Granby Junior School

Science Policy

Review Date	Approved by	Governor Minute Reference
July 2027		

Date: July 2026

DERBYSHIRE County Council
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Introduction

This document is a statement of the aims, principles and strategies for the teaching and learning of science at Granby Junior School.

This policy will be reviewed by the Science Co-ordinator in July 2026 or as required by the School Improvement Plan.

Curriculum Statement

Intent

Science is a body of knowledge built up through experimental testing of ideas, hypotheses and theories. It involves the skill of being able to apply scientific knowledge to a wide variety of situations.
Science is also a methodology, a practical way of finding reliable answers to questions we may ask about the world around us.

At Granby Junior School, our aims and objectives in teaching science are in line with the National Curriculum 2014 guidelines which state that children should:

- Develop **scientific knowledge and conceptual understanding** through the specific disciplines of physics, chemistry and biology.
- Develop understanding of the **nature, processes and methods of science**, through different types of scientific enquiry to answer scientific questions about the world around them.
- Possess the scientific knowledge required to understand the **uses and implications of science**, today and into the future.

Science Intent

We recognise the importance of science in every aspect of daily life. Through the teaching and learning of science, we aim to develop pupils' knowledge and understanding of the world around them while fostering curiosity, critical thinking and a love of scientific enquiry. Children develop their scientific knowledge and skills through practical investigations, experimental testing and the exploration of ideas, hypotheses and theories.

We provide opportunities for children to ask questions, make predictions, carry out fair tests, observe changes, collect and analyse evidence, and draw conclusions based on their findings. By encouraging scientific enquiry, we enable pupils to develop confidence in investigating the world around them and applying their learning to real-life contexts.

As a result of our science teaching, we want children to:

- See science as an enjoyable, engaging and inspiring subject.
- Work independently and collaboratively, listening to and valuing the ideas and opinions of others.

- Observe carefully, ask questions, make predictions, plan and carry out fair tests, measure accurately, record findings, communicate results and draw evidence-based conclusions.
- Apply knowledge and skills from other subjects, including mathematics for measuring, calculating and presenting data, and computing where appropriate to enhance scientific learning.
- Develop curiosity about the natural world and demonstrate respect and care for the environment.
- Recognise how science relates to everyday life and appreciate the contributions of scientists from Britain and across the world, both past and present.
- Understand the nature of science and the importance of gathering reliable, evidence-based information to explain and understand the world around them.

At Granby Junior School, we are ideally located to make use of the natural environment, both within our school grounds and in the local area. A short walk to Bennerley Viaduct, the Ilkeston Canal and Shipley Country Park enable our children to explore a range of habitats and apply their scientific learning in real-life contexts.

We provide an excellent foundation for further learning at Key Stage 3. Through whole-school assemblies and wider curriculum opportunities, pupils learn about influential scientists from a range of backgrounds, including pioneering women in science. These experiences broaden pupils' understanding of the diverse contributions to science and encourage them to see themselves as capable of success in scientific learning and future careers.

Implementation

Teachers foster a positive attitude towards science and maintain high expectations, ensuring that all pupils believe they can achieve success in the subject. At Granby Junior School, science is taught as a discrete subject through the statutory units of the Key Stage 2 National Curriculum. Each year group follows the required programmes of study, ensuring full curriculum coverage and clear progression in scientific knowledge and skills.

Our science curriculum is carefully planned using a collaborative approach. Each unit is broken down into key learning objectives, enabling teachers to deliver the essential knowledge in engaging, practical and interactive ways. Lessons are designed to encourage curiosity, develop scientific vocabulary and provide opportunities for pupils to work collaboratively, communicate their ideas and present their findings confidently.

Through our planning, pupils are encouraged to ask questions, make predictions, solve problems and apply their scientific understanding in a range of contexts. Practical activities are used purposefully to develop both knowledge and enquiry skills, allowing children to think and work like scientists. This approach has been embedded across the school for over a year.

Through ongoing monitoring and evaluation, we continually refine and develop our science curriculum to provide the highest quality learning experiences for our pupils. Our current focus is on further enhancing opportunities for pupils to develop their **Working Scientifically** skills within each unit, ensuring that scientific enquiry is embedded alongside the teaching of substantive knowledge. This will enable pupils to deepen their understanding, make meaningful connections in their learning and apply their scientific skills with increasing confidence.

