Scoil Náisiúnta Phadraig Naofa,
Avoca,
Co. Wicklow.
Roll No 18198A

Science Policy

Introductory Statement and Rationale

Introductory Statement

The existing approach to Science was reviewed and changes necessary to implement the Science curriculum were identified. In collaboration with the teaching staff the following plan was drawn up.

Rationale

This plan is a record of whole school decisions in relation to Science in line with the Primary Curriculum, 1999. It is intended to guide teachers in their individual planning for Science.

Vision and Aims

(a) The study of Science in our school is concerned with the development of knowledge and understanding of the biological and physical aspects of the world. We aspire to help the pupils' curiosity and enjoyment so that they will develop a lasting interest in Science. Practical activities, focusing on the scientific process, are included as an important part of Science lessons.

(b) Aims:

We endorse the aims of the Primary Curriculum for Science as set out in the Curriculum:

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 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 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 the environmental problems and so promote sustainable development

To enable the child to communicate ideas, present work and report findings using different media.

Content of Plan

Strand: Living things **Strand unit: Myself /Human life (3rd – 6th)**

Infants	First and second	Third and fourth	Fifth and sixth
Variety and characteristics of humans	*Variety and characteristics of humans*	*Variety and characteristics of humans*	*Variety and characteristics of humans*
Identify parts of the male and female body	Name and identify external parts of the male and female body and their associated functions or senses	Become aware of the names and structures of some of the body's major external and internal organs	Develop a simple understanding of the structure of some of the body's major internal and external organs
Recognise and measure physical similarities and differences between people	Recognise and/or measure physical similarities and differences between individuals		
	Become aware of the role of each sense in detecting information about the environment and in protecting the body		
Human life processes	*Human life processes*	*Human life processes*	*Human life processes*
Become aware of some changes that occur as children grow and mature	Recognise that all living things grow and change	Understand the physical changes taking place in both male and female during growth to adulthood	Develop an understanding of the reproductive systems of both male and female and of the physical changes taking place in both male and female during growth to adulthood
Become aware that people have a variety of needs for growth	Recognise that physical growth has taken place since birth		
	Identify some requirements for growth and development in the human		
Develop an awareness of human birth	Begin to identify the main phases of the human life cycle		
Use all the senses (touch, smell, sight, taste, hearing) to become aware of and explore environments	Use all the senses to become aware of and explore environments		
		Develop an awareness of the importance of food for energy and growth	

		Become aware of and investigate breathing	Become aware of and investigate breathing
		Explore and investigate how people move	
			Identify and understand ways in which the body protects itself against disease and infection
			Develop a simple understanding of food and nutrition

Strand: Living things Strand unit: Plants and animals/Plant and animal Life (5th & 6th)

Infants	First and second	Third and fourth	Fifth and sixth
Variety and characteristics of living things	*Variety and characteristics of living things*	*Variety and characteristics of living things*	*Variety and characteristics of living things*
Observe, discuss and identify a variety of plants and animals in different habitats in the immediate environment	Observe, identify and explore a variety of living things in local habitats and plants and animals in different environments	Observe, identify and examine the animals and plants that live in environments	Observe, identify and examine the animals and plants that live in local habitats and environments
Become aware of animals and plants of other environments	Develop some awareness of plants and animals from wider environments	Develop an increasing awareness of plants and animals from wider environments	Develop an increasing awareness of plants and animals from wider environments
			Recognise that there is a great diversity of plants and animals in different regions and environments
			Identify the interrelationships and interdependence between plants and animals in local and other habitats
Sort and group living things into sets	Group and sort living things into sets according to certain characteristics	Sort and group living things into sets according to observable features	Group and compare living things into sets according to their similarities and differences
		Use simple keys to identify common species of plants and animals	Become familiar with the characteristics of some major groups of living things
			Construct and use simple keys to identify locally occurring species of plants and animals
Recognise and identify the external parts of living things	Recognise and describe the parts of some living things		
		Observe and explore some ways in which plant and animal behaviour is influenced by, or adapted to, environmental conditions	Observe and explore some ways in which plant and animal behaviour is influenced by, or adapted to, environmental conditions
		Understand that plants use light energy from the sun	Become aware of the sun as a source

		Come to appreciate that animals depend on plants and indirectly on the sun for food	of energy for plants through photosynthesis
		Discuss simple food chains	
	Recognise that tree are plants		

