

GRINDON INFANT SCHOOL



SCIENCE POLICY

Science Policy 2022

Intention

The 2014 national curriculum for science aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics.
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them.
- are equipped with the scientific skills required to understand the uses and implications of science, today and for the future. We understand that it is important for lessons to have a skills-based focus, and that the knowledge can be taught through this.

We believe a high-quality science education provides foundations for understanding the world. Science has changed our lives and is vital to the world's future prosperity. Through building key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how key knowledge and concepts can be used to explain what is occurring, predict how things will behave, and analyse causes. This understanding should be consolidated through their appreciation of applications of science in society and the economy. In teaching science, we are developing in our children:

- a positive attitude towards science and an awareness of its fascination.
- an understanding of science through a process of enquiry and investigation;
- confidence and competence in scientific knowledge, concepts and skills.
- an ability to reason, predict, think logically and to work systematically and accurately.
- an ability to communicate scientifically.
- the initiative to work both independently and in co-operation with others.
- the ability and understanding to use and apply science across the curriculum and real life.

At Grindon Infants our aim is to enthuse, develop and challenge pupils through an engaging and progressively structured science curriculum and teaching approaches.

Implementation

The National Curriculum for Science is used as a framework for science content, skills and pupil expectations at our school. To support our key principles, we will deliver this curriculum through:

- A skills-focussed approach to teaching that ensures an appropriate and flexible challenge within the classroom. This approach is called 'dual objective'. The Science National Curriculum states that "*Working and thinking scientifically ... must always be taught through the substantive science content*". This is supported by the explicit use of dual objective planning.
- Five key science skills that support knowledge / conceptual development and Working Scientifically to match pupil performance to national Key Stage expectations (see Science Planning and Assessment File for details).

Science at Grindon Infants is a core curriculum subject. In KS1 teachers will follow the Topic Grids to support their planning and teaching and will deliver science x1 session per week as a minimum expectation. In EYFS science is an integral part of the topic work covered during the year, relating the geographical aspects of the pupil's work to the objectives set out in the Early Learning Goals. Science makes a significant contribution to the ELG objectives of developing a pupil's knowledge and understanding of the world. Evidence of this learning is made in their learning journals. Further EYFS information can be found on the EYFS policy.

Year group expectations (see Science Assessment Boards) are set against appropriate challenge for each individual year group and are matched to ensure progression and build on prior knowledge to embed the pupils' knowledge and understanding, in order to support retaining information into their long-term memory. This challenge will be reviewed regularly and adjusted, to ensure appropriate progress. Specific Key Stage expectations are given in the Science Planning and Assessment File.

Attainment Targets

By the end of each key stage, pupils are expected to know, apply, and understand the matters, skills and processes specified in the relevant programme of study.

	AUTUMN 1	AUTUMN 2	Spring 1	Spring 2	Summer 1	Summer 2
KS1	Animals Including Humans <ul style="list-style-type: none"> Identify (birds, fish, amphibians, reptiles, mammals), describe & compare structure Identify carnivores, herbivores, omnivores Label human body parts, link to senses 	Everyday Materials <ul style="list-style-type: none"> Distinguish between object & material it is made of Identify everyday materials Describe simple physical properties of materials Compare / group materials by physical properties 	Pushes & Pulls <ul style="list-style-type: none"> Recognise push/pull as a force to move an object Recognise that force can be bigger/smaller & direction Investigate push/pulls with <u>more or less force</u>. Heavier objects 	Light & Shadows <ul style="list-style-type: none"> Observe sun in sky Observe light coming from a source Observe light blocked to form shadow Investigate how to make a place darker/lighter Know light/dark safety 	Plants <ul style="list-style-type: none"> Identify (garden, wild, trees) Deciduous, evergreen Basic structure of a variety of common flowering plants, inc trees (roots, stem, leaves, flower) 	
	Seasonal Changes <ul style="list-style-type: none"> Observe changes across seasons Observe & describe weather / day length changes with seasons 					
	2	Animals Including Humans <ul style="list-style-type: none"> Offspring into adults Explain basic needs for survival (water, food & air) Need for exercise / nutrition / hygiene Life cycle of insect & amphibian 	Uses of Everyday Materials <ul style="list-style-type: none"> Identify/compare uses of everyday materials Find out how shapes of solids can be changed by squashing, bending, twisting & stretching 	Building Circuits <ul style="list-style-type: none"> Identify appliances that run on electricity Recognise need for power source & closed circuit to make an appliance work Identify components/symbols Build simple closed circuits 	Plants <ul style="list-style-type: none"> Growth from seed/bulb Requirements for growth (water, light & suitable temperature) 	Living Things & Habitats <ul style="list-style-type: none"> Explain difference between living, dead & non living (7 processes of life) Live in habitats (suited) Habitats provide basic needs. Depend on each other. Study habitats/microhabitats Food chains (feeding only)

