

Science Policy

St Kilian's National School

19608V

(Revised March 2023)

INTRODUCTORY STATEMENT

St Kilian's National School is a 24 teacher school with approximately 345 pupils. The school includes an ASD Unit called Spraoi. This plan is based on a previous plan drawn up in 2004 which was revised by the staff between September and December 2006 - it was revised again between September and December 2009. The present plan was drawn up in 2018 and updated in March 2023. It is intended that over a two year period all strand units from each strand should be covered. There should also be a balance between the development of scientific knowledge and understanding and the processes of working scientifically. This policy should ensure continuity and progression in the development of scientific ideas and in the application of investigative skills.

RATIONALE

It was decided by the staff to focus on this area as we felt that, with the growing number of single stream classes in the school we needed to clearly define what strand units should be taught in each class group and when it would be done. We will endeavour to ensure that pupils are given adequate opportunities to develop skills and understanding of concepts as envisaged in the Primary School Curriculum.

VISION

Our vision for Science at St Kilian's National School is that all the children will be given opportunities to work scientifically and become independent learners. We hope to create a learning environment where practical activity is encouraged and children discover their own outcomes.

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.
- To encourage the child to explore, develop and apply scientific ideas and concepts.
- To foster the child's natural curiosity.
- To aid the child to appreciate the contribution of science and

technology to the wider world.

- To appreciate and respect diverse living and non-living things.
- To encourage the child to become environmentally responsible and aware.
- To enable the child to communicate ideas, present ideas and report findings using a variety of media.

ADDITIONAL AIMS

We are beginning the work of developing our school garden in our new school. This work commenced in 2017 when we organised a Sponsor a Tree initiative. We aim to continue with this work and give each child hands-on experience in the garden in particular our vegetable and herb garden and geo-dome.



Our school's geo-dome located at the back of the school

GREEN SCHOOLS

St Kilian's National School has been awarded five green flags by An Taisce. This Science Policy should be read in conjunction with our Green Schools Policy particularly in the area of care of environment.

SCIENCE WEEK

We hold a Science annually in November.

Watch our science week video here: Science Week Fearann an Mhullaigh

<https://vimeo.com/647248223>

Letter from Cathal Boylan Engineer and parent, about 3rd Class Science Day.

RE. Science experiments for 3rd Class.

Dear Ronan,


I write this letter in my capacity as a parent of a third class pupil at St. Kilian's NS. I attended part of the science open day held on 17th Nov. last, for the third class pupils and wish to acknowledge how wonderful the event was. I was impressed at the level of interaction displayed from the pupils and how engaged they were with the various experiments. Science experiments are too often associated with secondary schools and further levels of education. In my opinion facilitating primary school pupils, to undertake science experiments, better enables them to understand how science relates to their everyday world. As we know science is simply knowledge of general facts and the operation of general laws, but figuring this out through simple experiments can be such fun, as was clearly evident last Friday.



I wish to acknowledge how well the event was organised and the significant resources the school provided.

Yours Sincerely,

Cathal Boylan
BEng CEng MIEI
CHARTERED ENGINEER

Nature Walk: 1st + 2nd Class in Geography include a unit of work on Mullagh Lake; with a focus on living things around it. The material covered is directly linked to the Science curriculum, as outlined below.

Biodiversity Walk	1st and 2nd Class
	<p>An annual nature walk around the area. Investigate living things around the vicinity of Mullagh Lake; ducks, lillie pads, reeds, swans, the otter, wetlands ect. Study the plants and trees growing there. Make a seasonal comparison. The life cycle of the otter and why it frequents the Borora stream. (Millstream)</p> <p>Record and sketch the different parts of the walk to and from the lake.</p> <p>Highlight the importance of caring for our environment and focus on littering and tidying up after our pets/link with tidy town's initiative. A resource for our community and visitors. (Caring for My Locality)</p>

<p>Mullagh Lake Walk</p>	<p>1st and 2nd Class</p>
	<p>Build an awareness of the natural features in particular the flora and fauna observed around the lake. Sketch and record.</p>
	<p>SPHE: Myself and the wider world. Link to RSE life cycles as appropriate.</p> <p>History: Local studies; Teampaill Ceallaigh Gaeilge: Learn the Irish name for an otter and a duck and the parts of a tree / seasonal flowers. Science: Living things— Plants and animals Visual arts: work on colour, patterns and textures of flora and fauna found in the area. Maths: Mapping and Measure. Literacy: Oral language (location, size, smell, sounds,</p>

	<p>texture etc...) Writing - create collaborative or independent texts.</p>
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Bog Life and Environmental Awareness

The children in 5th Class each year complete a unit of work on “Bog Life” which includes working across strands in Science, Geography, History and the Visual Arts. The children learn about features of blanket bogs and raised bogs in Ireland. They observe the flora and fauna associated with this unique environment while coming to appreciate the importance of Irish bogs and the need to conserve such places as rich environments with important eco-systems.

