ST. DAVID'S NATIONAL SCHOOL
Piper's Hill Educational Campus, Kilcullen Road, Naas, Co. Kildare.

School Patronage: Church of Ireland

Roll No.: 11893G

Science Policy

Introductory Statement

We aim through this plan, drawn up in accordance with the science curriculum, to set out our approaches to the teaching and learning of science. It will form the basis for teachers' long and short-term planning. It will also inform new and temporary teachers of the approaches and methodologies used in our school.

This plan has been reviewed by the staff in February 2023.

Rationale

This policy has been reviewed by the teaching staff as part of our on-going review of curriculum policies. The purpose of this policy in science is to compile a user-friendly document, outlining the approach, methodologies, timetable, content and resources necessary to implement the subject as per The Primary Curriculum 1999. It is hoped that this plan will ensure that children will experience a broad and balanced curriculum in which undue repetition and significant gaps are avoided. 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 should facilitate continuity and progression in the development of scientific ideas and in the application of investigative skills.

Vision

In St. David's school we hope to develop in our pupils an enthusiasm for all aspects of science, to give pupils an opportunity to explore and investigate scientific ideas and concepts while cultivating an appreciation of and respect for the diversity of living and non-living things.

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, through designing and making.
- To foster the child's natural curiosity, so encouraging independent inquiry and creative action.
- To aid the child to appreciate the contribution of science and technology to the wider world.
- To cultivate an appreciation of and respect for the diversity of 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.

Content of plan - curriculum

- Children's ideas
- Practical investigations
- Classroom management
- Key methodologies
- Linkage and integration
- Using the environment
- Balance between knowledge and skills

Children's ideas

Children's ideas and practical experiences will be used as a starting point for activities. This will be useful for a teacher in assessing the level of a child's scientific development. Where appropriate, opportunity will be given for these ideas to be further explored and investigated scientifically.

Practical investigations

Practical activities will play a central role in science at all levels in the school. A combination of open and closed investigation will be used. Where possible, opportunity for free exploration of materials will be given. As children progress through the school, their understanding of the concept of a fair scientific test will be seen as central to Science education.

Classroom management

Children will be given the opportunity to work in a variety of groupings – whole class, small group and individually. A good variety of materials will be made available for activities.

Key Methodologies

Teachers will endeavor to ensure that the range of methodologies suggested in the curriculum are used – talk and discussion, problem solving, active learning, use of the local environment, skills through content and collaborative/cooperative learning. Children will be given the opportunity to participate in science competitions e.g. Mini Scientist competition sponsored by Intel and BT Young Scientists.

Linkage and integration

Where appropriate, linkage within strands of the science curriculum and integration with other curricular areas will be developed, in particular, S.E.S.E., visual Arts, maths and oral language.

Using the environment

Every effort will be made to use the school environment for scientific investigation such as observation of birds, trees and plant life while causing as little disruption as possible

within the context of the green code. We will grow bulbs, vegetables, wild flowers etc. in boxes.

Designing Science trails.

We are registered for Green Schools. Recycling is actively encouraged through provision of appropriate bins within the context of our school's green code. We were awarded our second green flag for energy conservation and awareness. Guest speakers are invited to share their experience of scientific processes.

Balance between knowledge and skills

The need for balance between knowledge and skills is recognised. An emphasis is placed on helping the children to work as scientists by observing, hypothesising, predicting, investigating, recording and analysing results.

Organisation

Resources and equipment

A central supply of resources, equipment and general reference books are kept in the art cupboard as well as individual classrooms.

Broad and balanced

In order to ensure the delivery of a broad and balanced curriculum, a 2-year cycle has been developed with strand units being selected from each strand each year.

Safety

During practical work, teachers should be aware of the safety implications of any exploratory or investigative work being 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 birds or animals. 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 danger 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. Plastic should be used where possible. Thermometers should be handled carefully. Spirit thermometers should be used where possible.

