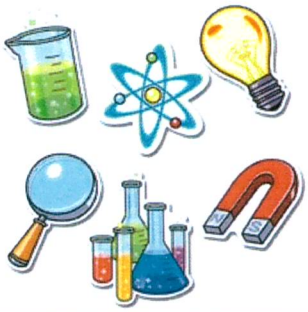
St. Fiacc's NS

Plan



Formulated/Ratified/Reviewed	By
Reviewed 11/01/2017	Staff
Ratified 18/01/2017	BOM

Signed Chairperson BOM

Liz Dooley

Scoil Fiacc Naofa, Graiguecullen

Our Local Environment

Our school is beautifully positioned in a rural - urban setting on the Laois - Carlow border. We are an Active Green School. Our school boasts spacious grounds which feature an expansive grass playing field and other grass areas, a large number of mature and recently planted trees, a garden with seasonal flowers, composting bins, rain water barrel and recycling facilities. There are also a number of tarmac surfaces to the front and rear of the school and the school is surrounded by an iron fence at the front, an old stone wall around the playing pitch and modern concrete walls on either side.

Since the new school first opened in 1991, many changes have taken place. As local population grew, the school building was extended with a whole new wing being completed in 2008. A further extension was added in 2017.

Mt. Leinster and the Castlecomer Plateau are visible from school and both bogland and woodland are to be found in the Killeshin Hills which overlook St. Fiacc's to the west. Nearby, the River Barrow flows southward toward Waterford Harbour and its tributary, The Burrin, joins it at the Norman Castle to the east of the school. Pathways beside the river have recently been developed and made safe providing the perfect opportunity for nature walks and trails. The huge public park with playground, duck pond and swan nesting island further enhance the surroundings.

Industry is also a key feature of our local environment. The site of the Carlow Sugar Beet factory (now closed down) is itself a perfect example of where man has left his mark on nature and the solitary remaining fermentation tower, stands in protest as nature begins to reclaim the territory. Pharmaceuticals Merck, Sharp & Dohme recently opened a huge factory on the Dublin Road. The Carlow Brewery is one of the first of its kind in Ireland and prides itself on its total ban of chemicals in the production of its beverages. TEAGASC, in 2006, opened up 100 acres of their land to the public and the Oak Park Reserve boasts amazing forest and lake walks, picnic areas, a wildlife sanctuary an observatory and a groundbreaking play area for children with physical disabilities.

It is our intention, to use this local environmental wealth, to compliment the Science curriculum at St Fiacc's and to further encourage and enhance the learning experience for all pupils.

1. Broad Objective

The purpose of this draft 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 draft should ensure continuity and progression in the development of scientific ideas and in the application of investigative skills.

2. 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

2.2 Science Policy

1. 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 work card or textbook based". Our main aim is to get the children "thinking scientifically" and not memorising 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.

2. 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:

A. Plants and Animals

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

B. 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.

C. 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.

D. Eyes

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

E. 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.

F. Polythene Bags

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

G. 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 toppling over. If they are used, they should be sited clear of curtains, notice boards and busy areas.

H. Cleanliness and Hygiene

Random sniffing and tasting should 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 should not be permitted. Hand washing should be encouraged before food activities.

3. Skills Development

A. **Working Scientifically**

Working scientifically will involve children in:

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

B. **Designing and Making.**

Children are to be encouraged to design and make artefacts 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 pp17-21)

4. Notes on Timetable

The timetable will allow all classes to follow similar themes simultaneously. It is spread over two years: **Year One** and **Year Two**.

Our science plan is based on a spiral approach as per the curriculum. For this reason, it is not intended that all strand units will be taught in each class. The units may be supplemented by extension work at the discretion of the class teacher.

5. Resources

Textbooks and work cards can be used during science lessons to support active investigative work. However, "Science lessons **should not be work card or text book based**" *cf* Curriculum Guidelines

To this end, it has been decided to create a resource boxes for each class level to support the teaching of each strand. These boxes are to include:

- Photocopiable Masters
- Laminated work cards
- Relevant equipment (excluding consumables)

The use of these science boxes should prevent any significant overlap and repetition of strand units.

