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 5 Science Medium Term plans

Year 5	**Living things and their habitats** **Life Cycle Investigators**	**Forces** **Force Detectives**	**Properties and change of materials** **Material Scientists**	**Space** **Space Explorers**	**Animals including humans** **Growing and Changing**
Prior learning	• Can group living things in different ways. • Knows that living things depend on one another. • Can use classification keys to identify living things. • Can describe simple food chains and habitats.	• Can identify that forces make objects move, stop or change direction. • Knows that magnets attract and repel. • Can compare how objects move on different surfaces. • Can carry out comparative investigations.	• Can compare and group materials according to their properties. • Knows that materials can be solids, liquids or gases. • Can observe changes of state. • Can use observations to compare materials.	• Knows that the Sun is a source of light. • Can explain how shadows are formed. • Knows that the length and direction of shadows change. • Can observe patterns over time.	• Knows the main parts of the digestive system. • Knows the functions of teeth. • Can describe simple food chains. • Knows that humans need nutrition to stay healthy.
Year 5 Topic	Topic: Living Things and Their Habitats Enquiry Question How do living things grow, reproduce and change?	Topic: Forces Enquiry Question How do forces affect movement?	Topic: Properties and Changes of Materials Enquiry Question How can materials be changed and separated?	Topic: Space Enquiry Question How do the Earth, Moon and Sun work together?	Topic: Human Reproduction Enquiry Question How do humans grow and reproduce throughout their lives?

Explore 1	WALT: describe the differences in the life cycles of mammals, amphibians, insects and birds. Children: Explore a range of animal life cycles. Compare mammals, amphibians, insects and birds. Identify similarities and differences. Sequence life cycle stages. Vocabulary: life cycle, mammal, amphibian, insect, bird, metamorphosis	WALT: explain that unsupported objects fall towards the Earth because of gravity. Children: Explore the force of gravity. Investigate why objects fall towards the Earth. Compare the effect of gravity on different objects. Discuss how gravity acts at a distance. Vocabulary: gravity, force, Earth, pull, mass	WALT: compare and group materials according to their properties. Children: Explore a variety of everyday materials. Investigate hardness, solubility, transparency, conductivity and magnetism. Compare materials using scientific vocabulary. Group materials according to their properties. Vocabulary: hardness, solubility, transparency, conductivity, magnetism	WALT: describe the movement of the Earth and other planets relative to the Sun. Describe the sun, Earth and moon as approximately spherical bodies Children: Explore the structure of the solar system. Identify the planets and their order from the Sun. Investigate how planets orbit the Sun. Compare the movement of different planets. Vocabulary: solar system, orbit, planet, Sun, galaxy	WALT: describe the stages of the human life cycle. Children: Explore the stages of human development. Sequence the human life cycle from infancy to old age. Discuss physical and emotional changes that occur throughout life. Compare human development at different ages. Vocabulary: life cycle, infancy, childhood, adolescence, adulthood, old age
Explore 2	WALT: compare and contrast the life cycles of different animal groups. Children: Investigate mammal and amphibian life cycles. Compare stages of development.	WALT:identify the effects of air resistance on moving objects. Children: Investigate air resistance using parachutes and falling objects. Compare the speed of different objects. Observe how air resistance affects movement. Record and discuss findings.	WALT: investigate how materials dissolve and form solutions. Children: Explore dissolving using different solids and liquids. Observe how solutions are formed. Investigate factors affecting dissolving.	WALT: describe the movement of the Moon relative to the Earth. Children: Investigate the relationship between the Earth, Moon and Sun. Explore how the Moon orbits the Earth.	WALT: identify the changes that occur during puberty. Children: Explore physical and emotional changes associated with puberty. Discuss how bodies change as children grow.