	Processes of life	*Processes of life*	*Processes of life*
Observe growth and change in some living things	Appreciate that living things have essential needs for growth	Become aware of some of the basic life processes in animals	Become aware of some of the basic life processes in animals and plants
Explore conditions for growth of bulbs and seeds	Explore, through the growing of seeds, the need of plants for water and heat	Investigate the factors that affect plant growth	Investigate the factors that affect plant growth
Become aware that animals and plants undergo seasonal change in appearance or behaviour	Understand that seasonal changes occur in living things and examine the changes in plant and animal life during the different seasons		
	Investigate how plants respond to light		
			Understand some ways in which plants reproduce

Strand: Materials

Strand unit: Propertiesand characteristics of materials

Infants	First and second	Third and fourth	Fifth and sixth
Observe a range of familiar materials in the immediate environment	Identify and investigate a range of common materials used in the immediate environment	Identify and investigate a range of common materials used in the immediate environment	Identify and investigate a widening range of common materials used in the immediate environment
Describe and compare materials, noting the differences in the colour, shape and texture	Describe and compare materials, noting the differences in colour, shape and texture	Describe and compare materials, noting the differences in colour, shape and texture	
Group materials according to certain criteria	Group materials according to their properties	Group materials according to their properties	Group materials according to their properties and/or composition
Investigate materials for different properties	Identify and investigate materials that absorb water and those that are waterproof		
Know about some everyday uses of common materials			Identify how materials are used
	Begin to distinguish between natural and manufactured materials	Distinguish between raw and manufactured materials	Explore the origins of these materials
	Begin to explore how different materials may be used in the construction of homes suited to their environments	Investigate how materials may be used in the construction	
		Recognise that materials can be solid, liquid or gaseous	Recognise that materials can be solid, liquid or gas form
			Recognise that gas, such as air, occupies space, has mass and exerts pressure
			Become aware that air is composed of different gasses
			Become aware of some of the practical applications of these gasses in everyday life

			Recognise that some materials decay naturally while others survive a long time in the environment

Strand: Materials

Strand unit: Materials and change

Infants	First and second	Third and fourth	Fifth and sixth
	Heating and cooling	*Heating and cooling*	*Heating and cooling*
Explore the effects of water on a variety of materials			
Observe and describe materials when they are wet and when they are dry			
Identify some materials that are waterproof			
Explore the effect of heating and cooling on everyday objects, materials and substances	Explore the effects of heating and cooling on a range of liquids and solids	Explore the effects of heating and cooling on a range of liquids, solids and gasses	Explore the effects of heating and cooling on a range of liquids, solids and gasses
	Explore ways in which liquids and solids may be kept hot or cold		
	Become aware of and investigate the suitability of different kinds of clothes for variations in temperature	Investigate the suitability of different kinds of clothes for variation in temperature	
		Experiment to establish which materials are conductors of heat or insulators	Experiment to establish which materials are good conductors of heat or good insulators
			Identify ways in which homes and buildings are heated and insulated
			Recognise how heating and cooling can be used to preserve food
	Mixing and other changes	*Mixing and other changes*	*Mixing and other changes*
	Begin to investigate how materials may be changed by mixing	Investigate how materials may be changed by mixing	Investigate how a wide range of materials may be changed by mixing
	Investigate the characteristics of different materials when wet and dry	Investigate the characteristics of different materials when wet and dry	Investigate the effects of light air and water on materials

		Examine the changes that take place in materials when physical forces are applied	Examine the changes that take place in materials when physical forces are applied
		Explore some simple ways in which materials may be separated	Explore simple ways in which materials may be separated
			Recognise that oxygen is required for burning

Strand: Energy and forces

Strand unit: Forces

Infants	First and second	Third and fourth	Fifth and sixth
Explore, through informal activities with toys, forces such as pushing and pulling	Explore how objects may be moved by pushing and pulling	Explore how objects may be moved	Identify and explore how objects and materials may be moved
Explore how the shape of objects may be changed by squashing, pulling and other forces			
Investigate how forces act on objects	Investigate how forces act on objects		
	Become aware of and explore how moving water and moving air can make things move	Investigate the pushing force of water	
	Observe and investigate the movement of objects such as toys on various materials and surfaces	Explore the effects of friction on movement through experimenting with toys and objects on various surfaces	Explore the effect of friction on movement and how it may be used to slow or stop moving objects
			Explore how friction can generate heat
		Explore how some moving objects may be slowed down	
		Investigate falling objects	
		Explore how levers may be used to help lift different objects	Explore how levers may be used to help lift different objects
			Come to appreciate that gravity is a force
			Become aware that objects have weight because of the pull of gravity

