evaporation. Compare real-life examples. Revisit learning from the unit. Answer the enquiry question using scientific evidence. Vocabulary:

	Answer the enquiry question using scientific evidence. Vocabulary: digest, nutrients, absorption, digestion	Skills: Recall and apply scientific knowledge. Use scientific vocabulary accurately. Explain ideas using evidence. Communicate conclusions clearly. Vocabulary: classification, classification key, habitat, environment, food chain, conservation	electricity, circuit, conductor, insulator, switch	sound, vibration, pitch, volume, travel	evaporation, condensation, temperature, water cycle
Assessment	Enquiry Question How does food help humans and animals survive? Children will demonstrate understanding by: Identifying digestive organs. Explaining the digestive process. Describe the functions of teeth. Explaining the importance of dental health. Using scientific vocabulary accurately.	Enquiry Question How are living things connected through food chains? Children will demonstrate understanding by: Identifying producers, consumers, predators and prey. Constructing food chains. Explaining energy transfer. Predicting the impact of changes to food chains is important. Explain how humans can affect ecosystems.	Enquiry Question How do electrical circuits work? Children will demonstrate understanding by: Identifying electrical appliances. Naming circuit components. Building a simple circuit. Explaining complete and incomplete circuits. Identifying conductors and insulators.	Enquiry Question How are sounds made and how do they travel? Children will demonstrate understanding by: Explain how sounds are made. Describing how sound travels. Explain how pitch can change. Explain how volume can change. Identifying patterns between distance and sound.	Enquiry Question How do materials change between solids, liquids and gases? Children will demonstrate understanding by: Identifying states of matter. Explaining particle arrangement. Describing changes of state. Explaining evaporation and condensation. Describing the water cycle.

End Point	Children understand how the digestive system works and how different types of teeth help humans digest food effectively. By the end of this unit, children will be able to explain the journey of food through the digestive system, describe the functions of the main digestive organs and explain how different types of teeth support digestion and healthy eating.	Children understand that living things can be grouped according to their characteristics and that classification keys help identify them. They understand how food chains show the movement of energy through ecosystems and explain how environmental changes can affect living things. By the end of this unit, children will be able to group living things in a variety of ways, use simple classification keys to identify organisms, construct and interpret food chains, identify producers, consumers, predators and prey, and explain how changes to habitats and environments can impact living things.	Children understand how simple electrical circuits work and can explain the role of different components within a circuit. By the end of this unit, children will be able to build and explain a simple series of circuits, identify the purpose of each component and explain why some materials conduct electricity while others act as insulators.	Children understand that sounds are created by vibrations, travel through a medium and can vary in pitch and volume. By the end of this unit, children will understand that sounds are produced by vibrations and travel through solids, liquids and gases to reach our ears. They will explain how pitch and volume change and describe how sounds become fainter as the distance from the source increases.	Children understand the properties of solids, liquids and gases and explain how materials change state through heating and cooling. By the end of this unit, children will understand the differences between solids, liquids and gases and explain how materials change state through heating and cooling. They will be able to describe evaporation, condensation and the role of these processes within the water cycle.
Substantive Knowledge (What children need to remember)	Children will know: Food passes through the digestive system. Different digestive organs have specific functions. Nutrients are absorbed into the body. Humans have different types of teeth. Different teeth perform different jobs. Good dental hygiene helps keep teeth healthy.	Children will know: Living things can be grouped in different ways according to their characteristics. Scientists use classification keys to identify living things. Classification keys use observable features to identify organisms. Food chains show how living things obtain food. Producers make their own food using sunlight.	Children will know: Electricity powers many everyday appliances. A circuit must be complete for electricity to flow. Cells provide power for a circuit. Bulbs, buzzers and motors work when electricity flows through them. Switches open and close circuits. Metals are usually good conductors of electricity.	Children will know: Sounds are made when objects vibrate. Vibrations travel through a medium to the ear. Sound can travel through solids, liquids and gases. Pitch depends on how fast an object vibrates. Volume depends on the strength of vibrations.	Children will know: Materials can be solids, liquids or gases. Particles are arranged differently in each state. Heating and cooling can cause changes of state. Melting, freezing, evaporation and condensation are reversible changes. Water freezes at 0°C and boils at 100°C.