	Explore metamorphosis. Record similarities and differences. Vocabulary: metamorphosis, larva, pupa, adult, development	Vocabulary: air resistance, force, motion, parachute, surface area	Record observations and explain findings. Vocabulary: dissolve, solution, soluble, insoluble, evaporation	Create simple models to demonstrate movement. Discuss observable effects. Vocabulary: Moon, orbit, Earth, celestial body, satellite	Investigate similarities and differences between male and female puberty. Develop understanding using appropriate scientific vocabulary. Vocabulary: puberty, hormones, physical changes, emotional changes, development
Investigate 1	WALT: describe the life process of reproduction in plants. Children: Explore sexual and asexual reproduction in plants. Investigate pollination and fertilisation. Examine seed formation and dispersal. Create labelled life cycle diagrams. Vocabulary: sexual reproduction, asexual reproduction, pollination, fertilisation, seed dispersal	WALT: identify the effects of water resistance and friction on movement. Children: Investigate friction between surfaces. Explore water resistance using practical activities. Compare how forces affect movement. Record observations and identify patterns. Vocabulary: friction, water resistance, surface, force, movement	WALT: investigate how mixtures can be separated. Children: Explore filtering, sieving and evaporation. Compare different separation methods. Investigate which methods work best for different mixtures. Record and explain results. Vocabulary: mixture, filter, sieve, evaporation, separation	WALT: explain how the Earth's rotation causes day and night. Children: Explore how the Earth rotates on its axis. Use models to demonstrate day and night. Investigate the apparent movement of the Sun. Record observations and explanations. Vocabulary: rotation, axis, day, night, apparent movement	WALT: understand the process of human reproduction. Children: Explore the basic process of human reproduction in an age-appropriate way. Identify the roles of male and female reproductive cells. Discuss fertilisation. Use diagrams and models to support understanding. Vocabulary: reproduction, fertilisation, sperm, egg, embryo

Investigate 2	WALT: describe the life process of reproduction in animals. Children: Explore reproduction in mammals and birds. Compare plant and animal reproduction. Investigate similarities and differences. Use scientific vocabulary to explain findings. Vocabulary: reproduction, offspring, fertilisation, mammal, bird	WALT: recognise how mechanisms allow a smaller force to have a greater effect. Children: Explore levers, pulleys and gears. Investigate how mechanisms make tasks easier. Compare different mechanisms. Explain how they change the size or direction of forces. Vocabulary: mechanism, lever, pulley, gear, mechanical advantage	WALT: explain why different materials are used for different purposes. Children: Investigate everyday objects. Compare material properties. Explore how evidence supports material choices. Explain why materials are selected for specific uses. Vocabulary: property, evidence, suitability, material, purpose	WALT: explain how the movement of the Earth and Moon creates observable patterns. Children: Investigate the phases of the Moon. Explore how the positions of the Earth, Moon and Sun change. Sequence Moon phases. Explain why Moon phases occur. Vocabulary: Moon phases, waxing, waning, lunar cycle	WALT: describe how a baby develops before birth. Children: Explore the stages of development during pregnancy. Investigate how babies grow and develop. Discuss how unborn babies receive nutrients. Create a timeline of development. Vocabulary: pregnancy, foetus, development, womb, nutrients
Investigate 3	WALT: compare life cycles and reproduction in plants and animals. Children: Compare different life cycles. Investigate how reproduction varies. Identify common features.	WALT: compare the effects of different forces and mechanisms. Children: Investigate real-life examples of forces. Compare gravity, friction, air resistance and water resistance. Explore how mechanisms help overcome forces. Use evidence to explain findings. Vocabulary:	WALT: distinguish between reversible and irreversible changes. Children: Explore melting, dissolving and mixing. Investigate burning and chemical reactions. Compare reversible and irreversible changes. Use evidence to classify changes.	WALT: explain how the Earth's orbit and tilt create the seasons. Children: Explore how the Earth moves around the Sun. Investigate how the Earth's tilt affects sunlight. Compare seasons around the world. Explain seasonal changes.	WALT: explain how babies, children and adults change over time. Children: Compare growth and development at different life stages. Investigate physical, social and emotional changes. Discuss how needs change throughout life.

	Explain why reproduction is important for survival. Vocabulary: life cycle, reproduction, species, survival	force, compare, mechanism, resistance, effect	Vocabulary: reversible, irreversible, chemical change, reaction, new material	Vocabulary: season, orbit, tilt, hemisphere, sunlight	Use evidence to explain findings. Vocabulary: growth, development, maturity, ageing, change
Reflect 1	WALT: explain how living things grow, reproduce and change. Children: Revisit life cycles studied during the unit. Compare plant and animal reproduction. Discuss the diversity of life cycles. Answer the enquiry question using scientific evidence. Vocabulary: growth, reproduction, development, life cycle	WALT: explain how forces affect movement in everyday life. Children: Revisit learning from the unit. Discuss examples of forces and mechanisms. Explain how forces can be increased, reduced or controlled. Answer the enquiry question using scientific evidence. Vocabulary: gravity, friction, resistance, mechanism, movement	WALT: explain how materials can be changed and separated. Children: Revisit learning from the unit. Compare material properties. Explain separation methods. Discuss reversible and irreversible changes. Answer the enquiry question using scientific evidence. Vocabulary: material, solution, separation, reversible, irreversible	WALT: explain how the Earth, Moon and Sun work together to create patterns we observe. Children: Revisit learning from the unit. Investigate how shadows change throughout the day. Explain day and night, Moon phases and seasons. Answer the enquiry question using scientific evidence. Vocabulary: solar system, orbit, rotation, phase, season	WALT: explain how humans grow and reproduce throughout their lives. Children: Revisit learning from the unit. Discuss the human life cycle. Explain puberty, reproduction and development. Answer the enquiry question using scientific evidence. Vocabulary: life cycle, puberty, reproduction, development, adulthood