The children identify the clearing of bog lands as a major environmental issue.



Killyconny Bog,
Mullagh, Co.Cavan



Samples of plant life found on Killyconny Bog



Children from 5th Class exploring, investigating, questioning, observing, investigating, analysing and recording on a trip to Killyconny Bog, Mullagh



Eggcitement!

Recently some of the children in Ms. Brennan's and Ms. Clinton's class paid a visit to the hens. They were very excited to see that our hens had been busy laying eggs and found lots of eggs to collect from the chicken coop. The chickens continue to be very popular with the children. They love visiting them in the morning to say hello and check for eggs!



Children love to care for our hens and collect the eggs.



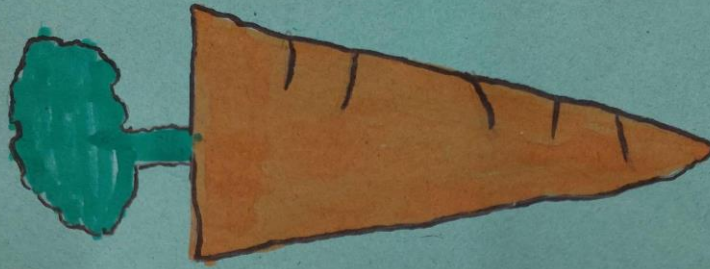


Neasa and Sebastian show off the new arrivals in Mr. Maher's 3rd Class. The chicks hatched on Wednesday after incubating for 22 days in the classroom. They are both very well behaved so far.....

Rang 4 Ag Plandáil sa Ghairdín

4th Class Planting The boys and girls from the 4th Classes plant lots of seeds **annually** in the polytunnel and garden. They do all the work 'as Gaeilge'.





Ag Plandáil sa Ghairdín
Blá Rang a Cesthair ag plandáil sa Ghairdín leis an
bpríomhoide agus le Angela.
Chuir mé prátaí sa chré.
Chuir mé cairéid, oinniúin, piseann agus ~~porraí~~ porraí
leathain i bpotáin san iitholláin.
Chuir mé trétaí freisin.
Is maith liom piseann
ach is fearr liom prátaí.
Taitníonn cairéid go mór liom.



Links with the Wider Community (Wellman International Ltd).



Wellman Presenting to Corr Uí Ruairc

Staff from Wellman International visit our school to help promote recycling and STEM and to inform the children what the company does and the type of people who work there.

Members of staff from Wellman describe in simple terms what they do as a closed loop recycling company, starting with a plastic water bottle to the production of fibres, flakes and pellets.

SCIENCE PLAN

This science plan will be devised under the following headings:

(1) SCIENCE PROGRAMME

- Strands and Strand Units
- Children's ideas
- Practical investigations
- Approaches and Methodologies
- Linkage and Integration
- Using the Environment
- Balance between Knowledge and Skills
- Assessment

- Children with Different Needs
- Equality of Participation and Access
- Timetable

(2) ASSESSMENT

(3) CHILDREN WITH DIFFERENT NEEDS

(4) EQUALITY OF PARTICIPATION AND ACCESS

(5) TIMETABLE

The scientific activity of children is similar to that of the scientist. Children begin from their ideas about how things are, and they change and develop these ideas by testing them in practical investigations. During their scientific activities children will be provided with opportunities to try out, challenge, change or replace ideas. This view of learning involves children developing and constructing more scientific understanding through their own ideas and experience.

(1.1) STRANDS & STRAND UNITS

Infants - Odd Years

Term	Strand Unit	Content	Curriculum	Teacher Guidelines
Autumn	Myself	Body - similarities/differences. Body - changes as we grow. Name and identify body/face parts/features. Self -portraits.	Page 24 Page 28	Page 118 121
	Caring for my Locality	Observe and appreciate attributes of our school environment; Autumn Walk Develop a sense of responsibility for its care. Implement simple		

		strategies for its improvement and care.		
Winter/Spring	Magnetism and Electricity Forces	Purposeful play with magnets to observe effect. Regular play with <i>Magnatiles</i> - linked to Aistear topics. Magnet hunt; classroom and school. Use of electricity at home/school. Dangers of electricity. Investigate the effects of pushing and pulling of various objects.	Page 26 Page 26	Page 38, 108, 109, 136, 138
Summer	Properties and Characteristics of materials	Investigate and compare a variety of materials, e.g. water, metal, wood Identify uses for these materials. Grouping of these materials according to different criteria. Observe floating and sinking of objects.	Page 27	Page 124