Key Stage	Year	Programme of Study
KS1	1-2	<ul style="list-style-type: none"> Asking simple questions & recognise they can be answered in different ways (use science experience to explore; ask how things are similar, different or change; ask how they happen) Identifying & classifying (compare simple features; decide, with help, how to sort & group) Observing closely using simple equipment (observe changes over time; use simple measurement & equipment) Performing simple tests (experience different types of enquiry (inc practical), begin to work with different tests; carry out simple tests) Gathering & recording data to help in answering (record & communicate, findings in a range of ways; begin to use simple scientific language, use simple measurements & equipment) Recording findings using standard units, drawings, diagrams, photographs, simple prepared formats such as tables and charts, tally charts, and displays Using observations & ideas to suggest answers to questions (choose ways they might answer; talk about what has happened; notice, with help, patterns & relationships; use simple secondary sources to find answers)

Science Across the Curriculum

Science contributes significantly to the teaching of English by actively promoting the skills of reading, writing, speaking and listening. Some of the texts studied in English (Reading) are of a scientific nature. Pupil's comprehension skills are developed, and they learn to distinguish fact from opinion. They develop oral skills through discussions and through recounting their observations of practical work. They develop writing skills through report writing and recording information in different formats. They extend their vocabulary, learning the meaning of, and correctly using, new scientific vocabulary.

Mathematics

- Pupils perform measurements; they learn to use and apply number, estimate and make predictions, apply data-handling techniques and use different ways of presenting results graphically.

Design and Technology

- Knowledge gained from science lessons is applied practically in Design and Technology, for example when pupils in Year 1 use their knowledge of materials when studying structures and building bridges, in Year 2 pupils use their knowledge of different food types when designing and making a healthy snack.

Computing

- Software is used to support the pupils' constructing graphs and viewing different concepts. Pupils learn how to find, select and analyse information on the internet.

Personal, social, health and economics education (PSHE) and citizenship

- Science makes a significant contribution to the teaching of PSHE and citizenship. For example, pupils can apply what they have learnt about healthy lifestyles when considering their own health and wellbeing.
- They learn to care for their world, for example through recycling,

Spiritual, Moral, Social and Cultural Development

- Science teaching offers pupils many opportunities to examine some of the fundamental questions in life, for example the evolution of living things.
- Through many of the amazing processes that affect living things, pupils develop a sense of awe and wonder regarding the nature of our world.

Science and Inclusion

At our school we teach science to all pupils, whatever their ability or additional needs. Science forms part of the school curriculum to provide a broad and balanced education to all children. Through our science teaching we provide learning opportunities that enable all pupils to make good progress. We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents, and those learning English as an additional language, and we take reasonable steps to achieve this. For more information see SEND and Equal Opportunity policies. We enable all pupils to have access to the full range of activities involved in learning science. Where children are to participate in activities outside the school, we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils. See also the Educational Visits policy.

Assessment

We use assessment to inform and develop our teaching.

Topics commonly begin with an assessment of what children already know, and what they want to learn. Teachers assess pupil's work in science by making informal judgements during lessons. On completion of a piece of work, the teacher assesses it, using a Science Assessment Board which provides criteria matched to year group expectation. Teachers then use this assessment to plan for future learning. Written and/or verbal feedback is given to the child to help guide his/her progress. Pupils are encouraged to reflect on their own, and others' work, and to make suggestions about how they can improve or develop, in ways appropriate for their age. See also the Marking policy.

At the end of a unit of work, the teacher makes a summary judgement about the work of each pupil, in relation to age-related expectations using the Standardisation Files.

Teacher assessment data is inputted termly into our school assessment system.

Pupils' progress will be reported to parents through parent consultations and end of year reports.

Teachers make the statutory assessment of each pupil's attainment in science at the end of Key Stage 1. This assessment is reported to parents.

Developments in Science and Raising the Profile

At Grindon Infants we believe in high quality teaching and learning and to ensure we stay abreast of new developments in the curriculum; teaching styles; funding; and assessment strategies we:

- Work with local STEM groups and training facilities.
- Provide opportunities for pupils to attend science visits.
- Provide opportunities for science visitors to attend school.
- Create awe and wonder through a Science Club and Science Weeks.

Health and Safety

Activities are planned with regard to our Health and Safety policy. Risk assessments are carried out as appropriate.

When working with tools, equipment and materials in practical activities and in different environments, pupils should be taught:

- about hazards, risks and risk control
- to recognise hazards, assess consequent risks and take steps to control risks to themselves and others
- to use information to assess the immediate and cumulative risks
- to manage their environment to ensure the health and safety of themselves and others
- to explain the steps they take to control risks

Class Teachers, Teaching Assistants and the Subject Leader will check equipment regularly and report any damage, taking defective equipment out of action.

Role of Subject Leader

It is the responsibility of the subject leader:

- To monitor the standards of children's work and the quality of teaching in science.
- To be responsible for supporting colleagues in their teaching,
- For bringing information about current developments in the subject and attending Network Meetings
- For providing a strategic lead and direction for science in school.
- To complete an annual evaluation for science and set science priorities.

Impact

Due to pupils acquiring the appropriate age-related knowledge linked to the science curriculum and skills which equip them to progress from their starting points and within their everyday lives, results in pupils at Grindon Infants enjoying science, being motivated learners with sound scientific understanding.



Science Policy

Author's Name	Grindon Infant School
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SIGNATURES:

Head Teacher	
Chair of Governors	