Newcastle City Council

St. John Vianney Catholic Primary School
Science Policy

1. Aims and objectives

- It establishes an entitlement for all pupils.
- It establishes expectations for the standards to be achieved
- It builds on what pupils have learned previously and promotes continuity and coherence across the school
- It states the school's approaches to this subject in order to promote public, and particularly parents' and carers', understanding of the curriculum.

1.2 The importance of Science in the curriculum

Science stimulates and excites and satisfies pupil's curiosity about phenomena and events in the world around them. Since Science links direct practical experience with ideas, it can engage learners at many levels. Scientific method is about developing and evaluating explanations through experimental evidence and modelling. This is a spur to critical and creative thought. Through Science, pupils understand how major scientific ideas contribute to technological change – impacting on industry, business and medicine and improving the quality of life. They learn to question and discuss science-based issues that may affect their own lives, the direction of society and the future of the world.

In Reception, the children follow the Early Years Foundation Stage (EYFS) curriculum. They use the area of The World in Birth to Five Matters to explore science and scientific ideas. In early years, they also use the characteristics of effective learning to develop thinking skills, curiosity and making links with their learning. At Key Stage 1, pupils observe, explore and ask questions about living things, materials and physical processes. They begin to work together to collect evidence to help them answer questions and to link this to simple scientific ideas. They begin to carry out different types of scientific enquiry to answer their own questions. This includes observing changes over a period of time, noticing patterns, grouping and classifying things and carrying out simple comparisons. They are able to use simple scientific vocabulary and language to talk about what they have found out and to communicate their ideas in a variety of ways. They use reference materials to find out more about scientific ideas. Most learning is done through the use of first-hand practical experiences.

At Key Stage 2, pupils broaden their scientific knowledge and understanding. In lower key stage 2 they should do this by exploring, talking about, testing and developing their ideas. They learn to ask their own questions about what they observe and decide which type of scientific enquiry are the best ways of answering them. They make links between ideas and draw conclusions by talking about, then writing about what they have found out. They use scientific language to express their ideas and conclusions. In upper key stage 2 the children develop a deeper understanding of a wide range of scientific ideas. They explore and talk about their ideas, asking their own questions and apply their knowledge and understanding of scientific ideas to familiar phenomena, everyday things as well as their personal health in a more systematic way. They think about the effects of scientific and

technological developments on the environment and in other contexts to have a fuller understanding of how the world operates. They select the most appropriate way to answer their own scientific questions using different types of scientific enquiry. They carry out more systematic investigations, working on their own and with others. They use a range of reference sources in their work. They talk about and draw conclusions from their results. They can explain and justify their findings using their scientific knowledge, a wide range of scientific language, conventional diagrams, charts, graphs and ICT.

1.3 The aims of science in the curriculum and how these contribute to the school's aims

The school aims to:

Stimulate and excite pupils' curiosity about changes and events in the world.

Satisfy this curiosity with knowledge and skills.

Engage pupils as learners at many levels through linking ideas with practical experience.

Help pupils to learn to question and discuss scientific issues that may affect their own lives.

Help pupils develop, model and evaluate explanations through scientific methods of collecting evidence using critical and creative thought.

Show pupils how major scientific ideas contribute to technological change and how this impacts on improving the quality of our everyday lives.

Help pupils recognise the cultural significance of science and trace its development.

To develop resilience and a love of science.

1.4 Strategy for implementation - entitlement and curriculum provision

Science is treated as a core subject of the National Curriculum and pupils undertake some science activity either every week or in blocks of 2 or 3 week sessions at both key stages. The work covered in Key Stage 1 builds on the Early Years Foundation Stage (EYFS). Pupils in reception develop their knowledge, understanding and skills through play activities and direct teaching from which the pupils undertake planned tasks. Science is allocated ten per cent of the taught time at both key stages and this amounts to about 80 hours per year at Key Stage 1 and about 90 hours per year at Key Stage 2. Planning is in-line with the requirements of the National Curriculum 2014. The school places a high emphasis on the development of pupils' skills and knowledge through working scientifically. In the substantial majority of lessons, the skills are taught alongside the knowledge and understanding in life processes and living things, materials and their properties, and physical processes. Children are taught to understand and explain the difference between the different aspects of science – physics, chemistry and biology.

2. Teaching and Learning

All lessons have clear learning objectives which are shared and reviewed with the pupils effectively. A variety of strategies, including questioning, discussion, concept mapping and marking, are used to assess progress. The information is used to identify what is taught next. Activities inspire the pupils to experiment and investigate the world around them and to help them raise their own questions such as "Why...?", "How...?" and "What happens if...?". Activities develop the skills of enquiry, observation, locating sources of information, selecting appropriate equipment and using it safely, measuring and checking results, making comparisons and communicating results and findings. Lessons make effective links with other curriculum areas and subjects, especially literacy, numeracy and ICT. Activities are challenging, motivating and extend pupils' learning. Pupils have frequent opportunities to develop their skills in, and take responsibility for, planning investigative work, selecting relevant resources, making decisions about sources of information, carrying out activities safely and deciding on the best form of communicating their findings.

3. Assessment and Recording

3.1 Teachers' assessment takes place at the end of each unit of work. Where appropriate, summative assessment may be used, at the end of a unit, to assess pupil knowledge.

3.2 Continuity and Progression

The school ensures curriculum continuity by following the programme of science units of work and by close liaison between staff at the planning stages.

