

Scoil Íosagáin CBS

Science Policy

Introductory Statement:

This document is a statement of the aims, principles and strategies for the teaching and learning of Science at Scoil Íosagáin primary school. It was developed through a process of consultation with the teaching staff, principal and BOM which was facilitated by the Science Coordinator.

Rationale:

We have decided to implement this Science Policy for the following reasons-

- To benefit teaching and learning in our school
- To provide a coherent approach to the teaching of science across the whole school
- To ensure that pupils are given adequate opportunities to develop skills and understanding of concepts as envisaged in the Primary School Curriculum

Vision:

We at Scoil Íosagáin hope that; through science education, the children at this school will:

- Be enabled to take an active part in their own learning by fostering their natural curiosity
- Work scientifically by being guided through a wide range of enquiry skills such as observing, questioning, predicting, analysing, exploring, investigating and experimenting, estimating and measuring, recording and communicating.
- Apply the knowledge and skills they acquire to designing and making tasks.
- Be equipped, through science education to live in a world that is increasingly scientifically and technologically oriented.
- Through careful planning and teaching, be provided with continuity and progression in the development of scientific ideas and in the application of investigative skills.

Aims:

The aims of Science education are:

- ◆ To develop knowledge and understanding of scientific and technological concepts through the exploration of human, natural and physical aspects of the environment
- ◆ To develop a scientific approach to problem-solving which emphasises understanding and constructive thinking
- ◆ To encourage the child to explore, develop and apply scientific ideas and concepts through designing and making activities
- ◆ To foster the child's natural curiosity, so encouraging independent enquiry and creative action
- ◆ To help the child to appreciate the contribution of science and technology to the social, economic, cultural and other dimensions of society
- ◆ To cultivate an appreciation and respect for the diversity of living and non-living things, their interdependence and interactions
- ◆ To encourage the child to behave responsibly to protect, improve and cherish the environment and to become involved in the identification, discussion, resolution and avoidance of environmental problems and so promote sustainable development
- ◆ To enable the child to communicate ideas, present work and report findings using a variety of media.

Targeted aims and events:

At Scoil Íosagáin CBS, we hope to-

- Build on Science-based learning in our school by ensuring that all teachers have access to a range of properly maintained and up-to- date Science equipment, necessary to facilitate experimental tasks.

- Participate in a wide variety of events both in the classroom and with outside agencies during Science Week every year. [Usually held in Nov]
- Participate in National Tree Week activities both in the classroom and by visiting some of our local parks and forests every year. [Usually held in March]
 - *People's Park: 2nd class
 - *Cratloe Woods: 3rd & 4th class
 - *Curraghchase Forest Park: 5th & 6th class
- Build relationships with science-based companies in Limerick such as Regeneron, Stryker, Johnson & Johnson, Analog Devices and Dell with a view to securing plant visits, guest speakers and funding for science-based activities in our school throughout the school year.
- Engage the services of professional companies to facilitate Science workshops in our school.

Content of Plan:

Please note:

- A) It is the responsibility of teachers to confer with colleagues regarding the avoidance of unnecessary overlap and repetition where strand units span into a two-year cycle. Teachers must also recognise the value of judicious revision of certain themes and topics.
- B) All classes in our school are following suggested yearly plans set out in the "Explorers" Science programme by Folens.
- C) Teachers working in Suaimhneas will use the following strands and strand units at the appropriate level for individual children in their classes.

Strand	2 nd Classes
	<i>Strand Units</i>
<i>Living things</i>	◆ <i>Myself</i> ◆ <i>Plants & animals</i>
<i>Energy and forces</i>	◆ <i>Light</i> ◆ <i>Sound</i> ◆ <i>Heat</i> ◆ <i>Magnetism & electricity</i> ◆ <i>Forces</i>
<i>Materials</i>	◆ <i>Properties & characteristics of materials</i> ◆ <i>Materials & change</i>
<i>Environmental awareness and care</i>	◆ <i>Caring for my locality</i>

Strand	3rd and 4th Classes	5th and 6th Classes
	<i>Strand Units</i>	<i>Strand Units</i>
<i>Living things</i>	◆ <i>Human Life – 3rd & 4th</i> ◆ <i>Plants & animals – 3rd & 4th</i>	◆ <i>Human Life – 5th & 6th</i> ◆ <i>Plants & animals – 5th & 6th</i>
<i>Energy and forces</i>	◆ <i>Light – 3rd & 4th</i> ◆ <i>Heat – 3rd & 4th</i> ◆ <i>Sound 4th</i> ◆ <i>Magnetism & electricity – 3rd & 4th</i> ◆ <i>Forces – 3rd & 4th</i>	◆ <i>Light – 5th & 6th</i> ◆ <i>Sound – 5th</i> ◆ <i>Heat – 5th & 6th</i> ◆ <i>Magnetism & electricity – 5th & 6th</i> ◆ <i>Forces – 5th & 6th</i>
<i>Materials</i>	◆ <i>Properties & characteristics of materials – 3rd & 4th</i> ◆ <i>Materials & change – 3rd & 4th</i>	◆ <i>Properties & characteristics of materials – 5th & 6th</i> ◆ <i>Materials & change – 6th</i>
<i>Environmental awareness and care</i>	◆ <i>Environmental awareness – 3rd & 4th</i> ◆ <i>Science and the environment – 3rd & 4th</i> ◆ <i>Caring for the environment- 3rd & 4th</i>	◆ <i>Environmental awareness – 5th & 6th</i> ◆ <i>Science and the environment – 5th & 6th</i> ◆ <i>Caring for the environment – 5th & 6th</i>

