

Science Policy



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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.

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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:

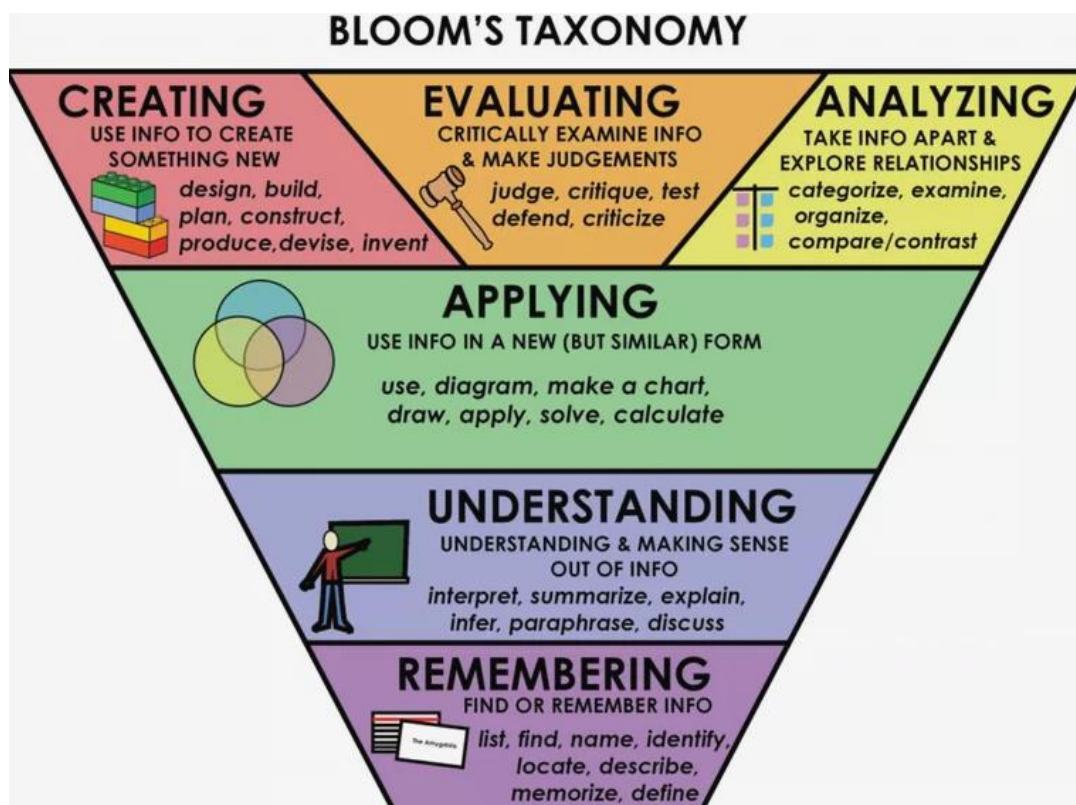
- In their personal lives, for example, so they can make informed choices about what constitutes a healthy life-style,
- In their civic lives, for example, so they can contribute to societal decisions on issues like renewable energy and climate change; and
- In their economic lives, for example, so they 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			
30-50 Months	Physical Development	Health and Self-Care	<ul style="list-style-type: none"> • To observe the effects of physical activity on their bodies.
	Understanding the World	The World	<ul style="list-style-type: none"> • To comment and ask questions about aspects of their familiar world, such as the place where they live or the natural world. • To talk about some of the things they have observed, such as plants, animals, natural and found objects. • To talk about why things happen and how things work. • To develop an understanding of growth, decay and changes over time. • To show care and concern for living things and the environment.
	Expressive Arts and Design	Exploring and Using Media and Materials	<ul style="list-style-type: none"> • To begin to be interested in and describe the texture of things.
40-60 Months	Physical Development	Health and Self-Care	<ul style="list-style-type: none"> • To eat a healthy range of foodstuffs and understand a need for variety in food. • To show some understanding that good practices with regard to exercise, eating, sleeping and hygiene can contribute to good health.
	Understanding the World	The World	<ul style="list-style-type: none"> • To look closely at similarities, differences, patterns and change.
ELG	Physical Development	Health and Self-Care	<ul style="list-style-type: none"> • To know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe.
	Understanding the World	The World	<ul style="list-style-type: none"> • To know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another.

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 (2019/2020)

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
KS1	BIOLOGY Living things Y2 Obs	BIOLOGY Living things Y2 Obs	BIOLOGY Animals including humans Y2 Obs	CHEMISTRY (Uses of) 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

Cycle 2 (2020/2021)

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
KS1	BIOLOGY Animals including humans Y1 Obs	BIOLOGY Plants Y1 Obs	BIOLOGY Animals including humans Y1 Obs	CHEMISTRY (Uses of) Everyday Materials Y1 Obs	BIOLOGY 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

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 Classroom Monitor for Early Years and Science Assessment Grids for Years 1 through to 6.

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 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
- Auxillary 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 all 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 consolidation 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 Development Matters in the EYFS

<https://www.foundationyears.org.uk/files/2012/03/Development-Matters-FINAL-PRINT-AMENDED.pdf>

7.3 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>

7.4 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

7.5 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

7.6 SAT's

According to the Standards and Testing Agency's latest guidance on SAT's arrangements (Mar 2020);

"Pupils at the end of the KS2 programme of study do not routinely sit a science test, as their performance is measured using teacher assessment judgements. However, in order to monitor overall national performance, a sample of pupils sit tests in science on a biennial basis."

7.7 Useful Websites

Primary Science Teachers Trust <https://pstt.org.uk/resources>

Association for Science Education <https://www.ase.org.uk/resources>

STEM Learning <https://www.stem.org.uk/resources>

7.8 National Events

British Science Week (5th - 14th March 2021) <https://www.britishscienceweek.org>