		Consumers obtain energy by eating plants or animals. Predators hunt other animals. Prey are animals that are hunted. Energy moves through food chains. Changes to habitats and environments can affect living things. Humans can have both positive and negative impacts on habitats and ecosystems.	Most non-metals are electrical insulators.	Sounds become quieter as the distance from the source increases.	The water cycle includes evaporation and condensation. Higher temperatures increase the rate of evaporation.
Disciplinary Knowledge (Thinking like a scientist)	Children will: Observe closely. Use models to explain scientific processes. Compare and classify. Gather and record information. Use evidence to answer questions. Communicate findings using scientific vocabulary.	Children will: Observe and identify characteristics. Compare and classify living things. Use and create simple classification keys. Interpret food chains. Make predictions. Use evidence to answer questions. Communicate findings using scientific vocabulary.	Children will: Make predictions. Build and test circuits. Observe and record results. Identify patterns. Classify materials. Use evidence to answer questions. Communicate findings using scientific vocabulary.	Children will: Observe closely. Carry out comparative investigations. Measure and record observations. Identify patterns. Make predictions. Use evidence to answer questions. Communicate findings using scientific vocabulary.	Children will: Observe changes over time. Carry out comparative tests. Measure temperature. Gather and record data. Identify patterns. Use evidence to answer questions. Communicate findings using scientific vocabulary.

Adaptive Teaching	Support Labelled diagrams. Digestive system models. Vocabulary mats. Sequencing activities. Adult-supported discussions. Challenge Compare human and animal teeth. Explain adaptations linked to diet. Use scientific vocabulary independently. Justify conclusions using evidence.	Support Food chain sorting cards. Visual diagrams. Vocabulary mats. Adult-guided discussions. Practical food chain construction activities. Challenge Explain complex food chain relationships. Predict long-term impacts of environmental change. Compare food chains from different habitats. Justify conclusions using scientific evidence.	Support Pre-built circuit examples. Visual diagrams. Vocabulary mats. Adult support during practical work. Component identification cards. Challenge Design their own circuit. Explain why circuits fail. Investigate a wider range of conductors and insulators. Justify conclusions using evidence.	Support Practical investigations using instruments. Visual diagrams showing sound waves. Vocabulary mats. Structured recording sheets. Adult support during investigations. Challenge Design an investigation into pitch or volume. Explain patterns using scientific vocabulary. Compare results from different investigations. Justify conclusions using evidence.	Support Particle model diagrams. Visual representations of the water cycle. Structured recording sheets. Adult support during investigations. Practical demonstrations. Challenge Explain changes using particle theory. Interpret temperature data. Investigate evaporation rates independently. Apply learning to unfamiliar situations.
Assessment for Learning	Assessment for Learning Digestive system labelling. Discussion and questioning. Practical digestion investigations. Retrieval quizzes. Vocabulary checks. End-of-unit reflection activities.	Assessment for Learning Classification sorting activities. Using and creating classification keys. Food chain construction. Discussion and questioning. Retrieval quizzes. Vocabulary checks. End-of-unit reflection activities.	Assessment for Learning Practical circuit-building activities. Discussion and questioning. Prediction tasks. Recording sheets. Retrieval quizzes. End-of-unit reflection activities.	Assessment for Learning Observation of practical investigations. Discussion and questioning. Prediction tasks. Recording tables and charts. Retrieval quizzes. End-of-unit reflection activities.	Assessment for Learning Sorting and classification tasks. Practical investigations. Discussion and questioning. Temperature recording activities. Retrieval quizzes. End-of-unit reflection activities.

National Curriculum	Pupils should be taught to: 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.	Year 4 – Living Things and Their Habitats Pupils should be taught to: 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. Construct and interpret a variety of food chains, identifying producers, predators and prey	Pupils should be taught to: Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts. Identify whether a lamp will light in a simple series circuit. Recognise that a switch opens and closes a circuit. Recognise common conductors and insulators and associate metals with being good conductors.	Pupils should be taught to: 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 should be taught to: Compare and group materials according to whether they are solids, liquids or gases. Observe that some materials change state when heated or cooled. Measure or research the temperature at which this happens. Identify the part played by evaporation and condensation in the water cycle. Associate the rate of evaporation with temperature.