Eyes

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

Chemicals

Household chemicals should be purchased to meet the requirements of the experiment and will be disposed of by the teacher. We will endeavor to avoid using any chemical containing bleach.

Polythene/Plastic Bags

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

Heat

Care should be taken in using appropriate methods of heating.

Cleanliness and Hygiene

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

Implementation of Plan

Differentiation

Science is timetabled to accommodate the inclusion of all pupils. Where appropriate, exceptionally able pupils will be encouraged to investigate further. Where possible the S.N.A. will be used to assist pupils with special educational needs and/or curricular activities may be differentiated to suit individual pupils, as appropriate.

Assessment and Record keeping

Assessment in Science is concerned with the children's mastery of knowledge and understanding of the strands of the Science curriculum and the development of skills and attitudes. Consequently a broad range of assessment tools and approaches will be used including;

1. Teacher observation
2. Teacher designed tasks and tests
3. Concept mapping
4. Work samples

Homework

From time to time, practical activities may be given for homework to encourage pupils to relate scientific learning to everyday life and to involve parents in the learning process.

Individual teacher planning

Individual teachers are responsible for their own short term and long term planning within the 2 year cycle. Each teacher has a copy of the strand units to be covered each year and appropriate reference material. (See appendix). A variety of textbooks will be used by teachers to support their teaching and to support student learning. Other resources including Twinkl, Youtube etc. will also be used.

Staff development

Staff are made aware of science courses and encouraged to attend seminars etc. in order to promote CPD.

Review

This policy will be reviewed as deemed necessary.

Ratified by Board of Management on 26/6/23
(Date)

Signed _____ _____
Chairperson, Board of Management Principal

	Junior & Senior Infants – Odd Years	Junior & Senior Infants – Even Years
September	Theme: Myself • Look at Me • My Senses Strand(s): Living Things Strand Unit(s): Myself	Theme: Myself • My Body • I am growing taller • We are all different Strand(s): Living Things Strand Unit(s): Myself
October	Theme: Autumn • The Squirrel • The Tree Strand(s): Living Things Strand Unit(s): Plants and Animals	Theme: Autumn • The Bat • Mixing Colours Strand(s): Living Things; Energy and Forces Strand Unit(s): Plants and Animals; Light

November	Theme: Homes • Electricity • What things are made from Strand(s): Energy and Forces; Materials Strand Unit(s): Magnetism and Electricity; Properties and Characteristics of Materials	Theme: Sound • Loud and Soft Sounds • Design and Make a Shaker Strand(s): Energy and Forces Strand Unit(s): Sound
December	Theme: Winter • Water, Ice and Steam • The Penguin Strand(s): Materials; Living Things Strand Unit(s): Materials and Change; Plants and Animals	Theme: Winter • The Polar Bear • Design and Make a Bird Feeder Strand(s): Living Things; Environmental Awareness and Care Strand Unit(s): Plants and Animals; Caring for my Locality
January	Theme: Play • Toys that Move • Making Playdough Strand(s): Energy and Forces; Materials Strand Unit(s): Forces; Properties and Characteristics of Materials	Theme: Sport • Exercise is good for you • Design and Make a Table Football Game Strand(s): Living Things; Energy and Forces Strand Unit(s): Myself; Forces
February	Theme: Places • Town Sounds and Country Sounds • Animal Habitats Strand(s): Energy and Forces; Living Things Strand Unit(s): Sound; Plants and Animals	Theme: Places • The Snail • Design and Make a Tower Strand(s): Living Things; Materials Strand Unit(s): Plants and Animals; Properties and Characteristics of Materials
March	Theme: Spring • Life Cycle of a Chicken • Growing a plant from seeds Strand(s): Living Things; Environmental Awareness and Care Strand Unit(s): Plants and Animals; Caring for my Locality	Theme: Spring • The Spring Garden • Life Cycle of a Butterfly Strand(s): Living Things Strand Unit(s): Plants and Animals
April	Theme: Transport	Theme: Space