Long-term Planning

The long-term plan has been developed using the statutory programmes of study from the 2014 National Curriculum for Science. The curriculum has been carefully mapped to ensure full coverage of the required knowledge and skills within each year group, while providing clear progression across Key Stage 2. (See Appendix 1.1.)

Medium-term Planning

Medium-term plans break each science unit into smaller, sequential learning objectives that build pupils' knowledge and understanding over time. These plans identify the key scientific concepts and vocabulary to be taught, ensuring learning is progressive and supports pupils in making connections within and across units. The Science Leader regularly reviews these plans to ensure consistency, progression and full curriculum coverage. (See Appendix 1.2.)

Short-term Planning

Short-term planning provides the detailed sequence for each lesson within a unit. Lesson plans include the learning objective, success criteria, key vocabulary and detailed teaching activities, with an emphasis on practical, hands-on learning wherever possible. Opportunities for discussion, investigation and assessment are embedded throughout lessons to support pupils' understanding. Teachers use these plans to deliver engaging learning experiences and adapt future teaching.

Teachers use a range of teaching approaches, including whole-class teaching, collaborative group work, paired learning and independent activities, to ensure that all pupils can access, enjoy and make progress in science. Practical investigations, discussion, questioning and problem-solving are central to our approach, enabling pupils to develop their scientific understanding through first-hand experiences and enquiry.

Scientific vocabulary is explicitly taught and modelled throughout each unit and is reinforced through classroom displays, word banks, discussion and written work. Pupils are encouraged to use appropriate scientific language confidently when explaining their ideas, making predictions, recording observations and presenting conclusions.

Links with other curriculum areas are made where appropriate, particularly mathematics, where pupils apply skills such as measuring, recording data, constructing graphs and interpreting results to support their scientific investigations.

Granby Junior School celebrates science through participation in national events such as **British Science Week**, providing pupils with opportunities to explore science beyond the classroom. Through our **Granby Academy Sessions**, pupils from different year groups work collaboratively on exciting practical science challenges. These mixed-age sessions promote teamwork, curiosity and the application of scientific skills in a fun and engaging environment. We aim to further develop opportunities such as a STEM after-school club in the future, enabling pupils with a particular interest in science, technology, engineering and mathematics to extend their curiosity, creativity and problem-solving skills.

We have strong links with our local Key Stage 3 providers to support pupils' transition to secondary education. Pupils have opportunities to visit local secondary schools and take part in practical science lessons within their science departments, allowing them to experience specialist facilities and teaching. In addition, staff from a local secondary school visit Granby Junior School to deliver

engaging practical science sessions, helping to inspire pupils, build confidence and ensure a smooth transition to Key Stage 3.

Achievement in science is celebrated through discussion, practical outcomes and opportunities for pupils to share their learning with others. Examples of pupils' work and learning experiences are regularly shared on Seesaw, enabling children to reflect on their achievements and allowing parents and carers to engage with their child's learning. Teachers provide feedback in line with the school's current feedback policy, supporting pupils in recognising their successes and identifying their next steps.

Impact

At Granby Junior School, the impact of our science curriculum is that pupils develop secure scientific knowledge alongside a growing curiosity and enthusiasm for understanding the world around them. They build confidence in asking questions, making predictions, carrying out practical investigations and drawing conclusions using evidence.

Pupils use scientific vocabulary accurately and confidently to explain their ideas, discuss their learning and communicate their findings both orally and in writing. They apply mathematical skills, such as measuring, recording and interpreting data, to support their scientific enquiries and make meaningful links between science and other areas of the curriculum.

As pupils progress through the school, they develop increasing independence, resilience and confidence when working scientifically, both individually and collaboratively. They recognise the relevance of science in everyday life and gain an appreciation of the contributions made by scientists from a range of backgrounds, inspiring them to see science as an accessible and exciting subject.

The impact of the curriculum is measured through ongoing formative assessment, pupil discussions, the quality of practical and written outcomes, and teachers' assessment of pupils' understanding against the National Curriculum objectives. Monitoring by the Science Leader, including learning walks, pupil voice, planning scrutiny and work scrutiny, ensures that the curriculum continues to be refined and developed so that all pupils achieve their full potential in science and are well prepared for the next stage of their education.