WORKING SCIENTIFICALLY PROGRESSION

Developing scientific enquiry skills from curious explorers to confident scientists

EYFS

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.

YEAR 1

Observe and Identify

- Observe closely using simple equipment.
- Identify and name what they see.
- Ask simple questions.
- Record observations in pictures and words.

YEAR 2

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.

YEAR 3

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.

YEAR 4

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.

YEAR 5

Plan and Enquire

- Plan fair tests and comparative investigations.
- Identify variables and control fairly.
- Collect and analyse data.
- Draw conclusions based on evidence.

YEAR 6

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.

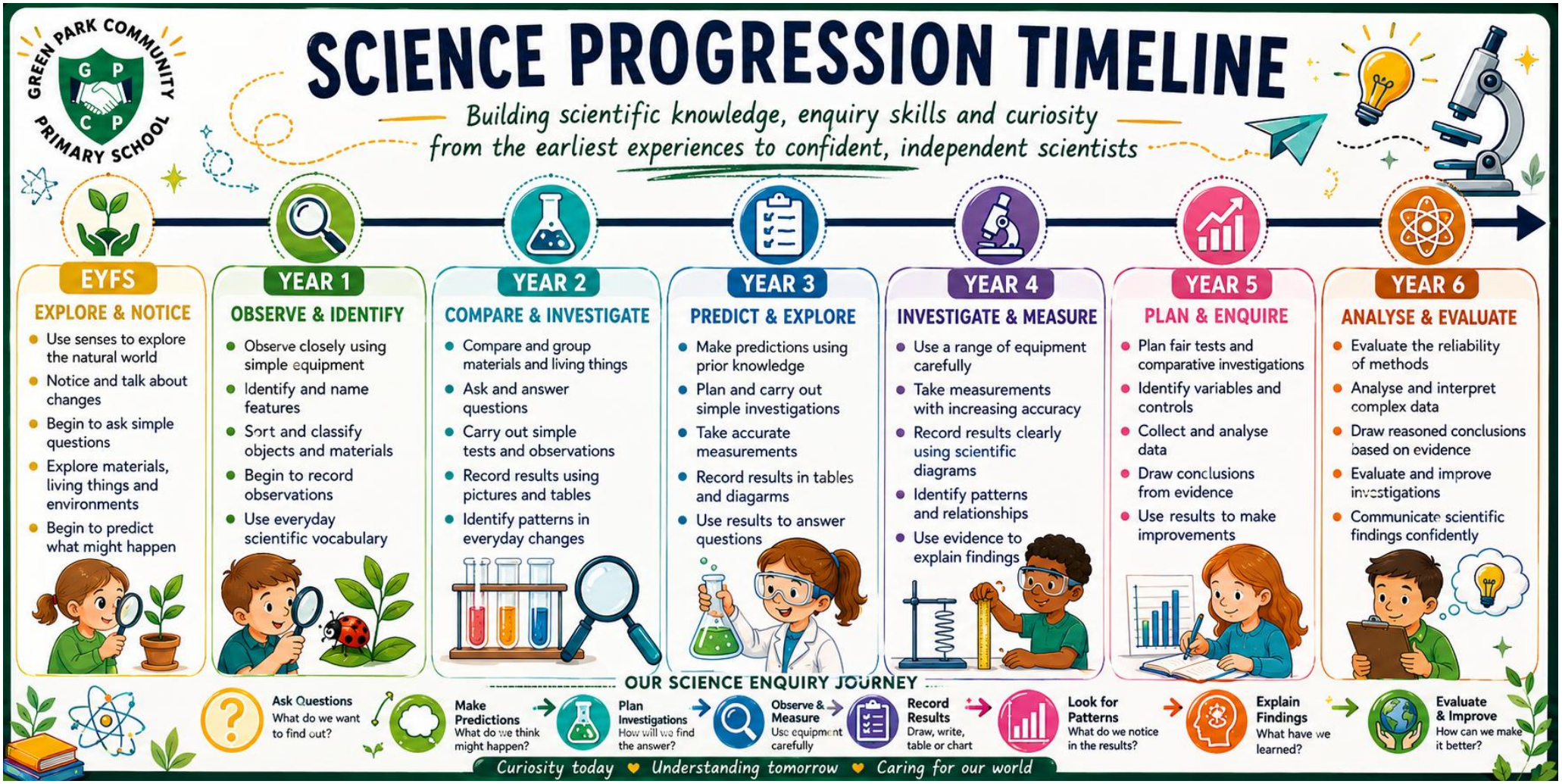
OBSERVE & MEASURE
Using our senses and equipment to make careful observations.