Assessment	Enquiry Question How do living things grow, reproduce and change? Children will demonstrate understanding by: Comparing animal life cycles. Explaining plant reproduction. Explaining animal reproduction. Identifying similarities and differences. Explaining the importance of reproduction.	Enquiry Question How do forces affect movement? Children will demonstrate understanding by: Explaining gravity. Describing air resistance. Explaining friction and water resistance. Describing how mechanisms work. Comparing different forces.	Enquiry Question How can materials be changed and separated? Children will demonstrate understanding by: Comparing materials according to their properties. Explaining dissolving and solutions. Identifying suitable separation techniques. Explaining why materials are used for specific purposes. Distinguishing between reversible and irreversible changes.	Enquiry Question How do the Earth, Moon and Sun work together? Children will demonstrate understanding by: Describing the solar system. Explaining planetary orbits. Explaining the Moon's orbit. Explaining day and night. Describing Moon phases. Explaining the seasons.	Enquiry Question How do humans grow and reproduce throughout their lives? Children will demonstrate understanding by: Describing the stages of the human life cycle. Explaining changes during puberty. Understanding the basics of human reproduction. Explaining how babies develop before birth. Describing how humans change throughout life.
End Point	Children understand that living things have different life cycles and reproductive processes and can compare how plants and animals grow and reproduce. By the end of this unit, children will be able to describe and compare the life cycles of mammals,	Children understand that forces affect movement and can explain how gravity, friction, air resistance, water resistance and mechanisms influence the movement of objects. By the end of this unit, children will understand that gravity pulls objects towards the Earth and that air resistance, water resistance and friction act against movement. They will explain how mechanisms such as levers, pulleys and gears	Children understand the properties of materials and can explain how materials dissolve, separate and change. By the end of this unit, children will be able to compare materials according to their properties, explain how mixtures can be separated and identify whether changes are reversible or irreversible. They will use scientific evidence to explain why particular materials	Children understand the relationships between the Earth, Moon and Sun and can explain day and night, Moon phases, seasons and the movement of celestial bodies within the solar system. By the end of this unit, children will understand that the Earth and planets orbit the Sun and that the Moon orbits the Earth. They will	Children understand that humans grow and change throughout their lives and can explain the basic processes of puberty, reproduction and human development. By the end of this unit, children will be able to describe the stages of the human life cycle, explain the changes that occur during puberty and understand the basic process of human reproduction. They will

	amphibians, insects and birds. They will explain sexual and asexual reproduction in plants and describe reproduction in animals, recognising that reproduction is essential for the continuation of species.	allow smaller forces to have greater effects and apply this knowledge to real-life situations.	are chosen for different purposes.	explain how the Earth's rotation causes day and night, how the Moon's position creates phases and how the Earth's tilt and orbit cause seasonal changes.	recognise that humans continue to grow, develop and change throughout their lives.
Substantive Knowledge (What children need to remember)	Children will know: Different groups of animals have different life cycles. Some animals undergo metamorphosis. Plants can reproduce sexually and asexually. Pollination and fertilisation are important stages in plant reproduction. Animals reproduce to produce offspring. Reproduction is essential for the survival of species. Life cycles vary between living things.	Children will know: Gravity is a force that pulls objects towards the Earth. Air resistance acts against movement through air. Water resistance acts against movement through water. Friction occurs between two surfaces and slows movement. Forces can be increased or reduced. Mechanisms help make work easier. Levers, pulleys and gears change the size or direction of a force. Forces affect many aspects of everyday life.	Children will know: Materials can be grouped according to their properties. Some substances dissolve in liquids to form solutions. Dissolved substances can often be recovered through evaporation. Mixtures can be separated using filtering, sieving and evaporation. Different materials are chosen because of their properties. Some changes are reversible. Some changes create new materials and are irreversible. Evidence can be used to explain material choices.	Children will know: The solar system consists of the Sun and the objects that orbit it. The Earth and other planets orbit the Sun. The Moon orbits the Earth. The Earth rotates on its axis once every 24 hours. Day and night are caused by the Earth's rotation. The Sun appears to move across the sky because of the Earth's rotation. The Moon changes appearance as it orbits the Earth. Seasons are caused by the Earth's tilt and orbit around the Sun. Shadows change because of the apparent movement of the Sun	Children will know: Humans pass through different stages of life. Growth and development occur throughout life. Puberty is a stage of development when children become adults physically. Hormones cause many of the changes during puberty. Human reproduction involves fertilisation. Babies develop in the womb before birth. Humans continue to change physically, socially and emotionally throughout life. Every individual develops at their own rate

