WOODMANSEY CE
PRIMARY SCHOOL

Building Strong Foundations · Unlocking Potential · Inspiring a Generation

# Science Policy

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Approved by: Governing Body

Date: September 2026

Next Review: September 2029

## 1. Relationship Between Charter, Policy and Planning

Science contributes to Woodmansey's vision by nurturing curiosity, securing knowledge of the natural and material world and enabling pupils to test ideas, use evidence and imagine future possibilities.

This policy sits beneath the Science Charter and should be read alongside the National Curriculum, the long-term science plan, associated unit plans, the Educational Visits Policy and current health and safety guidance. The charter defines entitlement; the long-term plan sequences biology, chemistry and physics; unit plans identify substantive knowledge, working scientifically, vocabulary, enquiry and outcomes; lesson preparation enacts the unit safely and responsively.

## 2. Subject Overview

Science helps pupils explain phenomena through connected knowledge and disciplined enquiry. Pupils learn established scientific ideas and how evidence is generated, interpreted and used. Practical work matters when it advances that learning, not simply because it is active.

Woodmansey's curriculum balances biology, chemistry and physics with working scientifically. Pupils encounter the five main enquiry types: observing over time, pattern seeking, identifying and classifying, comparative and fair testing, and research using secondary sources.

## 3. Intent

Our intent is that pupils become knowledgeable, curious and careful young scientists who can ask worthwhile questions, choose appropriate approaches, handle evidence responsibly and explain ideas using accurate scientific language.

We ensure that pupils:

- build secure and connected knowledge across biology, chemistry and physics
- develop understanding of enquiry, evidence, measurement and uncertainty
- use the full range of enquiry types for appropriate questions
- observe, measure, record and present with increasing accuracy
- interpret patterns and use evidence to support or revise explanations
- learn about diverse scientists and the role of science in everyday life and society
- develop stewardship, safety and ethical awareness through age-appropriate contexts.

## 4. Implementation

i. Curriculum Structure and Sequencing

Units are sequenced across the two-year cycle so pupils revisit and deepen concepts without accidental repetition or omission. Unit plans identify prerequisite knowledge, common misconceptions, key vocabulary, working-scientifically opportunities and expected outcomes.

ii. Substantive and Disciplinary Knowledge

Substantive knowledge includes facts, concepts, models and laws about living things, materials, forces, Earth and space. Disciplinary knowledge includes how questions are made investigable, variables are considered, measurements are improved, data are represented and evidence supports conclusions. Both are taught explicitly.

iii. Scientific Enquiry

Teachers choose the enquiry type that fits the question. Pupils increasingly contribute to decisions about method, variables, equipment, observations, sample, recording and evaluation. A fair test is not presented as the only legitimate scientific method.

iv. Practical Work

Before practical work, teachers identify the scientific purpose and the knowledge pupils need. Demonstration, guided practical work or pupil-designed enquiry are selected deliberately. Recording is proportionate and helps pupils think about evidence rather than merely document activity.

v. Mastery Principles

- Coherence - new learning is connected deliberately to prior knowledge and future application.
- Variation - examples, representations, texts or contexts are varied so pupils notice what changes and what remains constant.
- Structure - teaching makes the underlying organisation of knowledge visible rather than presenting disconnected activities.
- Fluency - essential knowledge and processes are practised until they can be used accurately and with reduced cognitive load.
- Making connections - pupils explain relationships, transfer learning and use subject vocabulary with increasing precision.

vi. Vocabulary, Reading and Oracy

Scientific words are introduced with phenomena, images, objects and explanations and are revisited across units. Pupils read age-appropriate scientific texts, describe observations precisely, compare explanations and use causal language carefully. Everyday and scientific meanings are distinguished.

vii. Inclusion and Adaptive Teaching

Adaptation may include pre-teaching, visual sequences, accessible equipment, defined group roles, additional modelling, reduced recording or alternative communication. All pupils remain involved in scientific decision-making and reasoning; adults do not complete the thinking for them.

viii. Challenge and Greater Depth

Greater depth is shown through applying concepts in unfamiliar situations, evaluating methods, recognising limitations, connecting variables, using more precise measurements and explaining why evidence supports one account more strongly than another.

ix. EYFS and Wider Opportunities

EYFS science grows through Understanding the World: noticing, comparing, predicting, observing change, asking questions and talking about evidence. STEM Week, visitors, clubs, outdoor learning and secondary links enrich the planned curriculum when they make scientific ideas and careers more visible.

## 5. Impact

Pupils should leave Woodmansey with secure scientific knowledge, experience of varied enquiry and the confidence to use evidence carefully. They should recognise science as a human endeavour that changes through testing, debate and improved explanation.

Pupils should be able to:

- recall and connect important concepts across units
- ask questions that can be explored scientifically
- select or critique an enquiry approach appropriate to the question
- observe, measure and record with increasing precision
- identify patterns and distinguish results from conclusions
- use evidence and scientific vocabulary to explain
- recognise limitations, safety considerations and possible improvements.

## 6. Assessment

FLiC (Framing Learning in Classrooms) is used to record and track pupils' attainment and progress against the curriculum objectives. Teachers update FLiC at appropriate points using practical evidence and their professional judgement. This information helps to identify next steps, inform future teaching and monitor the progress of individual pupils and groups over time. Teachers assess substantive and disciplinary knowledge rather than awarding credit simply for participation in an experiment.

Unit outcomes and periodic review check whether pupils remember and can apply essential knowledge. Recording is proportionate and does not require every practical experience to produce the same written format.

Pupil assessment includes:

- secure conceptual knowledge and correction of misconceptions
- knowledge of enquiry types and method choices
- quality of observation, measurement and recording
- interpretation of patterns, variables and evidence
- accuracy of scientific vocabulary and explanation
- ability to apply knowledge in a new context.

## 7. Leadership, Monitoring and Review

The science subject leader supports staff in understanding the curriculum, maintaining consistency and securing strong outcomes for all pupils. Leadership is developmental: monitoring identifies strengths, tests whether the intended curriculum is being learned and leads to precise support, coaching or curriculum refinement.

The subject leader will:

- review curriculum coverage, unit plans, books and practical outcomes
- talk with pupils about what they know and how they know it
- observe scientific explanation and enquiry
- check balance across biology, chemistry, physics and enquiry types
- monitor resources, risk assessment and safe practice
- evaluate STEM Week and wider opportunities against curriculum intent.

This policy is reviewed every three years, or sooner when statutory expectations, the adopted programme, school priorities or evaluated pupil need require a change. Any revision must remain aligned with the relevant charter, long-term planning and unit-plan hierarchy.

## 8. Subject Specific Pedagogy and Non-Negotiables

The following expectations preserve the distinctive quality of science at Woodmansey. They should be read alongside the relevant charter, long-term plan, unit or medium-term planning and agreed teaching resources.

Knowledge before Activity

Every practical activity has a clear scientific purpose. Pupils know the question, relevant concept and what evidence will help them think.

Use the Right Enquiry Type

Teachers do not force every question into a fair test. Pupils experience observation over time, pattern seeking, identifying and classifying, comparative testing and secondary research.

Evidence and Conclusion Are Distinct

Pupils learn to separate what happened, the pattern in the data and the explanation supported by that evidence.

Safety

Practical work follows current school risk assessment, CLEAPSS guidance and appropriate ASE 'Be Safe' advice. Hazards, control measures and allergies are checked before teaching.

STEM Week Enriches the Curriculum

STEM Week and visitors broaden application and aspiration but do not replace sequenced National Curriculum science.