Strand: Energy and forces

Strand unit: Light

Infants	First and second	Third and fourth	Fifth and sixth
Identify and name different colours		Investigate that light can be broken up into many different colours	Investigate the splitting and mixing of light
Sort objects into sets according to colour			
Observe colours in the local environment			
Explore dark and bright colours and become aware of different shades of colour			
Discuss the differences between day and night, light and shade			
Explore how shadows are formed			
	Recognise that light comes from different sources	Recognise that light comes from different natural and artificial sources	Know that light travels from a source
	Recognise that light is needed in order to see		Appreciate the importance of sight
	Investigate the relationship between light and materials	Investigate the relationship between light and materials	Investigate the refraction of light
	Recognise that the sun gives us heat and light, without which we could not survive	Recognise that the sun gives us heat and light, without which people and animals could not survive	Understand the role of sunlight in photosynthesis and appreciate that the sun gives us heat and light without which people could not survive
	Become aware of the dangers of looking directly at the sun	Be aware of the dangers of looking directly at the sun	Be aware of the dangers of excessive sunlight
		Learn that light is a form of energy	Learn that light is a form of energy
		Investigate how mirrors and other shiny surfaces are good reflectors of light	Investigate how mirrors and other shiny surfaces are good reflectors
			Explore how objects may be magnified using simple lens or magnifier

Strand: Energy and forces

Strand unit: Sound

Infants	First and second	Third and fourth	Fifth and sixth
Recognise and identify a variety of sounds in the environment	Recognise and identify a variety of sounds in the environment	Recognise and identify a variety of sounds in the environment	Recognise and identify a variety of sounds in the environment and appreciate the importance of noise control
Identify and differentiate between high and low sounds, loud and soft sounds	Identify and differentiate between high and low sounds, loud and soft sounds		
Explore ways of making different sounds using a variety of materials	Explore ways of making different sounds using a variety of materials	Understand and explore how different sounds may be made by making a variety of materials vibrate	Understand and explore how different sounds may be made by making a variety of materials vibrate
	Design and make a range of simple percussion instruments	Design and make a range of simple string instruments using an increasing variety of tools and materials	Design and make simple woodwind instruments
		Explore the act that sound travels through materials	Explore how sound travels through materials
		Learn that sound is a form of energy	Learn that sound is a form of energy
			Appreciate the importance of hearing

Strand: Energy and forces

Strand Unit: Magnetism

Infants	First and second	Third and fourth	Fifth and sixth
Use magnets of different shapes and sizes in purposeful play to explore their effects on different materials	Use magnets of different shapes and sizes in purposeful play to explore their effects on different materials	Learn that magnets can push or pull magnetic materials	Learn that magnets can push or pull magnetic materials
Investigate the fact that magnets attract certain materials	Investigate that magnets attract magnetic materials, such as iron and steel	Examine and classify objects and materials as magnetic and non-magnetic	
	Investigate that magnets attract certain materials through other materials	Investigate that magnets attract certain materials through other materials	
		Explore the relationship between magnets and compasses	
		Explore how magnets have poles and investigate how these poles attract and repel each other	
			Explore the use of magnets to lift and hold objects
			Investigate how magnets may be made

Strand: Energy and forces

Strand Unit: Electricity

Infants	First and second	Third and fourth	Fifth and sixth
Become aware of the uses of electricity in school and at home	Become aware of the uses of electricity in school and at home		
Identify some household appliances that use electricity	Identify some household appliances that use electricity		Become aware of how some common electrical appliances work
Become aware of the dangers of electricity	Become aware of the dangers of electricity		
	Explore the effects of static electricity	Become aware of the dangers of electricity	Become aware of and understand the dangers of electricity
		Explore the effects of static electricity	
		Observe the effects of static electricity on everyday things in the environment	
		Learn about electrical energy	Learn about electrical energy
		Investigate current electricity by constructing simple circuits	Investigate current electricity by constructing simple circuits
		Examine and group materials as conductors (those that conduct electricity) and insulators (those that do not allow electricity to pass through)	