Disciplinary Knowledge (Thinking like a scientist)	Children will: Observe and compare life cycles. Identify patterns and relationships. Use scientific diagrams. Gather and present information. Use evidence to answer questions. Communicate findings using scientific vocabulary.	Children will: Ask scientific questions. Make predictions. Carry out comparative investigations. Observe and measure carefully. Identify patterns. Gather and record data. Use evidence to answer questions. Communicate findings using scientific vocabulary.	Children will: Plan and carry out investigations. Make observations over time. Carry out comparative and fair tests. Gather and record data. Identify patterns. Draw conclusions using evidence. Communicate findings using scientific vocabulary.	Children will: Use models to explain scientific ideas. Observe patterns over time. Make predictions. Gather and interpret evidence. Identify relationships between scientific phenomena. Use scientific vocabulary accurately. Communicate findings using diagrams and explanations.	Children will: Observe and compare changes over time. Identify patterns in growth and development. Interpret diagrams and timelines. Gather and present information. Use scientific vocabulary accurately. Communicate findings sensitively and respectfully.
Adaptive Teaching	Support Life cycle sequencing cards. Visual diagrams. Vocabulary mats. Adult-supported discussions. Comparison tables. Challenge Compare multiple life cycles independently. Explain advantages of different reproductive strategies. Use scientific vocabulary precisely. Justify conclusions using evidence.	Support Practical investigations. Visual demonstrations. Vocabulary mats. Structured recording sheets. Adult support during investigations. Challenge Design and evaluate their own investigations. Explain forces using scientific vocabulary independently. Interpret data and identify patterns. Justify conclusions using evidence. Apply knowledge to unfamiliar contexts.	Support Practical investigations. Visual demonstrations. Vocabulary mats. Structured recording sheets. Adult support during investigations. Challenge Design their own separation investigation. Explain results using particle theory. Evaluate the reliability of evidence. Apply learning to unfamiliar materials. Justify conclusions using scientific evidence.	Support Solar system models. Visual diagrams and animations. Vocabulary mats. Practical demonstrations. Adult-supported discussions. Challenge Compare the relative sizes and distances of the Earth, Moon and Sun. Explain misconceptions about day and night. Interpret scientific models independently. Use scientific vocabulary precisely. Justify explanations using evidence.	Support Clear, age-appropriate diagrams. Vocabulary mats. Structured discussion opportunities. Visual timelines. Adult support and opportunities for anonymous questions. Challenge Compare human development with other mammals. Explain why individuals develop at different rates. Use scientific vocabulary independently. Apply understanding to unfamiliar scenarios. Justify explanations using evidence.

Assessment for Learning	Assessment for Learning Life cycle sequencing tasks. Comparison activities. Discussion and questioning. Retrieval quizzes. Diagram labelling. End-of-unit reflection activities.	Assessment for Learning Prediction activities. Practical investigations. Discussion and questioning. Data recording tasks. Retrieval quizzes. Vocabulary checks.	Assessment for Learning Practical investigations. Discussion and questioning. Prediction activities. Recording tables. Retrieval quizzes. Vocabulary checks. End-of-unit reflection activities.	Assessment for Learning Solar system sequencing activities. Model-based explanations. Discussion and questioning. Moon phase investigations. Retrieval quizzes. Diagram labelling. End-of-unit reflection activities.	Assessment for Learning Sequencing activities. Timeline construction. Discussion and questioning. Vocabulary checks. Retrieval quizzes. Reflection activities. End-of-unit explanations.
National Curriculum	Pupils should be taught to: Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals. Next I would write Force Detectives in exactly the same format.	Pupils should be taught to: Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance, water resistance and friction that act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	Pupils should be taught to: Compare and group together everyday materials on the basis of their properties. Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be separated. Give reasons, based on evidence from comparative and fair tests, for the uses of everyday materials. Demonstrate that dissolving, mixing and changes of state are reversible changes. Explain that some changes result in the formation of new materials.	Pupils should be taught to: Describe the movement of the Earth and other planets relative to the Sun in the solar system. Describe the movement of the Moon relative to the Earth. Describe the Sun, Earth and Moon as approximately spherical bodies. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.	Pupils should be taught to: Describe the changes as humans develop to old age. Relationship and Health Education Links Children may also learn: About the physical and emotional changes during puberty. About reproduction in humans in an age-appropriate manner. About healthy relationships, respect and personal development.