Assessment, Recording and Reporting

Assessment in science is an ongoing process that informs teaching and supports pupils' progress. At Granby Junior School, we place a strong emphasis on revisiting previously taught scientific knowledge to strengthen understanding and support long-term retention. Science lessons begin with a retrieval activity that recaps relevant prior learning, enabling teachers to identify misconceptions and assess pupils' understanding. Multiple-choice questions are frequently used as a quick and effective form of formative assessment.

Teachers use a whole-class science feedback record to document the learning objective for each lesson, identify pupils who have made strong progress or require additional support, note any misconceptions and record next steps for learning. This information is used to inform future planning and ensure teaching is responsive to pupils' needs.

Parents and carers receive a written report in the Summer Term, which outlines each child's attainment, effort and attitude towards science.

For further information on assessment and record keeping, please refer to the school's **Assessment Policy** and **Feedback Policy**.

Health and Safety

Consideration for health and safety is considered before a topic is introduced in the classroom. The curriculum guidelines within each topic are considered with reference to HES Health and Safety guidelines.

The Role of IT

IT is regularly used to promote scientific knowledge and understanding. Computers, laptops and ipads are used for research. Work may be recorded using a variety of apps, databases, spreadsheets and graphical tools. Use of data loggers and other electronic measuring tools are being developed across school across school to enhance children's investigative work and further embed cross curricular links.

Inclusion

At Granby Junior School, every pupil is entitled to experience an ambitious, engaging and inclusive science curriculum that enables them to develop scientific knowledge, skills and curiosity about the world around them.

We are committed to ensuring that all pupils, regardless of need or background, participate fully in science lessons and achieve their potential through high-quality inclusive teaching.

Teachers have a secure understanding of the diverse strengths, needs and barriers that pupils may experience and use ongoing assessment to identify these early. Through the graduated approach of assess, plan, do and review, teachers adapt their practice to remove barriers to learning while maintaining consistently high expectations for every pupil.

Inclusive science teaching is rooted in high-quality classroom practice. Lessons are carefully designed so that all pupils access the same ambitious curriculum, with appropriate scaffolds and reasonable adjustments provided where needed. These may include carefully sequenced learning, explicit vocabulary instruction, practical demonstrations, modelled examples, adapted resources, visual supports, focused questioning, collaborative learning and the effective use of adult support to promote independence rather than reliance.

Teachers regularly assess pupils' understanding to inform responsive teaching and ensure that all learners make progress. Where additional support is required, strategies are planned collaboratively with the SENDCo, families and, where appropriate, external professionals. Our inclusive approach ensures that every pupil, including those with SEND, disadvantaged pupils, pupils learning English as an additional language and those requiring additional challenge, is supported to participate, succeed and develop a lifelong enthusiasm for science.

This reflects our belief that inclusion is achieved through excellent teaching, early identification of need and the removal of barriers so that every child can flourish within the same high-quality curriculum.

Diversity

At Granby Junior school our curriculum offers a diverse view of the world, beginning in our local community and extending beyond. Through the lenses of British values, children are positively exposed to a range of role models, reflected within the wider society, redressing the balance seen within our local community.

In Science, children learn about diversity both in terms of cultural diversity and that of gender. This is shown by celebrating women in science such as Marie Curie and Mary Annings and celebrating Scientists through Black History month including Mae C Jemison and George Washington Carver.

Resources

Physical resources are kept centrally in a designated science cupboard. Individual teachers are responsible for collection and return of resources. Shortages and breakages should be reported to the subject leader.

A large range of non- fiction books and encyclopaedias are housed in the school library. These can be accessed by the children on a class rota basis. We also have access to a central library and subject specific books can be loaned to support the learning.