Approaches and Methodologies:

Approaches and methodologies in the teaching of science include the following:

Talk and discussion	Guided and discovery learning
Active learning	Collaborative learning
Skills through content	Using the environment
Free exploration of materials	Investigative approach
Teacher directed approach	Use of ICT

These approaches and methodologies will help to create a learning environment where:

- ◆ Children's ideas are the starting point for science activities.
- ◆ Practical activity is encouraged.
- ◆ Links with the environment are fostered.
- ◆ Children can apply scientific concepts to everyday situations.
- ◆ Children have an opportunity to work together, share ideas and communicate their findings.

Practical Investigations:

Practical investigations are encouraged in all classes with the use of scientific equipment. Group work ensures the needs of each child is catered for.

Open Investigations- where pupils are given or suggest themselves, an open question for which they have to design their own investigation and come up with their own results

Closed Investigations-where the end result is obvious and there are not many variables

Fair Testing- where pupils will be encouraged to develop a sense of what part of the investigation should be kept the same and what should be the variable, to ensure the investigation is fair.

Classroom Management:

A combined approach of whole class work, small group work, paired work and individual work on chosen topics and projects will be used in each class.

Children will be given opportunities to work together collaboratively and share their own ideas.

We encourage both the teacher-directed and investigative approaches.

Teachers will use their professional judgement to decide which methods and approaches are best suited to the needs of their pupils.

Linkage and Integration:

Our school acknowledges the importance of linkage and integration in ensuring that the children receive a broad, balanced and holistic education. An integrated approach to the teaching of science within SESE and between SESE and other curricular areas will play an important role in science education across all levels. At classroom level, teachers will select topics, themes and opportunities for integration based on the needs and abilities of the children in their care. Some examples of integration include-

- Environmental awareness & care is closely integrated with the SPHE and Geography Curricula
- Design and Make activities are integrated with Visual Arts activities

- Counting, measuring, weighing, capacity, shape, time and recording data are all elements of the Maths Curriculum which link with science

A number of factors will be taken into consideration in order for linkage and integration to work successfully. These include:

- Systematic planning by the teacher to ensure continuity and progression
- Taking careful account of curricular requirements

Use of the Environment:

We are situated in the heart of an urban environment with no green areas on site. In order to facilitate the children's environmental awareness; we use a variety of video clips, power-points, photographs, textbooks and documentaries. We enhance this with visits to our local parks, woods, farms, canal banks and river banks as the opportunities arise; to observe plant and animal life in our locality.

Our children are also encouraged to take pride in their school environment by taking it in turns to work in teams of Litter Pickers in the yard. They are encouraged to recycle, with recycling bins being available in every classroom. Efforts have been made to brighten our concrete environment by using bright paint colours on some boundary walls and murals on others.

Balance between knowledge and skills:

In the teaching of science in our school, the teachers' attention should be drawn to the importance of developing skills in tandem with acquiring information. The skills to be developed are:

- Observing
- Questioning
- Predicting
- Investigating and experimenting
- Estimating and measuring
- Analysing
- Recording and communicating

Children should be given an opportunity to use their scientific skills in both structured and unstructured exploration. These skills should be developed and extended at each class level.

Assessment:

Children's knowledge, understanding, skills, attitudes towards investigating & problem-solving and sense of responsibility for the environment, as well as their ability to work collaboratively are assessed in science.

The following are among the assessment tools that we will use:

- ◆ teacher observation
- ◆ teacher-designed tasks and tests
- ◆ work samples, portfolios and projects
- ◆ pupil profiles
- ◆ children's self-assessment of design and make activities

Parents will be informed of their child's progress through:

- Parent/Teacher meetings
- Homework journal
- End of year school report

Children with Different Needs:

We will endeavour to make science activities accessible to all children, as we recognise that potential science has to help them make sense of the physical and biological worlds in which we live. A number of techniques will be used to provide a different range of learning activities, appropriate to the individual needs of pupils. These include:

