

Science Whole School Plan

Introductory Statement and Rationale

(a) Introductory Statement

This plan was formulated by the Principal and staff o Doolin N.S in 2022.

(b) Rationale

We recognise Science as an integral element of Social, Environmental and Scientific education. In our school SESE provides opportunities for the child to explore, investigate and develop an understanding of the natural, human, social and cultural dimensions of local and wider environments, to learn and practise a wide range of skills, and to acquire open, critical and responsible attitudes. SESE enables the child to live as an informed and caring member of local and wider communities. We recognise the distinct role science has to play in helping children come to terms with the biological and physical world.

This plan has been drawn up in response to the 1999 Primary School Curriculum, to conform to the principles outlined in this curriculum and to review our practices in the light of these principles. As a whole school plan it guides and organises the teaching and learning for SESE Science in our school. It will benefit the teachers by informing classroom planning and will be of ultimate benefit to pupils by ensuring science activities are balanced and well-planned.

Vision and Aims

(a) Vision:

.Through our school's science programme, we aim to help pupils to come to an understanding of and take an interest in the world and environment around them, both physical and biological. It is our aspiration that science in our school will be a practical subject as much as possible with hands-on activities that give an opportunity to develop scientific skills. The skills learned through science activity are also skills for life. As science is a subject that many pupils will encounter at second level, we hope that exposure in Primary school will make our pupils more familiar with and interested in science at the next level. Environmental activities encouraged in our school will foster a positive attitude and sense of responsibility among our pupils for the natural environment and its relationship with the human environment.

Aims: Aims:Page 11 of curriculum statement

The aims of social, environmental and scientific education are:

- to enable the child to acquire knowledge, skills and attitudes so as to develop an informed and critical understanding of social, environmental and scientific issues
- to reinforce and stimulate curiosity and imagination about local and wider environments
- to enable the child to play a responsible role as an individual, as a family member and as a member of local, regional, national, European and global communities
- to foster an understanding of, and concern for, the total

interdependence of all humans, all living things and the Earth on which they live

- to foster a sense of responsibility for the long-term care of the environment and a commitment to promote the sustainable use of the Earth's resources through personal life-style and participation in collective environmental decision-making
- to cultivate humane and responsible attitudes and an appreciation of the world in accordance with beliefs and values.

In addition we aim to:

- Take part in activities during National Tree Week and Energy Awareness Week
- Organise existing and purchase additional science equipment as required
Avail of future Cuiditheoir visits.

Curriculum Content:

Science Programme:

Strands

Strand Units

Infants-2nd class

Strand Units

3rd-6th classes

Living Things

- Myself
- Plants and animals
- Human life

- Plants and animals

Energy and forces

- Light
- Sound
- Heat
- Magnetism and electricity
- Forces
- Light

- Sound
- Heat
- Magnetism and electricity
- Forces

Materials

- Properties & characteristics of materials
- Materials and change
- Properties & characteristics of materials
- Materials and change

Environmental Awareness and Care

- Caring for my locality
- Environmental awareness
- Science and the environment
- Caring for the environment

- Strands and Strand Units:see 2-year plan appended.
 - We have prepared a two-year plan for each class level
 - We have included work from each strand for each year.
- We will ensure emphasis is given to each strand.
- A full range of objectives will be covered during the two-year cycle.
 - We will use a balanced mix of theme-based approach to SESE, cross-curricular work and subject-centre focus.

Methodologies:

Children's Ideas:

We will use children's ideas as a starting point for all scientific activity.

Methodologies:

The methodologies we will use include:

- Talk and discussion
- Open questions and problem-solving activities
- Annotated drawings
- Concept maps and brainstorming
- Free play with materials

We will promote the development of good questioning in our classrooms, with pupils as well as teachers being given the opportunity to pose their own questions and set up investigations to find answers.

Practical Investigations:

We will include the following investigations:

- **Open investigations-** pupils will be given or may even suggest an open question for which they will have to design their own investigation and come up with their own results
- **Closed investigations-**activities where the end result is obvious and there are not many variables
- **Fair testing-**pupils will be encouraged to develop a sense of what should be kept the same and what should be the variable to ensure that an investigation is fair.

(see Teacher Guidelines pg 54)

Classroom Management:

-A combined approach of whole classroom work, 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.

-Each teacher will consider having a science display area.

-We encourage both the investigative approach and the teacher-directed approach.

