Science Policy

DANE ROYD SCHOOL

Review Frequency: Annually
Approval By: Standards Committee of Governing Body

Policy Date: Sept 2024
Review Date: Sept 2025
Lead Personnel: Carey Ward
Version: 3

Aims which guide our policies and practice

As a school, we seek to promote shared moral and ethical values to unite both local and global interests which enable children to become global citizens. Our agreed school aims are:

- *To create a happy and stimulating learning environment, in which each child will develop to their full potential, thereby achieving high educational standards.*
- *To develop self-awareness, self-respect and tolerance of others by developing an understanding of the world in which they live.*
- *To appreciate human achievements and aspirations; develop aesthetic sensitivity and appreciation; physical ability and co-ordination and a concern for the safety of themselves and others.*
- *To prepare children to live and work with others, enabling them to be responsible and caring members of the community.*
- *To give children, at the end of their period of primary education, an appetite for acquiring further knowledge, experience and skills, so ensuring they are prepared for the challenges of the next stage in their education.*

We ensure that all of our policies and practices are guided by these aims and we seek to ensure that they are at the forefront of all that we do.

CONTENTS

Our Vision

1.1 What is our INTENT for Science at Dane Royd?

At Dane Royd, we understand that our Science curriculum is integral to every child's successful educational journey. Scientific encounters begin during play and go on to transcend every lesson; from English, Maths, History and Geography to Art, Computing, PE and Music. Science contains personal, social and economic relevance for all our children:

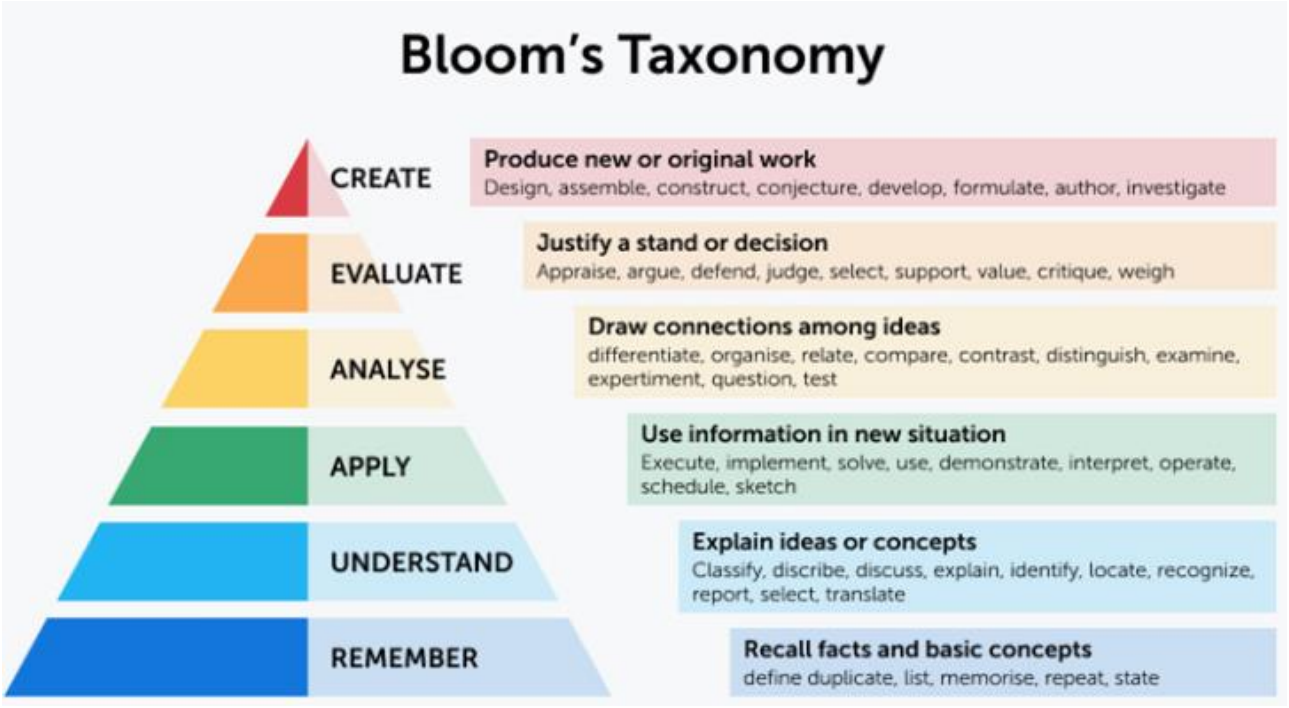
- In their personal lives, for example, so they can make informed choices about what constitutes a healthy life-style,
- In their civic lives, for example, so they can contribute to societal decisions on issues like renewable energy and climate change; and
- In their economic lives, for example, so they can respond positively to changes in future employment opportunities.