We shall also keep a library of resource books, videos and cd-roms in the resource area. It is hoped that all resource material will be included in the evaluation of the science plan.

5.1 Resources required for the Science Programme

Living Things: Myself/Human Life

- Mirrors – plastic
- Metre sticks
- Height chart
- Thermometer
- Measuring tape
- Bathroom scales

Living Things: Animals and plants

- Flower pot
- Insect cages
- Small trowels
- Aquarium tank
- Old spoons
- Sheets of Perspex or plastic
- Watering can
- Plastic tubing
- Hand lenses
- Nature viewers
- Microscope
- Binoculars
- Magnispectors
- Bird table

Energy and Forces: Magnetism and 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 stripping pliers
- Steel wool
- Screwdrivers

Energy and Forces: Light

- Torches
- Curved mirrors and Plane mirrors
- Glass blocks and triangular prism
- Shiny objects that will act as mirrors; spoons, biscuit tin lid, sheet metal
- Transparent, translucent and opaque materials
- Colour filters
- Candles
- Old spectacle lenses
- Projector

Energy and Forces: Heat

- Thermometers

- Candles

Energy and Forces: Sound

- Tuning forks
- Rubber bands – different sizes and thickness
- Guitar strings

Energy and Forces: Forces

- wheeled toys
- Oil, grease, polish, wax
- Inclined plane
- Sandpaper
- Springs
- 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 and detergent
- Dyes
- Materials from the kitchen or bathroom such as sugar, salt, soda, chalk, oil, soda water, lime water, tea, coffee, bath salts, 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 etc
- 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 varying sizes

6. Assessment

Assessment in Science is concerned 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 broad range of assessment tools and approaches will be necessary. The following are among the assessment tools found useful in schools:

A. Teacher Observation

Observations made by the teacher during practical science tasks will help to determine the development of process skills and attitudes. They will also help to establish the extent to which the children have mastered the knowledge aspect. The teacher will need to take an active role in science tasks and ask open-ended questions to gain insight into a child's understanding.

B. 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 achievements. A wide variety of tasks should be provided for the children, which may include:

- 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 work cards 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 tests 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)

C. 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.

D. Work samples, portfolios and projects

A wide range of samples of a child's work may be 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 or 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 and samples of worksheets or audio tapes of children's reports of investigations may be enclosed.

Infants – Year One

Month	Strand Unit	Content	Curriculum	Teacher Guidelines
Sept-Oct	Myself	Body – similarities/differences Body – changes as we grow	Page 24	Page 118 121
Nov-Jan	Magnetism and Electricity	Purposeful play with magnets to observe effect Use of electricity at home/school Dangers of electricity	Page 26	Page 38, 108, 109, 136, 138
Feb-March	Forces	Investigate the effects of pushing and pulling of various objects		
April	Caring for my Locality	Observe and appreciate attributes of our locality Develop a sense of responsibility for its care Implement simple strategies for its improvement and care		
May-June	Properties and Characteristics of	Investigate and compare a variety of materials, e.g.	Page 27	Page 124

	materials	water, metal……. Identify uses for these materials Grouping of these materials according to different criteria Observe floating and sinking of objects		

Rang 1 & 2 – Year One

Month	Strand Unit	Content	Curriculum	Teacher Guidelines
Sept-Oct	Myself	Body – identify external parts Locate sense and link to body parts Measure body changes and identify requirements needed for growth	Page 41	Page 121
Nov-Jan	Magnetism and Electricity	Purposeful play with magnets – observe effects Observe attraction to different materials Observe attraction through different materials, water, card etc Static electricity Uses/ dangers of electricity at home/school Investigate pushing and	Page 44-45	Page 106 99