Strand: Energy and Forces

Strand Unit: Heat

Infants	First and second	Third and fourth	Fifth and sixth
Recognise the difference between hot and cold in terms of weather, food, water and the body	Learn that temperature is a measurement of how hot something is	Recognise that temperature is a measurement of how hot something is	
Identify ways of keeping objects and substances warm and cold			
	Become aware of the different sources of heat energy	Understand that the sun is Earth's most important heat source	Recognise a variety of sources of heat
	Measure and compare temperature in different places in the classroom, school and environment	Measure and compare temperature in different places in the classroom, school and environment and explore the reasons for variations	
		Measure changes in temperature using a thermometer	Measure and record temperature using a thermometer
		Learn that heat can be transferred	Know that heat energy can be transferred
			Experiment with a range of materials to establish that heat may be transferred in different ways
		Identify ways in which homes, buildings and materials are heated	

Strand: Environmental awareness and care

Strand Unit: Environmental awareness

Infants	First and second	Third and fourth	Fifth and sixth
		Identify positive aspects of natural and built environments through observation, discussion and recording	Identify positive aspects of natural and built environments through observation, discussion and recording
		Identify the interrelationship of the living and non-living elements of local and other environments	Explore some examples of the interrelationship of the living and non- living aspects of local and other environments
		Become aware of the importance of the Earth's renewable and non- renewable resources	Become aware of the importance of the Earth's renewable and non-renewable resources
			Foster an appreciation of the ways in which people use the Earth's resources
		Come to appreciate the need to conserve resources	Come to appreciate the need to conserve resources
		Recognize how the action of people may impact upon environments	

Strand: Environmental Awareness and Care Strand Unit: Caring for my locality/Caring for the environment (3rd – 6th)

Infants	First and second	Third and fourth	Fifth and sixth
Develop a sense of responsibility for taking care of and improving the environment	Realise that there is both an individual an a community responsibility for taking care of the environment	Realise that there is a personal and community responsibility for taking care of the environment	Come to appreciate individual, community and national responsibility for environmental care
Identify, discuss and implement simple strategies for improving and caring for the environment	Identify, discuss and implement simple strategies for improving and caring for the environment	Examine a number of ways in which the local environment could be improved or enhanced	Participate in activities that contribute to the enhancement of the environment
	Identify, discuss and implement simple strategies for protecting, conserving and enhancing the environment		
Observe, discuss and appreciate the attributes of the local environment	Identify, discuss, and appreciate the natural and human features of the local environment		
Appreciate that people share the environment with plants and animal life	Begin to recognize that people, animals and plants depend on one another		
	Observe and develop an awareness of living things in a range of habitats in local and wider environments		
	Observe the similarities and differences among plants and animals in different local habitats		
	Develop an awareness that air, water, soil, living and non-living things are essential to the environment		

	Become aware of ways in which the environment can be polluted or harmed	Identify and discuss a local, national or global environmental issue	Identify and discuss a local, national or global environmental issue

Strand: Environmental Awareness and Care **Strand Unit: Science and the environment**

Infants	First and second	Third and fourth	Fifth and sixth
		Begin to explore and appreciate the application of science and technology in familiar contexts	Appreciate the application of science and technology in familiar contexts
		Identify some ways in which science and technology contributes positively to society	Examine some ways in which science and technology have contributed positively to the use of Earth's resources
			Recognise the contribution of scientists to society
		Recognize and investigate human activities which have positive or adverse effects on local and wider environments	Recognize and investigate aspects of human activities that may have positive or adverse effects on environments