The Role of the Science Subject Leader

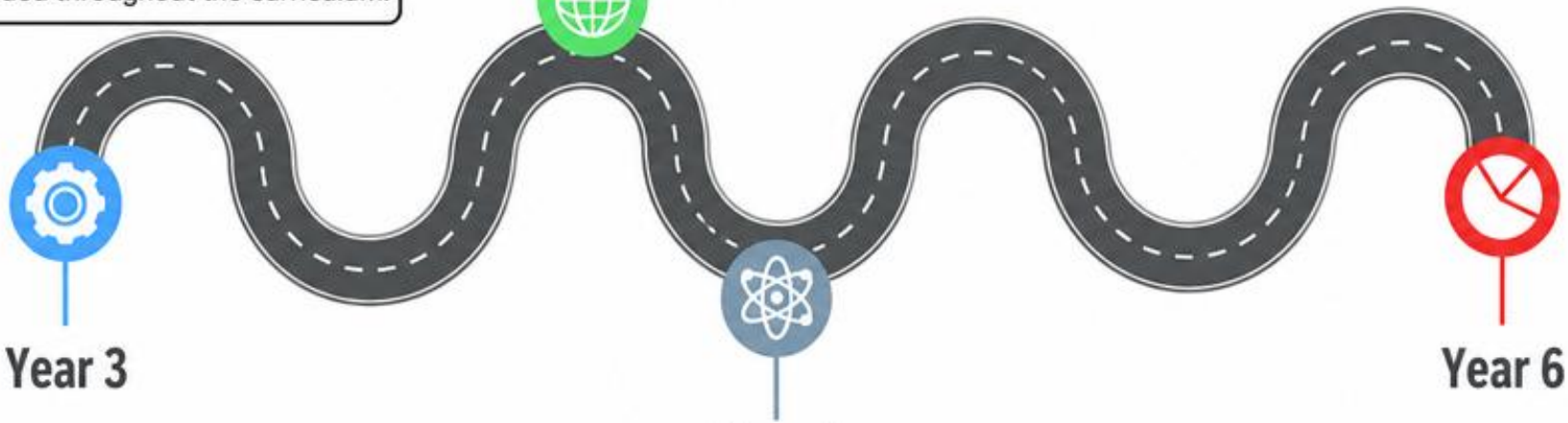
The science subject leader should:

- Take the lead in policy development and the monitoring and evaluation of the science curriculum to ensure coverage, progression and continuity in science throughout the school.
- Support colleagues in their development of planning, implementation of the curriculum and in assessment of the children's progress.
- Monitor progression in science and advise on action needed and areas for future focus or development.
- Take responsibility for the purchase and organisation of central resources for science and to manage the subject budget.
- Keep up to date with developments in science education and disseminate information to colleagues as appropriate, including professional development opportunities.
- The science subject leader will observe science lessons throughout the school to ensure continuity and progress across year groups. This also provides an opportunity to support class teachers, talk to children about their experiences and celebrate good practise.

Appendix 1.1

Science

Our Science curriculum closely follows the National Curriculum programmes of study. These are linked to other areas of the curriculum where possible. Working scientifically is threaded throughout the curriculum.



Year 3

Biology: parts of plants and requirements for growth and life. Human skeleton and nutrients. Rocks, soils and fossils.

Physics: light and shadows, forces and magnets

Year 4

Biology: classification of living things, digestive system and food chains

Chemistry: states of matter

Physics: electricity, sound

Year 5

Biology: life cycles and human development

Chemistry: properties and changes of materials

Physics: Earth and space, forces

Year 6

Biology: classification of plants and animals, human circulatory system, evolution and inheritance

Physics: light, electricity

Appendix 1.2

 **Year 3 Science: Rocks**	**Vocabulary:** igneous rock, sedimentary rock, metamorphic rock; texture, hardness, permeability, porosity, absorb, durability, granite, limestone, sandstone, fossil, strata, palaeontology, soil, sandy soil, clay soil, silt, humus, organic matter, topsoil, subsoil, bedrock	**Resources:** PPT, Rock samples (igneous, sedimentary, and metamorphic), Magnifying glasses, recording sheets, rock samples (granite, sandstone, limestone) beakers, water, stopwatch or timer, clay and plaster, model animal or leaf imprint, soil samples, colour chart for soil