Infants - Even Years

Term	Strand Unit	Content	Curriculum	Teacher Guidelines
Autumn	Plants and animals	Investigate living things in various habitats, e.g. trees, plants... Investigate parts of living things, e.g. parts of the tree. Observe growth and change of living things. Explore conditions of change - need for growth, etc. Explore seasonal change.	Page 24	Page 26, 62, 64, 66, 68, 70, 78, 82, 84
Winter/Spring	Light	Identify and name items in relation to colour. Explore various colours and group objects accordingly. Explore shadow and colour in our natural environment.	Page 25	Page 90
	Sound	Explore sound and difference of sound, high/low, etc. Explore making sound - percussion.	Page 25	
Summer	Heat	Investigate hot/cold through our weather/bodies. Explore how to maintain heat/cold.	Page 25	Page 124
	Material and Change	Observe the effects of water on objects/materials. Observe the effects of heating/cooling objects/materials.	Page 27	

Rang 1

Term	Strand Unit	Content	Curriculum	Teacher Guidelines
Autumn	<p>Living things: Myself PLants and animals.</p> <p>Energy and forces: light.</p> <p>Magnetism and electricity.</p> <p>Materials: Properties and characteristics of materials.</p> <p>Materials and change</p>	<p>How do I use my body? Why do I need my senses? Which trees lose their leaves?</p> <p>Where does light come from?</p> <p>Investigate static electricity.</p> <p>Investigate transparent or opaque.</p> <p>Make Halloween ghosts.</p>	New wellbeing framework	
Winter/Spring	<p>Living things: plants and animals.</p> <p>Energy and forces: forces.</p>	<p>How animals survive during winter.</p> <p>What animals can be found in Australia. How does a sunflower grow? Investigate if plants grow in a straight line.</p> <p>Investigate slopes and friction.</p>	New wellbeing framework.	

	Heat. Sound.	Investigate what is hotter. How are sound effects made? Investigate high and low sounds.		
Summer	Properties and Characteristics of materials Living things: plants and animals.	What is it made of? Design and make a hat. What birds live in Ireland. What animals live at the seaside. What are the parts of a fish?	New well being framework.	

Rang 2 -

Term	Strand Unit	Content	Curriculum	Teacher Guidelines
Autumn	Living things: Myself Plants and animals Energy and forces: Light. Sound.	A good night's sleep. Teeth How much sugar. My sense of hearing. Native Irish trees. The reindeer. Design and make a sundial. Pitch: high and low sounds. Jumping rice.	New well being framework.	

	<p>Materials: materials and change.</p> <p>Properties and characteristics of materials.</p>	<p>Spooky slime. Investigating insulation.</p> <p>Design a ski jacket</p>		
Winter/Spring	<p>Living things: myself. PLants and animals.</p> <p>Energy and forces: forces. Magnetism and electricity</p> <p>Environmental awareness and care: caring for my locality.</p> <p>Materials: properties and characteristics of materials.</p>	<p>Get moving.</p> <p>The Horse an apple tree through the seasons. The frog.</p> <p>Exploring friction.</p> <p>Electricity at home.</p> <p>Reduce, reuse, recycle.</p> <p>Design and make a house.</p>	New wellbeing framework.	

Summer	<p>Living things: myself. Plants and animals.</p> <p>Energy and forces: magnetism and electricity. Forces.</p> <p>Materials: properties and characteristics of materials.</p> <p>Material and Change</p>	<p>My sense of sight.</p> <p>How do plants respond to light? The humpback whale. the honeybee.</p> <p>Exploring static electricity.</p> <p>Floating and sinking. design and make a sail boat.</p> <p>waterproof and absorbent materials/</p> <p>Melting ice cubes.</p>	Page 44	Page 125, 126
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Rang 3 & 4 - Odd Years

Term	Strand Unit	Content	Curriculum	Teacher Guidelines
Autumn	Human Life	<p>Body - name external and internal organs.</p> <p>Discuss need for balanced diet.</p> <p>Examine the breathing system, lungs, smoking.</p> <p>Examine the skeletal system, muscles,</p>	Page 61	Page 119, 122

	<p>Environmental Awareness</p> <p>Caring for the environment</p>	<p>bones, joints.</p> <p>Observe, discuss and record elements of our local environment.</p> <p>Renewable/non-renewable resources.</p> <p>Conservation of our environment.</p> <p>Implementing anti-pollution schemes.</p> <p>Identify issues and responsibilities through debate/action.</p>	<p>Page 68</p> <p>Page 68, 70</p>	
<p>Winter/Spring</p>	<p>Magnetism and Electricity</p> <p>Forces</p>	<p>Push/pull effects - terms attract/repel are introduced.</p> <p>Classification into magnetic/non-magnetic.</p> <p>Link magnets to the compass.</p> <p>Static electricity.</p> <p>Uses/dangers of electricity at home/school.</p> <p>Construction of simple circuits.</p> <p>Identify conductors/insulators.</p> <p>Movements of objects push, pull, pulley, roll...</p> <p>Slowing moving objects due to friction.</p> <p>Investigate gravity.</p> <p>Design and explore levers.</p> <p>Floating and sinking.</p>	<p>Page 64</p> <p>Page 65</p>	<p>Page 102, 103</p> <p>Page 112, 114, 136, 138</p>
<p>Summer</p>	<p>Properties and Characteristics of materials</p>	<p>Investigate properties of various materials.</p> <p>Discuss solids, liquids, and gases.</p> <p>Raw v. manufactured materials.</p> <p>Grouping of materials under specific criteria, include insulators/conductor, magnetic, absorbency.</p> <p>Discuss uses of these materials in construction.</p>	<p>Page 66</p>	<p>Page 127</p>