Working scientifically

Infants	First and Second	Third and Fourth	Fifth and Sixth
Questioning	*Questioning*	*Questioning*	*Questioning*
Ask questions about animals and plants, familiar objects and events in the immediate environment	Ask questions about animals and plants, familiar objects and events in the immediate environment	Ask questions about animals, plants, familiar objects and events in the immediate environment and their relationships	Ask questions about animals, plants, objects and events in the immediate environment and their relationships
	Ask questions that may lead to investigations	Ask questions that will identify problems to be solved	Ask questions that will identify problems to be solved
		Ask questions that will help in drawing conclusions and interpreting information	Ask questions that will help in drawing conclusions and interpreting information
Observing	*Observing*	*Observing*	*Observing*
Use the senses to observe animals, plants , objects and events in the immediate environment	Use all the senses, separately or in combination, to explore living things, objects and events in the immediate environment	Observe and describe natural and human elements and processes in the immediate environment	Observe, describe and discuss physical, natural and human elements and processes in the immediate environment
			Distinguish between the significant and less significant observations
Observe characteristics such as the shape, size, colour, pattern, texture, sound and smell of familiar things in the local environment	Observe gradual changes in living things and familiar objects and events over a period	Observe and describe characteristics such as the shape, size, colour, pattern, texture, and interrelationships of elements in the local environment	Recognise and describe pattern and sequences in observations
Observe differences and similarities	Observe differences and similarities in the environment		
	Observe accurately both inside and outside the classroom		
Predicting	*Predicting*	*Predicting*	*Predicting*

Guess and suggest what will happen next in structured situations	Suggest outcomes of an investigation based on observations	Offer suggestions (hypotheses) based on observations about the likely results of the investigation	Offer suggestions (hypotheses) based on a number of observations and data available about the likely results of an investigation
			Make inferences based on suggestions and observations
			Propose ideas or simple theories that may be tested by experimentation
Investigating and experimenting	*Investigating and experimenting*	*Investigating and experimenting*	*Investigating and experimenting*
Carry out simple investigations set by the teacher, make observations and collect data	Carry out simple investigations where the problem , materials and method are set by the teacher Begin to suggest approaches and methods of solving problems	Collect information and data from a variety of sources, including observations in the environment, classroom observations and experiments, photographs, books, maps and ICT	Collect information and data from a variety of sources, including observations in the environment, classroom observations and experiments, photographs, books, maps, CD ROM and computer databases
		Design, plan and carry out simple investigations	Design, plan and carry out simple experiments, having regard to one or two variables and their control and the need to sequence tasks and tests
	Begin to identify one or two variables with guidance from the teacher	Identify one or two obvious variables relevant to the investigation	
		Realise that an experiment is unfair if relevant variables are not controlled	Realise that an experiment is unfair if relevant variables are not controlled
			Appreciate the importance of repeating tests and experiments
			Identify (with guidance) different ways of looking at a problem and compare results of different investigations
Estimating and measuring	*Estimating and measuring*	*Estimating and measuring*	*Estimating and measuring*

Describe mass and length using non-standard units and informal language	Appreciate the need for standard units	Measure , compare and record mass, weight, capacity, time and temperature using appropriate standard units of measurement and simple equipment	Use appropriate simple instruments and techniques to collect and record data on length, weight, mass, capacity , time and temperature
Compare and estimate	Begin to use simple methods to estimate , measure and compare observations		Estimate and use appropriate standard units of measurement
			Decide what should be measured and the degree of accuracy required
Match objects of equal length	Compare and identify differences in measurement		
Analysing	*Analysing*	*Analysing*	*Analysing*
Sort and group objects according to observable features	Sort and group objects according to observable features	Sort and group data on people, events and natural phenomena using a range of appropriate criteria	Sort and group data on people, events, natural phenomena, materials and physical processes using a range of appropriate criteria
	Appreciate that there are different criteria for sorting and suggest more than one way of sorting a number of items	Sort and present data in sets and subsets	Sort and present data in sets and subsets
	Begin to look for and recognise patterns and relationships in observations	Look for and recognise relationships when making observations	Look for and recognise relationships when making observations
		Select appropriate observations that fit a pattern	Identify other instances that fit a pattern
			Use observed patterns to make predictions
	Draw conclusions from simple investigations	Interpret information and offer explanations	Interpret information and offer explanations
		Draw conclusions from suitable aspects of the evidence collected	Draw conclusions from suitable aspects of the evidence collected

Recording and communicating	*Recording and communicating*	*Recording and communicating*	*Recording and communicating and evaluating*
Describe his/her observations orally using an increasing vocabulary	Describe and discuss observations orally using an increasing vocabulary	Record and present findings and conclusions using a variety of methods	Record and present findings and conclusions using a variety of methods
Represent findings pictorially and in other media	Represent findings using pictures, models and other methods		Review the methods used in investigations and assess their usefulness