	Learning Objectives and Success Criteria	**Whole Class/Shared Session** (With key questions)	**Group Work/Independent Activity** (Differentiation)	**Plenary/Close** With key Questions
Lesson 1	**Evaluation of Prior Knowledge** Before beginning the lesson, it is essential to assess students' existing knowledge on rocks. This can be done through an engaging class discussion where pupils share what they already know about rocks, perhaps prompting them with questions such as: • "Can anyone tell me what a rock is?" • "What types of rocks can you think of?" Teachers can take note of any misconceptions, such as confusing rocks with minerals or fossils, to address later in the lesson		**Assessment Strategies** • Continuous assessment through observation during the activity; assess students' ability to describe and classify rocks accurately. • Collect the recording sheets and review descriptions to gauge understanding. • Use a simple exit ticket where students write down one thing they learned about rocks.	
	LO: To compare and group different rocks SC: • Identify and describe different types of rocks. Compare the properties of different rocks. Group rocks based on their physical characteristics (e.g., texture, colour, hardness).	**Starter Activity (15 minutes)** Begin with a discussion on rocks, prompting pupils to share their prior knowledge. Show a short engaging video about the rock cycle to grab attention and reinforce the concept of rocks being formed over time. Follow this by introducing key vocabulary: igneous, sedimentary, metamorphic, texture, and hardness. **Input (20 minutes)** Present a PowerPoint presentation (or use a whiteboard) that details the three main types of rocks: Igneous: Formed from cooled magma/lava. Sedimentary: Composed of particles from other rocks and organic materials, often layered. Metamorphic: Formed from existing rocks that have changed due to heat and pressure. Show images and actual samples of different types of rocks. Use a magnifying glass to examine textures. While discussing each type, model how to describe the properties using a simple chart.	**Activity (30 minutes)** **Rock Station Activity**: Create three stations, each dedicated to one rock type, decorated with samples and descriptive charts. **Station A**: Igneous Rocks Compare two samples, identify their properties (e.g., shiny, rough). **Station B**: Sedimentary Rocks Group small pebbles based on colour and texture. **Station C**: Metamorphic Rocks Use the magnifying glasses to examine and note differences in crystalline structure. In groups, students will rotate through each station, filling out a recording sheet where they will describe and compare the rocks they observe.	**Plenary (10 minutes)** Regroup as a class and have a sharing session where each group presents one interesting fact about their favourite rock type. Engage in a Q&A to clear up any remaining confusions and reinforce learning. **Questions to Ask** •"What differences did you notice between the igneous and sedimentary rocks?" •"Can someone describe what makes a metamorphic rock unique?" •"How do you think rocks impact our everyday life?"

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Adaptations: More Confident Pupils: Encourage them to research and present on a specific rock type's uses in everyday life. Allow them to create a more detailed chart including hardness tests for rock samples. Less Confident Pupils: Provide visual aids, including pictures and tactile examples. Pair them with a more confident peer to support their learning and ensure participation during group activities.				
Lesson 2	**Evaluation of Prior Knowledge** Before the lesson, the teacher will evaluate prior knowledge by asking students about their understanding of rocks. This could involve a brief discussion on different types of rocks (e.g., granite, sandstone) and their characteristics. Questions to gauge prior knowledge: "Have you have seen water absorb into the ground?" " What do you think makes rocks different from each other?" "Have you ever seen how water moves through the soil or rocks?"		**Assessment Strategies** Formative assessment through observation during group discussions and activities. Review of the written observations and charts created by each group to evaluate understanding.	
	LO: To examine the permeability of rocks SC: Explain what the term 'permeability' means in relation to rocks. Conduct a simple experiment to test the permeability of different types of rocks. Record and interpret their findings through a table and discussion. Understand the practical implications of rock permeability in the natural environment.	**Starter Activity (10 minutes)** Begin with a provocative question: "What happens when it rains? Does all the water stay on the surface?" Allow students to share their ideas in pairs and then gather their thoughts as a whole class. Introduce the vocabulary word "permeability" by writing it on the whiteboard, alongside its definition: the ability of a material to allow liquids or gases to pass through it. **Input (15 minutes)** Discuss different types of rocks, showcasing examples (pictures or samples) and explaining why permeability is relevant, especially in locations like riverbeds or during heavy rainfall. Introduce the experiment by demonstrating how students will test the permeability of three different rock samples. Show the materials they will use (e.g., beakers, water, different rock types).	**Main Activity: (20 minutes)** Divide students into small groups, providing each group with three types of rock samples. • Instruct students to fill each of their beakers with a specific amount of water (150 ml) and carefully place one type of rock in each beaker. • Have students observe and note how quickly the water passes through each rock (or if it does at all) over a set time (5-10 minutes) on a provided chart. • After observing, they should discuss their findings within their groups, considering which rock was most and least permeable and why.	**Plenary (10 minutes)** Regroup as a class and invite each group to share their findings. Discuss the differences noted by each group and how these relate to real-world applications (e.g., building foundations, flood management). Conclude with a reflection question: "Why do you think understanding rock permeability is important?"