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


GREEN PARK COMMUNITY PRIMARY SCHOOL
G P C P
SCIENCE PROGRESSION TIMELINE
Building scientific knowledge, enquiry skills and curiosity from the earliest experiences to confident, independent scientists
EYFS
EXPLORE & NOTICE
Use senses to explore the natural world
Notice and talk about changes
Begin to ask simple questions
Explore materials, living things and environments
Begin to predict what might happen
YEAR 1
OBSERVE & IDENTIFY
Observe closely using simple equipment
Identify and name features
Sort and classify objects and materials
Begin to record observations
Use everyday scientific vocabulary
YEAR 2
COMPARE & INVESTIGATE
Compare and group materials and living things
Ask and answer questions
Carry out simple tests and observations
Record results using pictures and tables
Identify patterns in everyday changes
YEAR 3
PREDICT & EXPLORE
Make predictions using prior knowledge
Plan and carry out simple investigations
Take accurate measurements
Record results in tables and diagarms
Use results to answer questions
YEAR 4
INVESTIGATE & MEASURE
Use a range of equipment carefully
Take measurements with increasing accuracy
Record results clearly using scientific diagrams
Identify patterns and relationships
Use evidence to explain findings
YEAR 5
PLAN & ENQUIRE
Plan fair tests and comparative investigations
Identify variables and controls
Collect and analyse data
Draw conclusions from evidence
Use results to make improvements
YEAR 6
ANALYSE & EVALUATE
Evaluate the reliability of methods
Analyse and interpret complex data
Draw reasoned conclusions based on evidence
Evaluate and improve investigations
Communicate scientific findings confidently
OUR SCIENCE ENQUIRY JOURNEY
Ask Questions
What do we want to find out?
Make Predictions
What do we think might happen?
Plan Investigations
How will we find the answer?
Observe & Measure
Use equipment carefully
Record Results
Draw, write, table or chart
Look for Patterns
What do we notice in the results?
Explain Findings
What have we learned?
Evaluate & Improve
How can we make it better?
Curiosity today ♥ Understanding tomorrow ♥ Caring for our world

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
	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.
WHAT DOES IT INVOLVE?	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.
EXAMPLE 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.

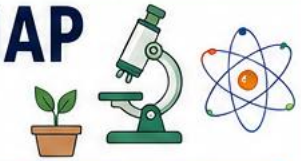
SUSTAINABILITY & RESPONSIBILITY
Making choices that help protect our planet and living things.

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.

NATIONAL CURRICULUM STRANDS

	EYFS (Understanding the World)	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
BIOLOCS (Living things and their habitats)	• Explore the natural world around them. • Know some similarities and differences between living things. • Explore how things work. • Use all their senses in hands-on exploration.	• Identify and name a variety of common animals. • Identify and name common plants. • Identify, name, draw and label basic plant parts. • Distinguish between an object and the material from which it is made. • Describe the simple physical properties of everyday materials.	• 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 compare the suitability of a variety of everyday materials. • Find out how the shapes of solid objects can be changed.	• 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. • 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.	• 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. • 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.	• Describe the life process of reproduction in some plants and animals. • Describe the changes as humans develop to old age. • 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.	• 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. • Associate the brightness of a lamp or volume of a buzzer with the number and voltage of cells used in the circuit. • Explain how light travels. • Explain how we see objects.
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.	• 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.	• Describe the movement of the Earth and other planets relative to the Sun. • Describe the Sun, Earth and Moon.

WORKING SCIENTIFICALLY (Throughout all strands)

Explore & notice → *Observe & identify* → *Ask & compare* → *Investigate & record* → *Measure & analyse* → *Plan & evaluate* → *Evaluate & explain*

OUR SCIENCE GOLDEN THREADS

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.