Designing and making

Infants	First and Second	Third and Fourth	Fifth and Sixth
Exploring	*Exploring*	*Exploring*	*Exploring*
Handle and manipulate a range of materials in structured and unstructured situations	Handle and manipulate a range of materials and objects	Explore a wide range of everyday objects and how they work	Explore a wide range of everyday objects and how they work
			Explore how some objects might be improved or adapted
Observe ,investigate and describe familiar objects	Observe ,investigate and describe familiar objects	Explore freely how arrange of shapes, objects, and other constructions could be made using a variety of materials	Explore freely how arrange of shapes, objects, and other constructions could be made using a variety of materials
	Recognise that people like certain characteristics of objects but not others and investigate the reasons for these preferences	Recognise that people like certain characteristics of objects but not others and investigate the reasons for these preferences	Recognise that people like certain characteristics of objects but not others and investigate the reasons for these preferences
Planning	*Planning*	*Planning*	*Planning*
Imagine and suggest a possible object to be made	Identify a need for new or revised designs; imagine and suggest a possible object to be made	Recognise a need to adapt or change an object or surroundings	Use knowledge and the result of investigations to identify needs and/or opportunities to improve an object or environments in familiar contexts
			Understand that while the change may be desirable it may result in

			problems
			Organise work taking account of constraints and resources
	Discuss, using appropriate vocabulary, what he/she would like to design or make	Become aware that new designs may create an interest and perceived need among others	
Choose appropriate materials from a given limited range	Choose materials, from a given range, to comply with the design idea		Develop the ability to draw designs showing different perspectives of proposed objects
	Clarify and communicate through pictures or simple modeling, the materials and structures required to build the object	Communicate and evaluate the design plan using sketches, models and ICT	Communicate design plan using sketches, models and other media including ICT
			Present design proposal on a "design sheet"
Talk about the plan and communicate it to others	Talk about and communicate a plan of action using appropriate vocabulary	Work collaboratively to create a design proposal	Evaluate the feasibility of the design proposal and possible modifications to it, bearing in mind the resources available
Making	*Making*	*Making*	*Making*
Make simple objects	Make simple objects	Make a range of simple objects to solve practical problems, to fulfill a need or preference and to express creative ideas	Make objects applying knowledge that structures have form and stability and that materials can be linked to allow maximum stability
			Identify problems with , or undesirable effects of, a design during construction: propose and implement alterations as the object is made
Develop craft-handling skills and techniques needed to carry out the plan	Develop craft-handling skills	Develop craft-handling skills and techniques	Develop craft-handling skills and techniques

Use a range of tools	Use a range of tools	Use appropriate tools	Use a range of tools
Use a range of materials	Use a range of materials	Use a range of materials	Use a range of materials
	Understand that these materials can be linked in simple ways to allow movement		
Evaluating	*Evaluating*	*Evaluating*	*Evaluating*
Talk about own work during design and making tasks	Evaluate design ideas as these develop in the making process	Recognise that modifications to the plan may have to be made throughout the task	Discuss stability and form of other made objects and evaluate the effectiveness of the group product in the light of this investigation
Report to others on what has been done	Evaluate own work and suggest possible modifications to the designing and making task	Evaluate the effectiveness of the new product and suggest modifications to the designing and making task	Discuss and justify modifications that would improve the overall quality and stability of the outcome
			Justify the ideas, materials, joins,

Key Methodologies

The use of a variety of methodologies are essential to adopting a successful science programme. Children's learning in science should involve:

Curriculum Planning

1. Science Programme

Strands and Strand Units

The concepts and knowledge to be explored by the pupils are outlined in the four content strands and through the study of these areas the scientific and technological skills described in "Working Scientifically" and "Designing and making" are developed.

Teachers select the topics/lessons from the curriculum objectives for their class ensuring that equal emphasis is given to each strand and that the full range of objectives are covered in a two year cycle. Thematic approaches are adopted at certain stages of the year. Certain aspects of the Science programme that relate to human growth, development and reproduction are addresses in line with the school's plan for SPHE. (Social, Personal and Health Education)

Included in this policy is an overview of each class groups lesson topics and their relevant strands and stand units.

Children's Ideas

All teachers are in agreement that learning in Science begins from the pupils' ideas about how things are, and they change and develop these ideas by testing them in practical investigations. During scientific activities children are encouraged to discuss, question, listen and problem solve through activities that try out, challenge, change or replace them.