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	Learning Objectives and Success Criteria	Whole Class/Shared Session (With key questions)	Group Work/Independent Activity (Differentiation)	Plenary/Close With key Questions
Adaptations: More Confident Pupils: Challenge these students to hypothesise which types of rocks might be most common in different environments (forests, mountains, etc.) and be prepared to justify their choices. Less Confident Pupils: Provide pre-filled charts where students only have to record observations. Pair less confident students with more confident peers to promote collaborative learning.				
Lesson 3	**Evaluation of Prior Knowledge** Before the lesson begins, the teacher will engage students by asking them: What rocks do you know? Where have you found rocks before? What do you think makes some rocks stronger than others? These questions will help the teacher gauge students' existing knowledge about rocks and may also reveal their understanding of properties like strength and durability.		**Assessment Strategies** Formative Assessment: Monitor students' engagement during group discussions and their ability to use scientific vocabulary during the main activity. The teacher can observe students at testing stations to assess their hands-on skills and understanding of experiment procedures. Summative Assessment: At the end of the lesson, collect worksheets to evaluate the depth of their observations and understanding of rock durability.	

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	LO: To study the durability of rocks SC: Understand the concept of durability in relation to rocks. Compare the durability of different rock samples using simple tests. Use scientific vocabulary to describe their observations.	**Starter Activity (10 minutes)** The lesson will begin with a brief discussion on rocks. The teacher can show different types of rocks (e.g., granite, limestone, sandstone) and ask students to describe their appearance. Use questioning techniques to encourage participation, such as "What colours can you see?" and "How do you think these rocks are different?" **Input (15 minutes)** Introduce the concept of durability. The teacher will explain that durability refers to how well a rock can resist wear and tear. Discuss factors that contribute to a rock's durability, including its composition and texture. Present some key vocabulary clearly: • Durability: the ability to last or withstand wear. • Granite: a hard, durable rock primarily composed of quartz and feldspar. • Limestone: a sedimentary rock that is softer and may wear away more easily. • Sandstone: a rock composed mainly of sand grains that can vary in durability.	**Class Activity (25 minutes)** **Rock Testing Stations**: Set up three stations where students can test the durability of the rock samples. Each station will focus on a different test, such as: Scratch Test: Using a nail to scratch the surface of each rock to see which one shows more wear. Soak Test: Placing rocks in water to observe any changes. Drop Test: Dropping rocks from a small height onto a hard surface and observing if any chips or cracks occur. Students will work in pairs and rotate among the stations, recording their observations on a worksheet with prompts to guide them, such as: "Which rock was the hardest? What happened during the test?" "Which rock did you think was least durable and why?" **Questions to Ask** "What did you notice about the different rocks?" "How can you tell which rock is more durable?" "What do you think would happen if we used softer rocks in buildings?"	**Sharing and Plenary (10 minutes)** Each pair will share their findings with the class. The teacher will encourage students to use the scientific vocabulary introduced earlier. Conclude with the question: "What do you think is the most durable rock and why?" This reflection will allow students to articulate their understanding.

Adaptations:
More Confident Pupils: Encourage deeper exploration by asking them to hypothesise why certain rocks are used in building materials or to consider the implications of rock durability in different environments, such as coastal erosion.
Less Confident Pupils: The teacher can pair students strategically, ensuring more confident pupils support those who may be struggling. Providing sentence starters on the worksheet (e.g., "I think the limestone is less durable because…") can help them articulate their thoughts.