Rang 3 & 4 - Even Years

Term	Strand Unit	Content	Curriculum	Teacher Guidelines
Autumn	Plants and animals Science and the Environment	Investigate living things in various habitats. Explore conditions of growth and how animals adapt to environments. Use of keys in the identification of species. Explore food chains and life cycles Explore technology in the everyday context. Identify the positive/negative effects of technology on our environment.	Page 62 Page 69	Page 48, 62, 64, 68, 70, 73, 78, 80, 82, 85
Winter/Spring	Light Sound	Light as a form of energy, explore transparency of materials. Explore natural and artificial light. Observe the light spectrum. Observe reflection of light. Identify the importance/ dangers of the sun. Sound as a form of energy. Creation of sound through vibration. How sound travels through materials.	Page 63 Page 63	Page 94
Summer	Heat Materials and Change	Use of a thermometer. Explore heat transfer. Uses of heat in the home - energy saving Significance/dangers of the sun's heat. Effects of heating/cooling on solids, liquids and gases. Conductors and insulators of change. Mixing and separating of materials. Testing of materials under different	Page 64 Page 66	Page 127

		criteria, e.g. use of water, forces.		
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Rang 5 & 6 - Odd Years

Term	Strand Unit	Content	Curriculum	Teacher Guidelines
Autumn	Human Life	<p>Body Identify structure of internal and external organs.</p> <p>Discuss the need for a balanced diet - food pyramid.</p> <p>The breathing system effects of smoking.</p> <p>Immune system - protecting our bodies.</p>	<p>Page 83</p>	Page 119, 122
	Environmental Awareness	<p>Observe, discuss and record elements of our local environment.</p> <p>Renewable/non-renewable resources.</p> <p>Conservation of our environment.</p>	<p>Page 90</p>	
	Caring for the environment	<p>Implementing anti-pollution schemes.</p> <p>Individual/community/national and global responsibility.</p>	<p>Page 92</p>	
Winter/Spring	Magnetism and Electricity	<p>Push/pull, attract/repel, lift/hold effect of magnets.</p> <p>Investigate making magnets - the electromagnet.</p> <p>Construct a variety of simple circuits.</p> <p>Uses/dangers of electricity.</p>	<p>Page 86</p>	Page 102, 103, 104
	Forces	<p>Movement of objects - push, pull, pulley, wind, water ...</p> <p>Effects of friction - showing objects and generating heat.</p> <p>Introduce gravity as a force.</p> <p>Use of levers to lift, turn.</p> <p>Design.</p>	<p>Page 87</p>	

Summer	Properties and Characteristics of materials	Solids, liquids, gases, their properties. Investigated and group different materials, including oxygen. The decay of various materials. Composition of our air - its properties. Different gases in our environment and everyday uses.	Page 88	Page 127
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Rang 5 & 6 - Even Years

Term	Strand Unit	Content	Curriculum	Teacher Guidelines
Autumn	Plants and animals Science and the Environment	Investigate living things in various habitats. Explore conditions of growth and how animals adapt to environments. Use of keys in the identification of species. Explore food chains and life cycles. Explore characteristics of specific groups, e.g. mammals, birds, fish. Explore conditions of growth in detail including reproduction. Explore technology in the everyday context. Identify the positive/negative effects of technology on our environment. Look at technology and important scientists/inventions in our world.	Page 84 Page 91	Page 62, 64, 66, 68, 70, 78, 82
Winter/Spring	Light Sound	Characteristics of light - energy form, spectrum, reflection, refraction. Uses of lens. Importance of sight. Importance of the sun - photosynthesis. Dangers of sunlight. Characteristics of sound - vibration,	Page 85 Page 85	Page 95

		energy, travel, travel through materials. Making of sound through percussion, vibration. Importance of hearing.		
Summer	Heat	Use/explanation of terms conduction, convection, radiation. Transfer of heat, sources, renewable, non-renewable heat. Use of a thermometer.	Page 86	Page 128
	Materials and Change	Effects of heating/cooling on solids, liquids and gases. Conductors and insulators of change. Mixing, separating and dissolving of materials. Testing of materials under different criteria, e.g. use of water, force. Fire triangle - oxygen, fuel, heat. Heat at home.	Page 89	

(1.2) CHILDREN'S IDEAS

Work on each topic will draw on experience and knowledge of the class appropriate.