Our children are curious about the ever-changing world around them and want to learn about how they can have a positive impact. We believe that by having a secure foundation in scientific principles our children will leave us ready to take on the world.

1.2 Attitude and Skills

Through engaging lessons, involving exploration and discovery, we aim to increase our children's curiosity as scientists and develop their skills in working scientifically.

At Dane Royd, our children learn to closely observe and record over a period of time, ask challenging questions, create and test their own hypotheses and draw conclusions from meaningful, inquiry based experiences both in and out of the classroom.



Roles and Responsibilities

2.1 The Science Co-ordinator (will):

- Take the lead in the development, evaluation and amendment of schemes of work, as and when necessary
- Act as a consultant to colleagues on resources, visits, visitors, curriculum changes, classroom teaching and learning ideas
- Monitor and evaluate pupils' work, pupils' views about the subject, displays and teachers' planning
- Audit resources and order resources when needed
- Keep up to date with developments in Science and disseminate information to the rest of the teaching staff
- Attend relevant in-service training and prompt others about relevant training
- Lead staff meetings where appropriate

Teaching and Learning

3.1 The Teaching Sequence

At Dane Royd, we carefully plan a progressive Science curriculum.

In Early Years, open ended activities that are linked to termly topics, allow our youngest children to develop a fundamental (with the emphasis on fun!) understanding of the physical and natural world around them. The EYFS Framework is structured very differently to the National Curriculum as it is organised across 7 areas of learning rather than subject specific. The table below outlines the most relevant areas from the EYFS Framework and the associated prerequisite skills that naturally feed into the National Curriculum Programme of Study for Science.

Science		
Three and Four-Year-Olds	Communication and Language	• Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"
	Physical Development	• Make healthy choices about food, drink, activity and toothbrushing.
	Understanding the World	• Use all their senses in hands-on exploration of natural materials. • Explore collections of materials with similar and/or different properties. • Talk about what they see, using a wide vocabulary. • Begin to make sense of their own life-story and family's history. • Explore how things work. • Plant seeds and care for growing plants. • Understand the key features of the life cycle of a plant and an animal. • Begin to understand the need to respect and care for the natural environment and all living things. • Explore and talk about different forces they can feel. • Talk about the differences between materials and changes they notice.
Reception	Communication and Language	• Learn new vocabulary. • Ask questions to find out more and to check what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to work out problems and organise thinking and activities. Explain how things work and why they might happen. • Use new vocabulary in different contexts.

Reception Continued	Physical Development		• Know and talk about the different factors that support their overall health and wellbeing: - regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian
	Understanding the World		• Explore the natural world around them. • Describe what they see, hear and feel while they are outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them.
ELG	Communication and Language	Listening, Attention and Understanding	• Make comments about what they have heard and ask questions to clarify their understanding.
	Personal, Social and Emotional Development	Managing Self	• Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.
	Understanding the World	The Natural World	• Explore the natural world around them, making observations and drawing pictures of animals and plants. • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

As our children move into Key Stage 1 and beyond, they are taught discrete Biology, Chemistry and Physics content. The tables below demonstrate how we deliver a 2 year rolling programme that ensures our children continually connect their prior knowledge to more complex scientific concepts and topics whilst ensuring full coverage of the National Curriculum's Programme of Study for Science.

Cycle 1: (2024-2025)

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	Marvellous Me Teeth & healthy eating *Dentist / hygienist visit*	Let's Celebrate Materials: investigating shadows Materials: changing states Liquid to solid (ice) Solid to liquid (chocolate)	If You Go Down to the Woods Using our senses Sorting natural materials Growth, change & decay with natural materials (Winter to Spring) Understand the need to respect and care for the natural environment and all living things Woodland Nature Hunt	What a Wonderful World Know that there are different countries in the world and talk about personal experiences. Identify similarities/differences between places. Photos of family holidays	Transport Explore and talk about forces including magnets Investigate the mechanics of objects including toy vehicles to see how they work; wind-up toys, pulleys, cogs etc.	A Bug's Life Understand the key features of the life-cycle of a plant and an animal Plant seeds and care for growing plants.
Upper Foundation	I am Special – You Are Too Our 5 Senses - Smell Station Promotion of Oral Hygiene - Tuff Tray Weather & Seasons - Autumn Scavenger Hunt	Ice Adventures Changing States - Melting Experiment Animal Adaption - Blubber Experiment Weather & Seasons - Snow Day?!	Under the Sea Materials (and their uses) - Buoyancy/waterproofing Changes in the natural world including human influence e.g. climate change - Recycle Station	Growing Lifecycles; - Plant(s) - Butterfly - Frog - Chicken -	Roar, Roar, Dinosaur Animal Classification, including eating habits – Finding fossils Tuff Tray / Who's poo is this? Experiment	3, 2, 1 Blast Off Forces & gravity
KS1	BIOLOGY Animals including humans Y1 Obs	BIOLOGY Plants Y1 Obs	BIOLOGY Animals including humans Y1 Obs	CHEMISTRY Everyday Materials Y1 Obs	PHYSICS Seasons Y1 Obs	STEM
LKS2	PHYSICS Electricity Y4 Obs	BIOLOGY Plants Y3 Obs	BIOLOGY Animals including humans Y4 Obs	CHEMISTRY States of Matter Y4 Obs	PHYSICS Light Y3 Obs	STEM
UKS2	PHYSICS Electricity Y6 Obs	BIOLOGY Living things Y6 Obs	BIOLOGY Animals including humans Y6 Obs	BIOLOGY Evolution & Inheritance Y6 Obs	PHYSICS Light Y6 Obs	STEM