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Lesson 4	**Evaluation of Prior Knowledge** Before beginning the lesson, the teacher will assess students' prior knowledge by asking: What do you know about dinosaurs? Have you ever seen a fossil? What do you think it is? The teacher will encourage students to share their thoughts and any experiences they have, allowing them to engage with the topic from the outset.		**Assessment Strategies** Observe students during discussions and group activities. Use a simple checklist to note participation and contribution. Assess the clay fossil creations and the associated presentations for understanding of concepts related to fossil formation and prehistoric life. Use exit tickets where students write one thing they learned and one question they still have about fossils.	
	LO: To understand how fossils are formed SC: Describe how fossils are formed. Explain how fossils help scientists learn about prehistoric times. Identify different types of fossils and discuss what they reveal about living things from the past.	**Starter Activity (10 minutes)** Begin with a short video clip (2-3 minutes) showing various fossils and prehistoric animals. Ask students to think-pair-share with a partner: "What animal do you think lived a long time ago, and how do we know about them today?" **Input (15 minutes)** Introduce the concept of fossils by presenting a clear and engaging PowerPoint that explains: • What fossils are: Remains or traces of animals or plants from a long time ago. • How fossils are formed: • When a plant or animal dies, it may get buried under mud or sand. • Over time, more layers build up, and pressure and heat change the remains into rock. • Minerals can seep in and replace parts of the bones or shells. Use visuals such as diagrams to illustrate processes. Discuss key vocabulary words, ensuring students understand: • Fossil: The preserved remains or traces of a living thing. • Strata: Layers of sedimentary rock where fossils are found. • Palaeontology: The scientific study of fossils.	**Group Activity (20 minutes)** Create a hands-on activity where students will simulate fossil formation using clay. Each student will press a small model animal or leaf into clay and then pour plaster over it to create a "fossil". While they work, circulate the classroom to facilitate discussions and ask guiding questions, such as: "What do you think will happen to the animal/leaf as the clay hardens?" "How would a scientist feel when they find a fossil? What information might they discover?" **Questions to Ask** What do you think happens to an animal after it dies? How do scientists know what dinosaurs looked like if they were alive millions of years ago? Why do you think it is important to study fossils?	**Plenary (10 minutes)** Students will present their "fossils" to the class and explain what kind of prehistoric animal they think it represents and what information it might provide. Conclude with a recap of the main points covered in the lesson, asking students to reflect on: "What is one new thing you learned about fossils today?"

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Adaptations:
More Confident Pupils: Challenge them to research a specific dinosaur or plant and present on its habitat and how that contributed to its fossilisation. Encourage them to think critically about the environmental conditions required for fossil formation.
Less Confident Pupils: Provide a guided worksheet with visuals and fill-in-the-blank options to support their understanding during presentations. Pair them up with more confident peers for collaborative work.

	Evaluation of Prior Knowledge Before the lesson begins, the teacher will assess students' prior knowledge through a quick questioning session. Questions may include: "What do you think soil is made of?" "Can you name different places where we find soil?" "Have you seen any types of soil in your garden or at school?"	**Assessment Strategies** Formative assessment through observation during group work. Evaluate the accuracy and detail of pupils' recording sheets. Encourage peer feedback during the plenary session.

Year 3 Science: Rocks	**Vocabulary:** igneous rock, sedimentary rock, metamorphic rock; texture, hardness, permeability, porosity, absorb, durability, granite, limestone, sandstone, fossil, strata, palaeontology, soil, sandy soil, clay soil, silt, humus, organic matter, topsoil, subsoil, bedrock	**Resources:** PPT, Rock samples (igneous, sedimentary, and metamorphic), Magnifying glasses, recording sheets, rock samples (granite, sandstone, limestone) beakers, water, stopwatch or timer, clay and plaster, model animal or leaf imprint, soil samples, colour chart for soil