(1.3) PRACTICAL SOLUTIONS

Practical investigations are encouraged in all classes by the teachers. Teachers will ensure that children are given work appropriate to their abilities: e.g. a child with poor oral language may be given a role as a time-keeper within the group. Science work will be linked to everyday situations.

There will be a combination of closed and open activities. Children will work in groups and discover their own outcomes. Children are made aware of the concept of a fair test by identifying variables.

(1.4) APPROACHES AND METHODOLOGIES

It is essential, no matter what our collective experience in teaching the subject that we use a range of teaching methods and approaches when teaching Science. Lessons 'should not be workcard or textbook based'. Our main aim is to get the children 'thinking scientifically' and not memorizing facts to be regurgitated at a later stage. The approaches adopted should create a learning environment where:

- Practical activity is encouraged (hands-on discovery)
- Links with the environment are fostered
- Children have an opportunity to work together, share ideas and communicate their findings
- Children's ideas are the starting point for science activities (Concept mapping)
- Children should be allowed the excitement of finding out for themselves
- Children are encouraged to pose their own questions

The use of a variety of approaches and methods will facilitate the efficient implementation of the science curriculum. The nature of the strands and strand units themselves necessitates the use of a variety of teaching methods. The approaches chosen should enable the children to work scientifically in a variety of contexts, to undertake practical activities and to tackle open-ended investigations. Different methods are outlined as follows:

Whole-class work

This is effective in introducing a topic and concept mapping. It is also useful in providing background information that may be required for an activity.

Small groups

This can be in many forms:

- Several groups working on the same activity
- Small groups rotating around different activities (circus of experiments)
- Small groups working on independent activities

Individual work

This is where children pursue their own studies and carry out investigations that allow them to pursue their own interests and ideas.

(1.5) LINKAGE AND INTEGRATION

A thematic approach may be taken when teaching topics e.g. weather may be done across many curricular areas. Exemplars 6-9, Teacher Guidelines pages 46-49

(1.6) USING THE ENVIRONMENT

The teachers at the school carried out an environmental audit. They identified features to be incorporated into the science programme. Features to be studied include Killyconny Bog, the biodiversity walk, Mullagh Lake, school chicken coop, school hedgerow, newly planted trees, log pile, bird table, ladybird boxes, wall, vegetable garden (see audit for full listings). This audit is included in our plan.

The school has invested in a geo-dome and outdoor classroom to enhance the work done in this area. This is located at the back of the school.

The staff invite people/groups in the local area and beyond, who may be willing to visit our school and act as a resource.

These include Clonarn Eggs, Paddy Madden, Eanna Ní Lámhna, Heather Bothwell (Heritage in Schools Scheme) and Susan Doorley (An Taisce). Representatives from Wellmans International (local industry) visit every class annually. Daphne Shackleton from nearby Lakeview Gardens helps the children with their work on the garden at different times of the year.

Angela Bias, a parent and horticulturist, helps the children particularly in the vegetable and herb garden.

St Kilian's National School has been awarded 5 Green School Flag. We continue to sustain and develop this work

(1.7) BALANCE BETWEEN KNOWLEDGE AND SKILLS

Skills Development

Working Scientifically

Working Scientifically will involve children in:

- Observing
- Questioning
- Predicting
- Hypothesising
- Investigating and experimenting
- Interpreting results
- Recording and communicating results

An important aspect of scientific activity is Designing and Making. Children are encouraged to design and make artifacts and models that will provide solutions to practical problems. The skills to be developed for this facet are:

- Exploring
- Planning
- Making
- Evaluating

As children learn to apply these skills they will learn to deal with more complex concepts in a scientific way. (See Teacher Guidelines pages 17-21).

(2) ASSESSMENT

Assessment in Science is in concert with the children's mastery of knowledge and understanding of the strands of the science programme and the development of skills and attitudes. Consequently a range of assessment tools and approaches will be necessary. The following are among the assessment tools found useful in schools.

Teacher-designed tasks and tests

Some representational record, whether written, drawn, sculpted or

modelled, is necessary to build up a picture of the child's achievement. A wide variety of tasks should be provided for the children, including:

- Observing
- Analysing objects and processes and hypothesising about how systems work or are made
- Predicting outcomes of an investigation
- Collecting information from books and materials
- Asking questions
- Providing oral, written and pictorial accounts of investigations
- Displaying projects
- Using workcards or activity sheets
- Designing, making and evaluating models and structures
- Using interactive multimedia programs to explore themes and complete a range of tasks and problems
- Exploring and engaging in practical investigations in the environment
- Completing teacher-designed tasks on a unit (s)
- Displaying and reporting project work
- Drawing with labels (teacher can discuss drawing with child and annotate it as a result of asking questions)

Concept-mapping

The child's initial ideas must be explored if they are to form a starting point for learning. Concept-mapping helps children to record and discuss their ideas (in other words, brain-storming). This will help enormously to see what pre-conceived ideas the children may have. It is also useful as an assessment tool at the end of a unit to see if there has been any progression.