Cycle 2: (2025-2026)

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	Magical Me	Light & Colour Materials: investigating shadows Materials: changing states Liquid to solid (ice) Solid to liquid (chocolate)	I Can Help Teeth & healthy eating Explore a collection of materials with similar/different properties. Understand the need to respect and care for the natural environment and all living things *Dentist / hygienist visit*	Down on the Farm Understand the key features of the life-cycle of a plant and an animal Plant seeds and care for growing plants. Growth, change & decay with natural materials (Winter to Spring) Using our senses to explore natural materials	We are Explorers Know that there are different countries in the world and talk about personal experiences Identify similarities/differences between places	Pirates & Princesses Explore and talk about forces including floating & sinking Investigate the mechanics of objects e.g. to see how they work; wind-up toys, pulleys, cogs etc.
Upper Foundation	I am Special – You Are Too Our 5 Senses - Smell Station Promotion of Oral Hygiene - Tuff Tray Weather & Seasons - Autumn Scavenger Hunt	Ice Adventures Changing States - Melting Experiment Animal Adaption - Blubber Experiment Weather & Seasons - Snow Day?!	Under the Sea Materials (and their uses) - Buoyancy/waterproofing Changes in the natural world including human influence e.g. climate change - Recycle Station	Growing Lifecycles; - Plant(s) - Butterfly - Frog - Chicken	Roar, Roar, Dinosaur Animal Classification, including eating habits – Finding fossils Tuff Tray / Who's poo is this? Experiment	3, 2, 1 Blast Off Forces & gravity
KS1	BIOLOGY Living things Y2 Obs	BIOLOGY Living things Y2 Obs	BIOLOGY Animals including humans Y2 Obs	CHEMISTRY Everyday Materials Y2 Obs	BIOLOGY Plants Y2 Obs	STEM
LKS2	PHYSICS Forces & Magnets Y3 Obs	BIOLOGY Living things Y4 Obs	BIOLOGY Animals including humans Y3 Obs	CHEMISTRY Rocks Y3 Obs	PHYSICS Sound Y4 Obs	STEM
UKS2	PHYSICS Forces & Magnets Y5 Obs	BIOLOGY Living things Y5 Obs	BIOLOGY Animals including humans Y5 Obs	CHEMISTRY Properties and Changes of Materials Y5 Obs	PHYSICS Earth & Space Y5 Obs	STEM

Assessment

4.1 Marking

At Dane Royd, our marking is intended to provide constructive feedback to every child, focusing on success, achievement and progress. It is completed as a cycle during the lesson which takes the form of immediate, summary and review marking that should help them to become more reflective learners and give them strategies to be able to improve their work and take the next steps in their learning whilst also informing future planning.

Please refer to the *Marking Policy* on the school's website for more details.

4.2 Assessment

At the end of each term, class teachers use their judgement to assess every child's progress towards achieving age related expectations in Science based on the objectives taught during that period. This will then be recorded using Online Markbooks for all year groups.

Please refer to the *Assessment Policy* on the school's website for more details.

4.3 Monitoring and Evaluation

To ensure that Science is taught effectively throughout school and meets the needs of all our children the following will be by carried out regularly;

- Learning walks,
- Lesson observations,
- Book/work scrutiny,
- Pupil voice and
- Assessment moderation.

To maintain the quality of teaching and learning examples of planning, curriculum booklets, knowledge organisers and children's work will be retained alongside electronic evidence* of displays, presentations, assemblies, guest speakers, educational visits, after school clubs and whole school events.