All pupils

- Teachers planning for the pupils' full participation.
- Setting high expectations.
- Providing opportunities for all pupils to achieve.
- Creating effective learning environments.
- Providing equality of opportunity through teaching approaches.
- Setting learning targets.

Pupils with diverse learning needs are provided for through:

- Liaison with SENCO and the development and delivery of appropriate lessons.
- Liaison with outside agencies, e.g. psychological services.
- Appropriate intervention
- Allowing pupils access to specialist equipment and approaches where necessary.
- Liaison with the adviser for gifted and talented pupils.
- More able pupils are planned for appropriately.
- This is supported by our equal opportunities policy.
- Continuous consultation with and involvement of parents.

3.3 Organisation

Science is taught as a discrete subject and is blocked within the curriculum with foundation subjects.

4.Curriculum

4.1 Long term planning is covered in a yearly programme of units.
Medium term planning: This identifies within each unit of work; learning objectives, science activities, assessment opportunities, the vocabulary to be taught and used, safety issues, how information and communications technology and resources should be used.
Teachers evaluate each unit of work after completion.

4.2 Learning Resources
Learning resources are kept centrally. Relevant equipment is taken to the class by teachers then returned when finished with. The scheme of work covers training the pupils in the safe and considerate use of equipment and materials. They are taught not to be careless and to use consumables efficiently. Older pupils may be taught how to locate and replace resources properly. Teachers make informed decisions, based on the age and stage of pupils, in relation to whether the teacher, the pupils under the guidance of an adult, or the pupils independently, should collect and replace resources. Resources are organised in boxes which are linked to themes. These resources should be returned in this way. Some resources are available from St Cuthbert's High School and Sacred Heart High School upon request.

4.3 The Learning Environment
Classrooms will have displays of current science, including relevant vocabulary. The profile of science should reflect its place as a core subject. Resources for the unit of work being covered will be appropriately accessible. Other sources of information will be available. All classrooms will have on display the science aims and values. Facebook will be used to develop science at home and strengthen the link with parents.

4.4 Safe practice
Safe practice must be promoted at all times. Teachers must also take into account all relevant Health and Safety issues. Please refer to schools' health and safety policy and specific risk assessments. Also refer to 'Be Safe' document from the ASA. Particular attention must be given to avoiding the use of anything that aggravates individual pupils' allergies.

5.Extra-curricular opportunities

5.1 From time to time teachers plan to undertake fieldwork, visits to places of scientific interest and invite visitors to the school in order to support the learning objectives for units of work where relevant.

6. Homework

6.1 No specific homework is set at Key Stage 1, although teachers may choose to involve the pupils, parents and carers in small investigation activities related to the work in hand or to complete tasks not finished within the lesson. In Key Stage 2, a homework task or project linked to the current theme or topic is usually sent home termly or posted on the school website/Facebook for access at home.

7.Parents and Carers

7.1 Parents and carers have an important role to play in helping their pupils learn about science. Their role is enhanced by the use of science displays around the school to raise their interest and the interest of their children in the subject. The importance of science relative to other subjects will be explained to parents/carers when their children join the school and teachers should take the opportunity of reinforcing this appropriately during interviews with parents. Science activities and investigations will regularly be posted on Facebook to strengthen and develop the link between the school, parents and carers.

8. The Contribution of Science to other Aspects of the Curriculum

The teaching of literacy, numeracy and ICT is promoted strongly in science as part of this school's drive to raise standards in English, mathematics and ICT. Science is also used to drive understanding in the foundation curriculum.

8.1 Literacy

In particular, at Key Stage 1, the pupils are encouraged to use their speaking and listening skills to describe what they see and explain what they are going to do next. At Key Stage 2 the pupils are encouraged to develop their skills of writing to record their planning, what they observe and what they found out. In relation to science, they should be applying their literacy skills at levels similar to those which they are using in their English work.

8.2 Numeracy

At both key stages the pupils are expected to use their knowledge and understanding of measurement and data handling at appropriate levels. In science, they should be applying their numeracy skills at levels similar to those which they are using in their mathematics' lessons.

8.3 Computing

At both key stages this involves the pupils using ICT to: locate and research information (CD ROM, internet); record findings (using text, data and tables); log changes to the environment over time (sensing equipment); gain confidence in using calculators, cameras and tape recorders, as well as computers and other devices.

8.4 Spiritual Development

Spiritual development is encouraged through reminding pupils of the wonder of science and the effect of scientific discoveries on the modern world. Topical scientific issues are also discussed as appropriate.

8.5 Personal, Social, Health and Citizenship Education

Health education is taught as part of the units on ourselves, health and ourselves, health and growing, teeth and eating, moving and growing, keeping healthy and life cycles.

9. Leadership and management - Staff development and training opportunities

9.1 The Head teacher discusses development needs so that the needs of individual members of staff are identified within the school's performance management programme. Staff attending training are expected to share the useful points with other relevant staff. BothKS1 & KS2 teachers discuss needs with the Head teacher and science co-ordinator to ensure that planned units of work are adequately resourced.

10. How the subject is monitored and evaluated

All teachers are responsible for monitoring standards. This is overseen by the Science co-ordinator and Head teacher. The science co-ordinator is also responsible for the production and implementation of the action plan.

10.1 Policy Review

This policy will be reviewed in line with the school's policy review programme. The Head teacher is responsible for reporting to the Governors' about the quality of its implementation and its impact on standards. In the light of this, policy amendments may be made.

Review Date: October 2022