	Learning Objectives and Success Criteria	**Whole Class/Shared Session** (With key questions)	**Group Work/Independent Activity** (Differentiation)	**Plenary/Close** With key Questions
Lesson 5	LO: To explore the properties of soil SC: Understand the three main components of soil (minerals, organic matter, water). Identify and describe the different types of soil. Compare soil samples based on their properties using appropriate scientific vocabulary.	**Starter Activity (10 minutes)** Begin with a short video clip or slideshow showing various types of soil and landscapes (e.g., sandy beaches, muddy fields, rich forest soil). Following the visual, ask pupils to share what they noticed. List responses on the whiteboard. **Introduction to Soil Properties (15 minutes)** Teacher introduces key vocabulary: "soil," "sand," "clay," "silt," "humus," and "texture." Definitions will be provided on a display board. Discuss the visual differences in soil types as observed in the video. Use the following key questions: • "What colours did you notice?" • "How do you think sand feels compared to clay?" • "What do you suppose humus does for the soil?"	**Main Activity – Soil Investigation (25 minutes)** **Group Work**: Divide the class into small groups. Each group receives different soil samples (e.g., potting soil, beach sand, garden soil, clay). Pupils will conduct experiments to assess the properties of their soil sample: • Texture: Rub soil between fingers to describe its feel. • Water Retention: Pour a small amount of water into each soil sample and observe how quickly it absorbs the water. • Colour Chart: Use a colour chart to match the colour of the soil. Provide recording sheets for them to note their observations on texture, colour, and water absorption. **Monitoring Progress**: Teacher circulates to encourage discussion and pose probing questions such as "What happens if you add more water?" and "Which soil type held the most water?"	**Plenary (10 minutes)** Regroup and share findings. Each group presents their observations. Encourage them to use the scientific vocabulary introduced earlier. Conclude the activity by discussing the importance of soil in our environment and how different soils affect plant growth.

Adaptations:
More Confident Pupils: Encourage them to formulate hypotheses before starting their tests and challenge them to think about how different soils can affect plant growth.
Less Confident Pupils: Pair them with a supportive partner, allowing them to share ideas. Provide a guided worksheet with prompts that lead them through the investigation step-by-step.

Lesson 6	**Evaluation of Prior Knowledge** Before commencing the lesson, the teacher should assess students' prior knowledge by asking: What do we think soil is made of? Why do we think soil is important for plants and animals?These questions will help gauge students' understanding of soil and its significance, setting the stage for deeper exploration in the forthcoming lesson.	**Assessment Strategies** Formative assessment will be gauged through observations during discussions and activities. Check for understanding during class discussions. Collect students' worksheets from the exploration stations to analyse their observations and insights, providing feedback.

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	LO: To understand soil formation SC: Describe how soil is formed. Identify the layers of soil. Explain the importance of soil in the environment.	**Starter Activity (10 minutes)** Begin with a visual stimulus: Display a variety of soil samples in jars (topsoil, clay, sandy soil). Ask students to observe and discuss in pairs what they see and feel. Facilitate a class discussion to share observations. Introduce the key question: "How do you think soil gets to be the way it is?" **Input (15 minutes)** Present a short PowerPoint presentation that covers: • The definition of soil. • The different components of soil (minerals, organic matter, water, and air). • The process of soil formation: weathering of rocks and decomposition of organic materials. Use visuals such as diagrams to illustrate soil layers (topsoil, subsoil, bedrock). Engage students by asking them to point out how various elements contribute to soil quality, using real-world examples (e.g., why we see different types of soil in different environments).	**Activity (25 minutes)** **Soil Exploration Stations**: Set up four stations each focusing on different aspects of soil: • Station 1: Texture Exploration (students feel and sort different soil samples). • Station 2: Layer Building (students use layered materials to create a model of soil layers). • Station 3: Organism Observation (students examine decaying leaves and miniatures of soil organisms under magnifying glasses). • Station 4: Soil Composition Experiment (students mix soil with water to observe changes). Each group rotates every 5-7 minutes, with a worksheet to record their observations and findings.	**Plenary (10 minutes)** Gather students together to discuss what they learned at each station. Pose reflective questions like: "What surprised you about soil?" or "How did your understanding of soil change today?" Reinforce the learning objectives by summarising key points regarding soil formation and its importance.

Adaptations:
More confident pupils: Challenge them by asking them to research and present on different soil types or investigate the role of soil in ecosystems. Encourage them to lead discussions at the exploration stations to foster peer teaching.
Less confident pupils: Provide visual aids and simplified language during the input session. Pair them with more confident peers during activities for support. Offer sentence starters for their observations (e.g., "I noticed that…").