Electronic evidence* may be in the form of photographs, videos and links to social media platforms such as X (formerly Twitter) #DaneRoydScience.

Aspects

5.1 Equal Opportunities

At Dane Royd, we teach Science to all children, whatever their age, gender, ethnicity or ability. In order to achieve maximum participation we adapt the curriculum and learning environment to ensure all children's needs are met. Examples include differentiating group sizes, teaching style, lesson content, resources and staffing ratios.

Please refer to the following policies on the school's website for more details;

- Accessibility
- Equality

- SEN
- Auxiliary Aids
- Inclusion
- More Able

5.2 Health & Safety

At Dane Royd, we aim to provide an environment in which our children can learn and explore safely. During our Science lessons, reasonable practical steps have been taken to ensure the health, safety and welfare of all. These include; all related equipment being labelled and stored appropriately, maintained safely and regularly inspected; when taking pupils off the main school premises, risk assessments are already in place and authorised using the Local Authority Evolve system (e.g. pond dipping) and robust procedures in place in case of accidents and emergencies potentially involving gas, fire, hazardous substances or electrical equipment.

Please refer to the *Health & Safety Policy* on the school's website for more details.

Organisation

6.1 Homework/Parent Partnership

Science homework may be set by teachers to either prepare for a lesson or to consolidate work from a previous lesson. Objectives are usually open-ended, allowing children to complete the activity in their own way. Many of the tasks tend to be creative and children are encouraged to use a range of medium and resources to present their homework.

Please refer to the *Homework Policy* and *Home School Agreement* on the school's website for more details.

6.2 Resources

Science resources are designed to enrich and stimulate our children's scientific enquiry. A full inventory is held by the Science Co-ordinator and is regularly reviewed in consultation with middle leaders. When and where appropriate, additional funding and grants are available for the procurement of new materials.

Appendices

7.1 Review Frequency

This policy will be reviewed annually as standard however should any major changes occur within the education sector an impromptu review may commence outside of the proposed time frame.

7.2 EYFS Statutory Framework

https://assets.publishing.service.gov.uk/media/670fa42a30536cb92748328f/EYFS_statutory_framework_for_group_and_school_-_based_providers.pdf

7.3 Development Matters (Non-Statutory Guidance)

https://assets.publishing.service.gov.uk/media/64e6002a20ae890014f26cbc/DfE_Development_Matters_Report_Sep2023.pdf

7.4 National Curriculum in England Science Programme of Study

https://www.gov.uk/government/publications/national-curriculum-in-england-science-programmes-of-study/national-curriculum-in-england-science-programmes-of-study

7.5 Teacher Assessment Framework

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/740343/2018-19_teacher_assessment_frameworks_at_the_end_of_key_stage_1_WEBHO.pdf

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/740345/2018-19_teacher_assessment_frameworks_at_the_end_of_key_stage_2_WEBHO.pdf

7.6 Exemplification Material

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/763062/2018_key_stage_1_teacher_assessment_exemplification_science.pdf

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/763065/2018_key_stage_2_teacher_assessment_exemplification_science.pdf

7.7 SAT's

According to the Standards and Testing Agency's 2021 Key Stage 2: assessment and reporting arrangements (Jan 2021);

"Schools do not need to make or submit teacher assessment judgements for pupils in science."

Arrangements for 2021/22 will be published in the Autumn term.

According to the Standards and Testing Agency's 2022 Key Stage 2: assessment and reporting arrangements (Oct 2021);

"2.4 Science sampling - There will be no science sampling in 2021/22."

We (the STA) will confirm arrangements for 2022/23 in due course.

According to the Standards and Testing Agency's 2023 Key Stage 2: assessment and reporting arrangements (Mar 2023);

"2.3 Science sampling Ministers have decided not to undertake any further science sampling tests at KS2, and consequently we do not have any plans to undertake science sampling tests in 2022/23 or subsequent years. In 2022/23, schools will still submit teacher assessment data for science at both KS1 and KS2."

According to Standards and Testing Agency's 2025 Key Stage 2 teacher assessment guidance (Dec 2024);

KS2 standard	Assessment framework	English reading	Maths	English writing	Science
Pupils working at the standard of the national curriculum assessments	TA frameworks	Not applicable	Not applicable	Yes	Yes
Pupils working below the standard of the national curriculum assessments and engaged in subject-specific study	Pre-KS2 standards	Yes	Yes	Yes	No pre-KS2 standards (HNM – has not met the expected standard)

7.8 Teacher Signposting (available upon request)

- Recent Research
- Online Resources
- CPD Opportunities
- Whole School Events
- Representing Different Groups in Society
- Calendar (of events)
- Links for Children
- Book Orders