- Using a mixture of whole-class teaching and group work
- Hands on practical work to suit all abilities
- Differentiated questioning (simple recall-complex & analytical)
- Activities differentiated according to ability
- Differentiated methods of recording and communicating work (eg. drawing, ICT, written records, oral reports)
- Assistance from school personnel will be availed of where appropriate

Equality of Participation and Access:

Our science policy is an all-inclusive policy which gives equal opportunities to all children to participate and integrate fully. In delivering the curriculum, teachers are conscious of their obligations under the Equal Status Act to ensure students are not discriminated against in their work. Staff should ensure that provision is made as and where necessary for:

- Children experiencing any form of disadvantage
- Children with disabilities
- Families with literacy problems.
- Families for whom English is not the first language

Timetable:

Time allocated for science education is:

- ◆ Junior classes- 50 mins p/w
- ◆ Senior classes- 60 mins p/w

Occasionally, teachers may block periods of time: for example, during science week. As science is integrated and linked with many other subjects, teachers will

be free to use their professional judgement to adjust guidelines to suit individual pupil needs and class circumstances. Some discretionary time may also be allocated periodically for science.

Resources and Equipment:

Our science equipment is located in a locked press on the upper landing of Block A. The Science Coordinator has the key. Teachers who wish to use any of the equipment, simply notify the coordinator and a group of senior boys will deliver it to the required room. Class teachers return it, clean, dry and properly sorted into designated boxes when finished. Class teachers will notify the coordinator if any pieces of equipment are broken or missing. An inventory listing all the available resources has been distributed to all teachers for display in their classrooms. This list will be amended as necessary. Equipment will be checked and replenished on a yearly basis.

Safety:

Safety will permeate all aspects of the teaching of science in Scoil Íosagáin. Throughout their science investigations, children will be made aware of and encouraged to adopt safe practices. They will observe safety procedures in designing and making tasks, particularly when they are using tools and materials. Safety is also taken-into-account with regard to the storage of all scientific materials and equipment. Teachers will consult with the principal whenever it is proposed to engage with fieldwork. Permission from parents regarding such fieldwork is covered in our school application forms.

Homework:

Science homework is at the discretion of the Class Teacher and is sometimes linked with other subject areas. It can take the form of workbook activities,

worksheets, design & make ideas, observation exercises and gathering eg. Autumn leaves.

Individual Teachers Planning and Reporting:

Teacher's planning is guided by the curriculum, the school plan and by the abilities and needs of pupils. Yearly and short-term plans set out a plan of work and the Cúntas Míósúil specifies work completed. Where it is meaningful and suitable, Science can be taught in a thematic way to integrate with the other SESE subjects; History and Geography.

Staff Development:

A number of actions contribute to the development of teachers' knowledge and skills in this area:

- ◆ Teachers are made aware of opportunities to attend science courses & training
- ◆ Participation in Science Week activities
- ◆ Science-based tours/fieldwork
- ◆ Meeting invited guest speakers

Parental Involvement:

Parents are encouraged to support the school's Science Programme by:

- Encouraging their child's interest in science
- Helping with science homework
- Observing nature around them with their child
- Accepting any invitations to celebrate and view results of their child's projects/surveys/investigations

- Read about Science activities/achievements in the school newsletter.

Community Links:

Members of the local community, local companies, local agencies, national agencies and 2nd/3rd level institutes may be invited to assist the school's Science programme by working with classes or addressing pupils. Some of these may include:

- Tree Council of Ireland
- Sustainable Energy Ireland
- ESB
- Waterways Ireland
- Regeneron
- Cook Medical
- Stryker
- Johnson & Johnson
- Analog Devices
- Dell
- Coláiste Mhichíl -CBS Sexton Street
- TUS
- UL

Proposed invitations must be discussed in advance with the principal.

Success Criteria:

We measure the success of our plan by monitoring the following:

- Increased interest in science and the environment throughout the school
- Evidence of scientific skills and knowledge development in pupils throughout the school
- Evidence of practical activities in the classes
- Class and school displays
- Evidence of classes engaging in outdoor habitat work
- Assessment as previously outlined
- Positive feedback from parents and pupils

Implementation:

A) Roles & Responsibilities-

All teachers are responsible for the implementation of the science programme in their class and due care and maintenance of equipment that they use.

The Science Coordinator is responsible for communicating with agencies & companies, inviting guest speakers, informing teachers of upcoming science events, booking busses when necessary for fieldtrips, booking workshops, keeping an inventory of science equipment and ordering new equipment when needed.

The principal has overall responsibility.

B) Timeframe-

We will embark on the implantation of this plan in September 2023.

Review:

A review of this Whole School Plan will take place at the end of the 2026 school year. The Science Coordinator will facilitate this review and evaluation.

Ratification:

This school plan for science will be distributed to all teachers by June 2023 with a view to having it ratified by the Board of Management in July 2023.

This plan was ratified by the Board of Management on:

Date:

Signed:

CHAIRPERSON

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PRINCIPAL