Work samples, Portfolios and Projects

A wide range of samples of a child's work is compiled to form a science portfolio. This should document and assess progress over a term or longer. The portfolios should contain samples of work in progress of what the child considers to be 'best samples' of finished pieces together with teacher's comments. The samples chosen should demonstrate achievement in a range of areas. Samples of work in one area may be included to show progression of ideas and skills.

Written accounts or drawings, photographs of stages of an investigation,

graphs, samples of worksheets or audiotapes of children's reports of investigations may be enclosed.

Curriculum Profiles

These profiles consist of descriptions of the range of knowledge, skills and attitude that might be expected of children at different stages of development. These descriptions may be written in the form of a short paragraph. As teachers observe their pupils, they should seek to highlight or mark the relevant paragraphs as work is in progress or completed.

The indicators relating to scientific skills should be assessed separately. As the science plan is reviewed, it is hoped to compile a user-friendly curriculum profile, which would provide us with a worthwhile assessment tool.

Sharing Information

Information among teachers is shared through the weekly schedule, annual calendar, staff and team meetings.

Information is shared with parents through:

- a) Fortnightly newsletters
- b) Parent-Teacher meetings
- c) Through the school website

(3) CHILDREN WITH DIFFERENT NEEDS (Inclusion Policy)

We adapt and modify activities so that all children can participate, e.g. E.A.L. students may be paired with an able and accommodating child.

Teachers are aware of the role an S.N.A. might play in helping a child or children with special needs.

Children who are identified as having exceptional ability will be challenged appropriately by the work the teacher assigns.

Parents of children with exceptional ability will be informed and encourage to help them pursue their interests.

(4) EQUALITY OF PARTICIPATION AND ACCESS

All children are provided with equal access to all aspects of the source curriculum. Boys and girls are provided with equal opportunities to engage in all science activities.

Parents who may have concerns about certain aspects of the science programme in relation to human growth, development and reproduction may be referred to our policy on R.S.E. and the provision to opt out therein.

(5) TIMETABLE

Science is timetabled as an integral part of the S.E.S. time allocation.

Science is timetabled for an hour per week at all levels other than infants where it is 40 minutes.

(6) RESOURCES AND EQUIPMENT

LIBRARY BOOKS - LIVING THINGS

Dorling Kindersley's Amazing Worlds

- Amazing Monkeys
- Amazing Butterflies and Moths
- Amazing Poisonous Animals

Ladybird - Animals

Eileen Saville Taylor's

- The Rabbit
- The Butterfly
- The Harvest Mouse
- The Mole
- The Swan
- The Hedgehog
- The Red Squirrel
- The Honey Bee

Dorling Kindersley's Eye Wonder

- Birds

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Usborne Beginners

- Tadpoles and Frogs
- Eggs and Chicks
- Caterpillars and Butterflies
- How Flowers grow
- Spiders

Kingfisher's My Best Book of:

- Ponies
- Polar Animals
- Big Cats

Little Bee series - Sam Goodwin

- A Seed in Need
- The Hen Can't Help it
- The Case of the Missing Caterpillar

Wild, Wild World - Whales and other sea mammals

Where the Wild Things are - Maurice Sendak

Beetle in my Bathroom - Brian Moses & Sonia Holleyman

My First Book of Questions and Answers - Things that Grow

Folens

- Irish Farm Animals
- Irish Birds of Prey

Dorling Kindersley's Watch me Grow

- Frogs

Dorling Kindersley's Nature Encyclopaedia

Stepping Stones

Why don't worms have legs?

Lifecycles

From Egg to Chicken

Dorling Kindersley's Eyewitness Readers:

- Munching, Crunching, Sniffing and Snooping
- Eruption! The Story of Volcanoes
- Holiday! Celebration Days around the World
- Winking, blinking, wiggling and wagging
- The Secret Life of Trees
- Horse Show
- Bugs! Bugs! Bugs!

LIBRARY BOOKS - ENVIRONMENTAL AWARENESS & CARE

Dúlra agus Dúchas

- Our Heritage - Micheal Mac Ginneá

Underwater

- A First Look at Animals

Mick Manning

- Seasons Turning
- High Tide, Low Tide

Wild World of Animals - Michael Chinery

- Deserts
- Forests
- Seashores
- Rainforests
- Grasslands and Prairies
- Oceans

Kingfisher Explorer Book

- Animal Homes

Jakki Wood

- The Deep Blue Sea

Giraffe Books

- A Snowy Day
- A Windy Day
- A Sunny Day
- A Stormy Day

Vic Parker and Ross Collins - Who are you?