	• Magnets • Making a Raft Strand(s): Energy and Forces Strand Unit(s): Magnetism and Electricity	• Keeping Warm • The Rocket Strand(s): Energy and Forces Strand Unit(s): Heat; Forces
May	Theme: Food • Staying Healthy • How Butter is Made Strand(s): Living Things; Materials Strand Unit(s): Myself; Materials and Change	Theme: Water • Is it Waterproof? • The Shark Strand(s): Materials; Living Things Strand Unit(s): Properties and Characteristics of Materials; Plants and Animals
June	Theme: Summer • The Starfish • Shadows Strand(s): Living Things; Energy and Forces Strand Unit(s): Plants and Animals; Light	Theme: Summer • Floating and Sinking • Make an Ice Lolly Strand(s): Energy and Forces; Forces Strand Unit(s): Forces; Materials and Change

-	1st/2nd Odd Years	1st/2nd Even Years
September	Theme: Myself • The Five Senses • My Sense of Smell • My Sense of Touch Strand(s): Living Things Strand unit(s): Myself	Theme: Myself • Teeth • Sugar (How much sugar?) • The Skeleton Strand(s): Living Things Strand unit(s): Myself, Human Life

October	Theme: Autumn/India • Light • Design and Make a Greenhouse • The Spider Strand(s): Energy and Forces, Living Things Strand unit(s): Light, Plants and Animals	Theme: Autumn • Native Irish Trees • Design and Make a Sundial • Making Slime Strand(s):Living Things, Energy and Forces, Materials Strand unit(s): Plants and Animals, Light, Materials and Change
November	Theme: Houses and Homes • Heat (sources) • Recording Temperature • The Owl • Animal Homes Strand(s): Energy and Forces, Living Things Strand unit(s): Heat, Plants and Animals	Theme: Sound • Hearing • Pitch- High and Low Sounds • Jumping Rice Strand(s): Living Things, Energy and Forces Strand unit(s): Myself, Sound
December	Theme: Winter/Christmas • Irish Seals • Fat as an Insulator • Salt Crystals Strand(s): Living Things, Materials Strand unit(s): Plants and Animals, Materials and Change, Properties and Characteristics of Materials	Theme: Winter/ Antarctica • The Reindeer • Investigating Insulation • Design a Jacket Strand(s): Living Things, Materials Strand unit(s): Plants and Animals, Materials and Change, Properties and Characteristics of Materials

January	Theme: Play • Active ways to Play • Magnets and Materials • Experimenting with Bouncing Balls! Strand(s): Living Things, Energy and Forces Strand unit(s): Myself, Magnetism and Electricity	Theme: Ireland and Weather • Electricity in the Home - Wind Power • Native Irish Animals/Birds • Natural or Man Made Materials Strand(s): Energy and Forces, Living Things Strand unit(s): Magnetism and Electricity, Plants and Animals
February	Theme: Places- Spain • The Life Cycle of the Tomato Plant • Growing Seeds (Sunflowers/Potatoes) Strand(s): Living Things Strand unit(s): Plants and Animals	Theme: Spring • An Apple Tree through the Seasons • The Frog • Reduce, reuse and Recycle Strand(s): Living Things, Environmental Awareness and Care Strand unit(s): Plants and Animals, Caring for My Locality
March	Theme: Spring – The Farm • Animal Babies • Spring Clean Up (In School) • Recycling Strand(s): Living Things, Environmental Awareness and Care Strand unit(s): Plants and Animals, Caring for my Locality	Theme: Australia • Australian Animals • Coral Strand(s): Living Things, Environmental Awareness and Care Strand unit(s): Plants and Animals, Caring for my Locality