Practical Investigations

Teachers adopt an investigative approach or direct the scientific activities to ensure that the pails are provided with opportunities to use and apply concepts while solving scientific problems. The concept of a fair test is introduced from 3rd class with children encouraged to identify the conditions that make a difference to an experiment. In carrying out practical investigations in Science the children will be involved in:

Observing

Asking question

Predicting

Hypothesising

Investigating and experimenting

Interpreting results

Recording and communicating results

Classroom Management

Teachers may use a variety of strategies when structuring the Science lesson e.g. whole class work, group work, and individual work on chosen topics. Safety procedures as referred to below must be followed.

Key Methodologies

Active learning, use of the environment, guided and discovery learning are the methodologies which will be emphasised in Science lessons to ensure pupils are involved as much as possible in the lessons. Teachers select appropriate methodologies to accommodate the different learning styles of the children.

They should:

Allow children the excitement for finding out for themselves

Enable the children to work on their own problems as far as possible

Encourage children to pose their own questions

Use children's ideas as a basis for activities. Children should be encouraged to use their own ideas, test and perhaps change their ideas.

Linkage and Integration

The linkage of the four strands in Science is encouraged, as there are opportunities to develop themes that cover the four strands. The Science curriculum can be integrated within SESE, particularly with Geography, but also SPHE, Visual Arts, Mathematics and the Language programme.

Using the Environment

The school is committed to making full use of its grounds and the habitats of the locality. The immediate environment will be the starting point for environmental education and as the pupils' knowledge and understanding grow they will learn about other environments in Irish, European and global context.

Balance between Knowledge and Skills

The teaching of science encourages the development of two types of understanding-the development of scientific knowledge through the four strands and the development of scientific skills. The science skills falls under two headings

Working scientifically which describes the Science skills that pupils should develop through their scientific investigation

Designing and making skills which involve the pupils in exploring materials, planning designs and making models that will enable them to apply skills learned to practical situations.

2. Assessment

Knowledge, skills development and participation levels are assessed by teachers. Teachers select from the following range of assessment approaches:

Teacher observation of knowledge, skills development and participation in activities

Teacher designed tests and tasks

Work Samples and projects

Children with Different Needs

The Science programme aims to meet the needs of all children in the school. This will be achieved by teachers varying the pace, content and methodologies to ensure learning for all pupils.

3. Equality of Participation and Access

All children are provided with equal access to all aspects of the Science Curriculum.

Organisational Planning

4. Timetable

Teachers can decide to allocate time for Science on a weekly basis or block basis over a month or term.

In the curriculum guidelines the minimum time that should be spent on S.E.S.E. (Social, Environmental and Scientific Education)

1st-6th Class 3 hours per week.

Juniors and Senior Infants-2 hours and 15 minutes per week.

5. Resources and Equipment

An inventory has been drawn up of the Science equipment purchased.

The main kit cover the following areas:

Energy& Forces-light bulbs, wires, batteries, motors, magnets, thermometers

Living Things- Pooters. Compost, Charts, Internet

Materials-Sand, Containers, trays, Charts, Internet

Teachers also source their own resources.

6. Safety

The teacher should be aware of the safety implications of any exploratory or investigative work to be undertaken.

7. Homework

See Homework policy

8. Individual Teachers' Planning and Reporting

Teachers have yearly and short term plans. Work covered will be outlined in the Cuntas Míosúil, which is submitted to the principal.

9. Staff Development

Teachers attend courses, in service training and carry out research as required.

Skills are shared and teachers discuss with each other to ensure continuity

10. Parental Involvement

Parents are seen as a useful resource and are welcomed and encouraged in a

supportive and reinforcing role

11. Community Links

Locally sourced experts

Donegal County Council

Library

Success Criteria

The success of this plan will be measured by the following:

Implementation will be evident by the teachers' work

Continuity of content and methodology will be evident in teachers' preparation and monthly reports

On going assessment, formal and informal will show the pupils acquiring an understanding of concepts and skill

Implementation

(a) Roles and Responsibilities

Class teachers are responsible for the implementation of the Science programme.

The post holder with responsibility for Science supports this implementation and also for the distribution and monitoring of resources.

(b) Timeframe

The plan is to be implemented with immediate effect.

Review

It is envisaged that this policy is reviewed over a 2-3 year period.