- In the Sea
- In the Rainforest
- In the Polar Lands
- On the Farm

The Weather - Terry Jennings

- Rain
- Wind
- Clouds
- Sunshine

Brian and Cherry Alexander

- Journey into the Arctic

Tom Knight

- Journey into the Rainforest

Signs of..... Paul Humphrey

- Autumn
- Spring
- Winter
- Summer

LIBRARY BOOKS - ENERGY AND FORCES

Usborne

- The Young Astronomer
- Introduction to Satellite and Space

Flying Start Science

- Cold

Dorling Kindersley

- My Science Book of Magnets
- Science Fun- Sound

Richardson

- How to build a rocket

Joanna Cole

- The Magic Bus: Lost in the Solar System

Dorling Kindersley Eyewitness

- After Dark
- Spacebusters - The Race to the Moon

Kingfisher

- I wonder why the sun rises and other questions about time and seasons
- Tell me about earth, sea and sky

Our Earth

Questions and Answers Book

Terry Cash

Fun with Science: Electricity and Magnets

RESOURCES

Textbooks and workcards can be used during science lessons to support active investigative work. However, "Science lessons should not be workcard or textbook based", of Curriculum Guidelines.

General Resources

- IWB Resources
- 64 chromebooks
- Explorers.
- Explore with me.
- The Electric Detective Programme
- Your World
- Life Cycles

- The Super Smile Show
- Keep Food Safe
- The Big Freeze
- Town Country Birds
- Sci-Spy: Exploring the world of Science
- Eyewitness video series
- Survival
- Life
- Island
- Ocean
- Human Machine
- Plant Sight
- Fight
- Natural Disasters
- Planets

Charts and Posters

Posters to What a Wonderful World series

Minibeasts

Irish Time:

Trees

Bird Migration

Wild in the City

How Seeds Grow

How Seeds Travel

Heart

Skeleton

Digestive System

Insects:

Large White Butterfly

House Fly

Desert Locust

Life Cycle of the Butterfly

Bord Gais Series on Trees

Resources required for the Science Programme

Living Things: MYSELF/HUMAN LIFE

- Mirrors - plastic
- Meter sticks
- Height chart
- Thermometer
- Measuring tape
- Bathroom scales

Energy and Forces: MAGNETISM & ELECTRICITY

- Magnets - including bar, button, horseshoe
- Screw-in light bulb holders
- Bulbs and batteries
- Iron filings
- Crocodile clips
- Needles
- Wires
- Compasses
- Electric buzzers
- A range of magnetic materials
- Electric bells
- Electric motor
- A selection of metals
- Wire strip pliers
- Steel wool
- Screwdrivers

Energy & Forces: FORCES

- Wheeled toys
- Oil, grease, polish, wax
- Inclined plane
- Sandpaper
- Mechanisms: tongs, pliers, nutcrackers, toys, old clock etc
- Weights
- Marbles,
- Balls
- Construction sets such as meccano, wheels, pulley, axle rod, gears
- Timers
- Stop clock and watches
- Balloons

- Plastic syringes
- Pulleys

MATERIALS

- Funnels
- Polystyrene sheets, blocks, balls and beads
- Sieves, plastic, various meshes
- Samples of fabrics and fibres
- Food colouring
- Samples of soap, detergents
- Dyes
- Materials from the kitchen or bathroom such as sugar, salt, soda, chalk, oil, soda water, lime water, tea, coffee, bath salts and flour
- Samples of different metals
- Pebbles, stones, bricks and rocks
- Samples of different woods and wood products
- Samples of different papers, blotting paper, tissue paper, paper towels, waxed paper, greaseproof paper, newsprint
- Corks

Equipment and materials required for designing and making

- Construction kits such as Lego Technic, K'Nex, Fischer Technik, Meccano, Master Builder
- Mechanisms - egg beater, bicycle pump, jack, hinges, toys
- Hammer and nails
- Nuts and bolts
- Hacksaw and spare blades
- Wood glue
- Clamp
- Sandpaper
- Screwdriver and screws
- Craft knife
- Hand drill
- Ruler and scissors
- Clips
- Spanners
- Needle

- Rotary Cutter
- G Clamp

Consumable Materials

- Plasticine
- Plaster of Paris
- Clay
- A range of fabrics and fibres
- Fasteners - bulldog clips, paper clips, hair clips, clothes pegs
- Soft woods
- Foil
- Metals
- Acetate
- Plastic
- Rubber
- Dowels of various lengths and thickness
- Thin wire
- String and threads
- Adhesives
- Paints

Domestic Reclaimable Waste

- Plastic bottles of various sizes
- Plastic straws
- Aluminium foil
- Thread spools
- Tins
- Range of empty boxes, lids, containers and tubes
- Coat hangers
- Polystyrene block and beads
- Scrap cord and board
- Corks of various sizes

(7) SAFETY

During practical work teachers should be aware of the safety implications of

any exploratory or investigative work to be undertaken. Children should be encouraged to observe safety procedures during all tasks. There are many safety issues to consider including:

Plants and Animals

- Disposable gloves to be used when investigating hedgerows. Children should never handle unknown or unfamiliar plants, especially fungi.
- Gloves to be worn also when handling animals or birds.
- Hand washing should be encouraged after handling plants and animals.