April	Theme: Transport • Design and Make a Bridge • Exploring Slopes • Air Pollution Strand(s): Materials, Energy and Forces, Environmental Awareness and Care Strand unit(s): Properties and Characteristics of Materials, Forces, Caring for my locality	Theme: Space and Weather • My Sense of Sight • Plants response to Light • Exploring Static Electricity Strand(s): Living Things, Energy and Forces Strand unit(s): Myself, Plants and Animals, Magnetism and Electricity
May	Theme: Food • Sense of Taste • Fruit and Vegetables • The Food Pyramid Strand(s): Living Things Strand unit(s): Myself, Plants and Animals	Theme: Water • Floating and Sinking • Design and Make a Sailboat • The Humpback Whale Strand(s): Energy and Forces, Living Things Strand unit(s): Forces, Plants and Animals
June	Theme: Summer • Living at the Seashore • Heating and Cooling • The Life Cycle of the Ladybird Strand(s): Living Things, Materials Strand unit(s): Plants and Animals, Materials and Change	Theme: Summer • Waterproof and Absorbent Material • The Honey Bee • Melting Ice Cubes Strand(s): Materials Strand unit(s): Properties and Characteristics of Materials.

3rd and 4th class - Science		
	3rd and 4th class - Odd years	3rd and 4th class - Even years
September	Strand: Living things Strand Unit: Plants and Animals	Strand: Environmental Awareness and Care Strand Unit: Science and the environment

	Theme: Animals/Plants and their habitats	Theme: Nature/ Placenames Strand: Living things Strand Unit: Human Life Theme: Living body
October	Strand: Environmental Awareness and Care Strand Unit: Environmental Awareness Theme: Mountains/ Ireland	Strand: Environmental Awareness and Care Strand Unit: Environmental Awareness Theme: Modes of transport Strand: Living things Strand Unit: Plants and Animals Theme: Trees
November	Strand: Environmental Awareness and Care Strand Unit: Caring for my environment Theme: Recycling/ Looking at ways to help the planet	Strand: Energy and forces Strand Unit: Forces Theme: Forces/Friction/Levers Strand: Living things Strand Unit: Human life/Plants and animals Theme: Possible link to Geography European country study
December	Strand: Materials Strand Unit: Properties and Characteristics of materials Theme: Materials and different objects Strand: Environmental Awareness and Care Strand Unit: Science and the environment Theme: Developments in Science and Technology	Strand: Environmental Awareness and Care Strand Unit: Environmental Awareness Theme: People at work Strand: Materials Strand Unit: Materials and change Theme: Conductors and insulators of heat/mixing materials

January	Strand: Energy and Forces Strand Unit: Sound Theme: Investigating sound Strand: Energy and Forces Strand Unit: Magnetism and Electricity Theme: Types of electricity	Strand: Living things Strand Unit: Plants and Animals Theme: Rivers and Seas Strand: Living things Strand Unit: Plants and Animals Theme: Possible link to History- Tom Crean
February	Strand: Environmental Awareness and Care Strand Unit: Environmental Awareness Theme: Rainforest study	Strand: Living things Strand Unit: Human life/ Plants and animals Theme: Possible link to Geography - (Non European country study) Strand: Environmental Awareness and Care Strand Unit: Environmental Awareness/Caring for the environment Theme: Energy
March	Strand: Living things Strand Unit: Plants and Animals Theme: Soils	Strand: Environmental Awareness and Care Strand Unit: Environmental Awareness Theme: Weather and Climate Strand: Energy and Forces Strand Unit: Heat Theme: The Sun
April	Strand: Environmental Awareness Strand Unit: Science and the Environment	Strand: Energy and Forces Strand Unit: Magnetism Theme: Magnets