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

Key Methodologies:

We have identified the following as the key methodologies for science activity in our school:

- Active learning
- Free exploration of materials
- Use of everyday objects found in the local environment
- Outdoor habitat work
- Content spiralling from class to class
- Talk and discussion

Linkage and Integration:

We encourage the linkage of the strands within science and the integration of science with other subject areas. Pupils' view of the world is a holistic one and as such more meaningful learning takes place in an integrated setting. Examples include:

- Human Life units on growth and reproduction will integrate with SPHE
- Environmental awareness and care is closely integrated with the SPHE and Geography curriculum.
- Design and Make activities will also form part of the Visual Arts content.
- Links with the maths curriculum are many e.g. graphing results of investigations, measuring, colour, shape etc.
- The strand unit on sound is an integral part of the music curriculum e.g. designing musical instruments

Using the Environment

-Each class will engage in designated habitat studies as outlined on Two Year Plan

-Our habitats include:

-Wall

-Concrete

-Gravel path

-Grass

-Hedgerow

-Deciduous trees

-Evergreen trees

-Window boxes-bulbs, heathers, bedding plants

Birds in the school grounds- bird table, bird feeders

-Habitat studies in our school will take into account the following:

- Seasonal study of individual habitats
- Outdoor investigation and exploration
- Sample collection within the school's conservation code
- Reference will be made to school's safety policy

In our habitat studies we will explore the following:

- Minibeast studies
- Food chains
- Life cycles
- Adaptations
- Caring for the environment

Balance between Knowledge and Skills:

Pupils will be given an opportunity to engage in Design and Make activities appropriate to their ability and area of study. The children will be working in a scientific way, questioning, observing, predicting, investigating, analysing and recording and therefore acquiring knowledge. They will be exploring, planning and analysing materials through design and make activities e.g. lighthouses, quiz games, magnetic fishing game. There will be an emphasis on the promotion of scientific skills so knowledge will follow. This hands on, practical approach will facilitate understanding of scientific topics.

Assessment – Looking at Childrens' Work:

Information from assessment will be communicated to parents in the school report at the end of the year and at the parent/teacher meetings in the first term.

We will assess science:

- Knowledge
- Understanding
- Skills
- Attitudes towards investigation and problem-solving and sense of responsibility for environment
- Ability to work collaboratively

Assessment will be in the form of:

- teacher observation
- concept-mapping

- annotated drawing
- teacher-designed tasks
- portfolios of work
- Parental and pupil feedback

There will be opportunities for the pupils to engage in self assessment as they analyse the success of design and make activities and get an opportunity to view their own work portfolios.

Children with Different Needs:

In the same way as we endeavour to meet individual needs in all aspects of the curriculum, we will do our best to make science accessible to as many children as possible as we recognise the potential science has to help children make sense of the physical and biological worlds in which they live. We are aware of the possibilities for fun and developing a sense of curiosity and wonder that science holds for children.

- Recording will be based on the child's level e.g. brainstorms and annotated drawings.
- Activities will be differentiated according to ability.
- ICT / digital images will be used to record work
- Hands on practical work to suit all abilities
- Assistance from Resource teachers or special needs assistants will be availed of when appropriate

Equality of Participation and Access:

Science will be for all children regardless of gender, age or ability

Organisation:

Timetable:

Science is part of the 3 hours of SESE in the senior classes and 2 1/4 hours SESE in the Junior classes. On occasion teachers may block periods of time. Teachers may use discretionary time as and when needed.

Resources and Equipment:

-we undertake to purchase or collect the other resources as and when needed during the next two-year cycle. The equipment will be available in the school storage areas.

Homework:

-Science homework will be in keeping with the school's homework policy.

Individual Teachers' Planning and Reporting

-Yearly and short-term plans should be based on the approaches and methodologies set out in the school plan. Work covered will be outlined in the cúntas míosúil.

Staff Development:

- Teachers are made aware of opportunities to attend science courses and training.

Parental Involvement:

-Parents are encouraged to support the school's science programme. Parents with particular expertise may be invited to address classes or accompany field outings when appropriate.

Community Links:

-Local and national agencies may be invited from time to time to work with classes or address pupils. These include: Sustainable Energy Ireland & heritage experts.

Success Criteria

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

- Evidence of scientific skills and knowledge development in pupils throughout school
- Increased interest in science and environment throughout the school
- Evidence of practical activities in the classes
- Resources and equipment being used throughout the schools
- Class and school displays
- Evidence of classes engaging in outdoor habitat work
- Formal and informal assessment as outlined in this plan

- Positive feedback from parents and pupils

■ Implementation

Roles and Responsibilities:

All teachers are responsible for the implementation of the science programme in their class and the care and maintenance of equipment. Principal will order additional equipment as and when the need arises.

■ Review

Review will take place during a staff meeting as needed.

■ Ratification

This plan was ratified by the Board of Management on 10th February 2022.

Signed: Pdraig Vaughan (Chairperson BOM)

Signed: Michelle Moroney (Principal)