Electricity

- Children should only use low-voltage battery-powered devices.
- Mains electricity should never be used for electricity and magnetism experiments. If mains-powered equipment is used then it should be connected and operated by the teacher only.
- Children should be repeatedly warned about the dangers of mains electricity.

Equipment

- The use of glass apparatus and sharp-edged tools should be avoided except under the direct supervision of the class teacher.
- Use plastic where possible.
- Thermometers should be handled carefully.
- If a thermometer breaks and mercury is spilt it should be carefully gathered up by the teacher and buried in a place where the ground will not be disturbed.
- Spirit thermometers should be used where possible.

Eyes

- Children should never use lenses, binoculars or other lenses devices to look directly at the sun or other intense sources of light. This includes dark glass and plastic.

Chemicals

- Household chemicals should be purchased to meet the requirements of the experiment and any surplus disposed of on completion of experiment.
- Try to avoid any chemical containing bleach.

- Use safety goggles where possible.
- These chemicals will not be stored in the science resource boxes.

Polythene Bags

- Children should be warned of the dangers of using these bags as they may cause suffocation.

Heat

- Under no circumstances should the children themselves handle matches or lighters.
- If using candles during an experiment, please ensure that they are securely fastened. Lighted candles should never be moved.
- Care should be taken to avoid situations where children may be tempted to lean across a lighted candle. Long hair should be tied back and loose sleeves secured.
- Any heating can be done with hot water from a tap or from a kettle held by an adult.
- Flammable liquids should never be used.
- Small portable gas-burners are relatively safe provided that they can be securely mounted to prevent them from tipping over. If they are used, they should be sited clear of curtains, noticeboards and busy areas.

Cleanliness and Hygiene

- Random sniffing and tasting should be discouraged.
- The teacher should explain that anything children are asked to smell or taste has been carefully chosen for that activity.
- The sharing of spoons or other utensils should not be permitted.
- Hand washing should be encouraged before food activities.

(8) HOMEWORK

Science homework is given occasionally when appropriate. The purpose may be to gather materials or to enhance work being done in the classroom. It may also afford children the opportunity to observe the broader global environment. It can also give parents the opportunity to become involved in the school science programme.

(9) INDIVIDUAL TEACHERS' PLANNING AND REPORTING

This plan will act as a guide to individual teachers for the long-term and short-term planning. A copy of the plan will be available from the staff room. The strand units for each class group are clearly laid out and these will be reflected in the teachers' long-term planning. The work that has been done in the classrooms will be recorded in the Cúntas Míósúil. These will form an integral part of our review of this plan.

(10) STAFF DEVELOPMENT

Teachers are made aware of any opportunities for further professional development through participation in courses available in Education Centres or other venues. Skills and expertise within the school are shared and developed through inputs at staff meetings.

(11) PARENTAL INVOLVEMENT

Individual parent/teacher meetings are held annually in November. Teachers and parents are afforded this chance to discuss each child's progress in Science and other areas, and ways of assisting that progress.

Our Science Plan was made available to parents on our school's website along with science news and information and pictures of work and experiments being carried out in the classrooms. Through our parents feedback sheet parents are invited to inform us of expertise they may have in this area. Parents who are willing to share knowledge or expertise may be invited into classrooms with permission of the Board of Management.

Parents are afforded the opportunity to view the work the pupils are doing through the fortnightly newsletters.

(12) COMMUNITY LINKS

Members of the community are actively encouraged to get involved in supporting our science programme.

Representatives from Clonarn Eggs and Wellman International, local

businesses, visit our school annually.

As previously mentioned, Daphne Shackleton and Angela Bias work on an on-going basis with the children in the school garden.

Paddy Madden, Eanna Ní Lámhna, Heather Bothwell (Heritage in Schools Scheme) and Susan Doorley (An Taisce) have been regular visitors.

SUCCESS CRITERIA

The success of this plan will be measured using the following criteria:

- Implementation of revisions in the Science Curriculum will be evident in teachers' work and classrooms
- Continuity of content and methodology will be evident in teachers' preparation and monthly reports
- On-going assessment, formal and informal, will show that pupils are achieving the learning objectives set out for each strand unit.

The school will receive feedback from the teachers on different aspects of the science programme at staff meetings.

We will receive feedback and suggestions from inspectors.

IMPLEMENTATION

Roles and Responsibilities

Class teachers are responsible for the implementation of the Science programme for their own classes.

REVIEW

Progress made during the school year will be reviewed at the June 2019 and June 2020 staff meetings and will be based on results of assessments across all classes and on teachers' views as to the effectiveness of the plan.

There was a full review in June 2021 and March 2023.

RATIFICATION AND COMMUNICATION

The Science plan was originally ratified by the Board of Management in December 2004.

The plan was subsequently reviewed and revised over subsequent years. This present plan was drawn up in March 2023.

Chairperson

Principal

Date: _____.