Ratification

Ratification by the board of management on

Key Methodologies

The use of a variety of methodologies are essential to adopting a successful science programme. Children's learning in science should involve:

Curriculum Planning

1. Science Programme

Strands and Strand Units

The concepts and knowledge to be explored by the pupils are outlined in the four content strands and through the study of these areas the scientific and technological skills described in "Working Scientifically" and "Designing and making" are developed.

Teachers select the topics/lessons from the curriculum objectives for their class ensuring that equal emphasis is given to each strand and that the full range of objectives are covered in a two year cycle. Thematic approaches are adopted at certain stages of the year. Certain aspects of the Science programme that relate to human growth, development and reproduction are addresses in line with the school's plan for SPHE. (Social, Personal and Health Education)

Included in this policy is an overview of each class groups lesson topics and their relevant strands and stand units.

Children's Ideas

All teachers are in agreement that learning in Science begins from the pupils' ideas about how things are, and they change and develop these ideas by testing them in practical investigations. During scientific activities children are encouraged to discuss, question, listen and problem solve through activities that try out, challenge, change or replace them.

Practical Investigations

Teachers adopt an investigative approach or direct the scientific activities to ensure that the pails are provided with opportunities to use and apply concepts while solving scientific problems. The concept of a fair test is introduced from 3rd class with children encouraged to identify the conditions that make a difference to an experiment. In carrying out practical investigations in Science the children will be involved in:

Observing

Asking question

Predicting

Hypothesising

Investigating and experimenting

Interpreting results

Recording and communicating results

Classroom Management

Teachers may use a variety of strategies when structuring the Science lesson e.g. whole class work, group work, and individual work on chosen topics. Safety procedures as referred to below must be followed.

Key Methodologies

Active learning, use of the environment, guided and discovery learning are the methodologies which will be emphasised in Science lessons to ensure pupils are involved as much as possible in the lessons. Teachers select appropriate methodologies to accommodate the different learning styles of the children.

They should:

Allow children the excitement for finding out for themselves

Enable the children to work on their own problems as far as possible

Encourage children to pose their own questions

Use children's ideas as a basis for activities. Children should be encouraged to use their own ideas, test and perhaps change their ideas.

Linkage and Integration

The linkage of the four strands in Science is encouraged, as there are opportunities to develop themes that cover the four strands. The Science curriculum can be integrated within SESE, particularly with Geography, but also SPHE, Visual Arts, Mathematics and the Language programme.

Using the Environment

The school is committed to making full use of its grounds and the habitats of the locality. The immediate environment will be the starting point for environmental education and as the pupils' knowledge and understanding grow they will learn about other environments in Irish, European and global context.

Balance between Knowledge and Skills

The teaching of science encourages the development of two types of understanding-the development of scientific knowledge through the four strands and the development of scientific skills. The science skills falls under two headings

Working scientifically which describes the Science skills that pupils should develop through their scientific investigation

Designing and making skills which involve the pupils in exploring materials, planning designs and making models that will enable them to apply skills learned to practical situations.

2. Assessment

Knowledge, skills development and participation levels are assessed by teachers. Teachers select from the following range of assessment approaches:

Teacher observation of knowledge, skills development and participation in activities

Teacher designed tests and tasks

Work Samples and projects

Children with Different Needs

The Science programme aims to meet the needs of all children in the school. This will be achieved by teachers varying the pace, content and methodologies to ensure learning for all pupils.

3. Equality of Participation and Access

All children are provided with equal access to all aspects of the Science Curriculum.

Organisational Planning

4. Timetable

Teachers can decide to allocate time for Science on a weekly basis or block basis over a month or term.

In the curriculum guidelines the minimum time that should be spent on S.E.S.E. (Social, Environmental and Scientific Education)

1st-6th Class 3 hours per week.

Juniors and Senior Infants-2 hours and 15 minutes per week.

5. Resources and Equipment

An inventory has been drawn up of the Science equipment purchased.

The main kit cover the following areas:

Energy& Forces-light bulbs, wires, batteries, motors, magnets, thermometers

Living Things- Pooters. Compost, Charts, Internet

Materials-Sand, Containers, trays, Charts, Internet

Teachers also source their own resources.

6. Safety

The teacher should be aware of the safety implications of any exploratory or investigative work to be undertaken.

7. Homework

See Homework policy

8. Individual Teachers' Planning and Reporting

Teachers have yearly and short term plans. Work covered will be outlined in the Cuntas Míosúil, which is submitted to the principal.

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Ratification by the board of management15th of May 2015