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.

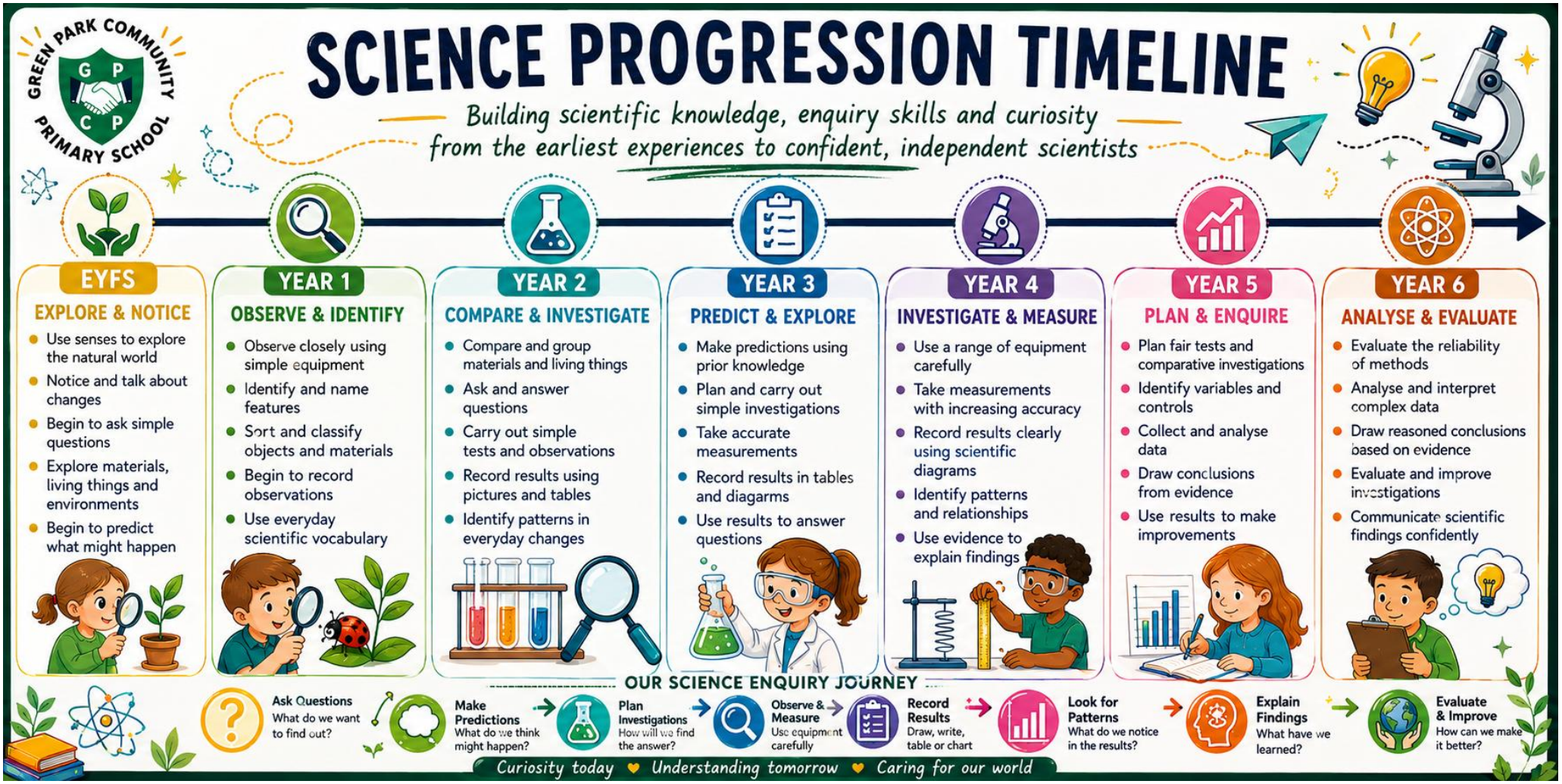
OBSERVE & MEASURE
Using our senses and equipment to make careful observations.

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.

	OBSERVING OVER TIME	COMPARATIVE TESTING	FAIR TESTING	IDENTIFYING & CLASSIFYING	PATTERN SEEKING	RESEARCH USING SECONDARY SOURCES
ENQUIRY TYPE	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.

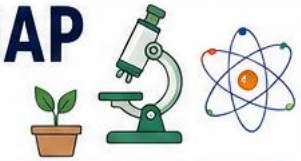
SUSTAINABILITY & RESPONSIBILITY
Making choices that help protect our planet and living things.

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.