	Theme: Buildings Around Me	Strand: Environmental Awareness and Care Strand Unit: Environmental Awareness Theme: Possible link to Geography – County Study
May	Strand: Environmental Awareness and Care Strand Unit: Environmental Awareness Theme: Weather Strand: Energy and forces Strand Unit: Heat Theme: When materials are heated/ heat from sun/heat in our homes	Strand: Living things Strand Unit: Plants and Animals Theme: Animal species study
June	Strand: Energy and Forces Strand Unit: Heat Theme: The Sun Strand: Living Things Strand Unit: Human life Theme: The Human Body	Strand: Materials Strand Unit: Properties and characteristics of materials Theme: Rocks Strand: Energy and Forces Strand Unit: Light Theme: Investigating light

	5th and 6th – Odd Years	5th and 6th – Even Years
September	Theme: Myself • Food Pyramid • Disease and Infection • The Skin • The Lungs Strand(s): Living Things Strand Unit(s): Human Life	Theme: Myself • The Circulatory System • Exercise and your heart • Model of the heart • Energy levels • Strand(s): Living Things Strand Unit(s): Human Life

October	Theme: Animals • Animals from different countries Strand(s): Living Things Strand Unit(s): Plants and Animal Life	Theme: Animals • Blubber Glove • The African Savannah • Butterfly Puddler and Bee Bath Strand(s): Living Things Strand Unit(s): Plants and Animal Life
November	Theme: Plants • Parts of a plant • Plant Reproduction • Plants from wider environments • Food Chains Strand(s): Living Things Strand Unit(s): Plants and Animal Life	Theme: Plants • Seed Germination • Pinhole Projector • Photosynthesis • Model of an ear Strand(s): Living Things Strand Unit(s): Plants and Animal Life
December	Theme: Environmental Awareness and Care • Observe the natural environment • The inter-relationship between living and non-living aspects of the environment Strand(s): Environmental Awareness and care Strand Unit(s): Environmental Awareness	Theme: Environmental Awareness and Care • The Ocean • Making Earmuffs • Making Ice-cream Strand(s): Environmental Awareness and Care Strand Unit(s): Environmental Awareness
January	Theme: Energy; Light • Light as a source of energy • Splitting and Mixing light • Magnification Strand(s): Energy and Forces Strand Unit(s): Light	Theme: Energy • Heat from friction • Solar Panel • Electromagnets Strand(s): Energy and Forces Strand Unit(s): Magnetism and electricity
February	Theme: Forces • Create a car • Create a boat • Hearing and sound • Strand(s): Energy	Theme: Forces • The Polar Regions • Series and Parallel circuits • Gravity Strand(s): Energy

	Strand Unit(s): Forces; Sound	Strand Unit(s): Magnetism and electricity, Forces
March	Theme: Design/Materials • Design and make woodwind instruments • Materials in the environment • Solids, liquids and gases Strand(s): Energy and Forces, Materials Strand Unit(s): Sound, Properties and characteristics of materials, materials and change	Theme: Design and Create • Design a moving animal • Paper Strength • Water Fountain Strand(s): Energy and Forces, Materials Strand Unit(s): Forces, Properties and characteristics of materials, materials and change
April	Theme: The Arctic • The Arctic • Plants and Animals Strand(s): Living Things; Strand Unit(s): Planets and animals	Theme: The Amazon • The Amazon Rainforest • The Properties of Air Strand(s): Living Things; Materials Strand Unit(s): Planets and animals; Materials and change
May	Theme: Materials and Change • Conductors and Insulators • Homes • Seperating Materials Strand(s): Materials Strand Unit(s): Materials and Change	Theme: Materials and Change • Keeping Damp out • Make Salt and Sugar Disappear • Rusting Steel Wool Strand(s): Materials Strand Unit(s): Materials and Change
June	Theme: Summer • Plants and Animals in the locality • The Canal • Group and compare plants and animals Strand(s): Living Things Strand Unit(s): Plant and Animal Life	Theme: Summer • Growing Wildflowers • Deserts • The Big Fix Strand(s): Environmental awareness and care; Living Things Strand Unit(s): Science and the Environment; Plant and Animal Life