Feb-March	Forces	pulling of various objects Pushing power of air/water – current, wind Floating/sinking of objects in various substances Friction of surfaces – observe rolling distances		136, 138
April	Caring for my Locality	Identify and discuss the basic elements – air, soil, water etc Introduce co-dependence, e.g. food chain Pollution – causes and prevention	Page 48	
May-June	Properties and characteristics of materials	Investigate materials and their uses in our surroundings Grouping materials under different criteria – include magnetism, absorbency, etc Investigate the uses of these materials in construction	Page 46	Page 126

Rang 3 & 4 – Year One

Month	Strand Unit	Content	Curriculum	Teacher Guidelines
Sept-Oct	Human Life	Body – name external and internal organs Discuss need for balanced diet Examine the breathing system, lungs, smoking Examine the skeletal system, muscles, bones, joints	Page 61	Page 119, 122
Nov-Jan	Magnetism and Electricity	Push/pull effects- terms attract/repel are introduced Classification into magnetic/non-magnetic Link magnets to the compass	Page 64	Page 102-103

		Static electricity Uses/dangers of electricity at home/school Construction of simple circuits Identify conductors/insulators		
Feb-March	Forces	Movement of objects – push, pull/stretch, pulley, roll… Slowing moving objects due to friction, e.g. ball on carpet Investigate gravity Levers- designing levers, see-saw Floating/sinking of objects	Page 65	Page 112, 114, 136, 138
April	Environmental Awareness	Observe, discuss and record elements of our local environment Renewable/non-renewable resources Conservation of our environment	Page 68	
	Caring for the environment	Implementing anti-pollution schemes Identify issues and responsibilities through debate/action	Page 68, 70	
May-June	Properties and Characteristics of materials	Investigate properties of various materials Discuss solids, liquids, and gases Raw v. manufactured materials Grouping of materials under specific criteria, include insulators/conductor, magnetic, absorbency Discuss uses of these materials in construction	Page 66	Page 127

Rang 5 & 6 – Year One

Term	Strand Unit	Content	Curriculum	Teacher Guidelines
Sept-Oct	Human Life	Body Identify structure of internal	Page 83	Page 119, 122

		and external organs Discuss need for a balanced diet – food pyramid The breathing system effects of smoking Immune system – protecting our bodies		
Nov-Jan	Magnetism and Electricity	Push/pull, attract/repel, lift/hold effect of magnets Investigate making magnets – the electromagnet Construct a variety of simple circuits Uses/dangers of electricity	Page 86	Page 102,103, 104
Feb-March	Forces	Movement of objects – push, pull, pulley, wind, water.. Effects of friction – slowing objects and generating heat Introduce gravity as a force Use of levers to lift, turn Design	Page 87	Pages 40-41 114, 116, 136, 138
April	Environmental Awareness	Observe, discuss and record elements of our local environment Renewable/non-renewable resources Conservation of our environment	Page 90	
	Caring for the environment	Implementing anti-pollution schemes Individual/community/national and global responsibility	Page 92	
May -June	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

Design and Make for Human Life

Slipper or shoe
A tasty cereal
A measuring chart
Model of digestive system using papier mache
Model of ribcage
Model to show length of intestine 8.5m
Sandwich
Model of set of teeth
Models of skeletons, showing limbs and main joints
A stethoscope
Anti-dust mask
Lung capacity model

Anti-smoking poster

Design and Make for Magnetism

A fridge magnet
A safety-catch for the door of a cupboard
A simple crane to lift a toy car
A fishing game
Cork/polystyrene boats
Racing car game
A magnetic game suitable for infants
A container that will keep all the teacher's paperclips together (infants)
Sculptures using magnets
Flying paperclip game
Magnetic maze
Football game
A crane that uses an electromagnet

Design and Make for Electricity

Lighthouse
Clown's head with light up eyes
Clown with spinning bowtie
Torch-use plastic bottle for body and tin foil as reflector
Crane that uses an electromagnet
Traffic lights
Buzz off game
Burglar alarm
Quiz board/ Electric Quiz
Tilt switch
Car with working headlights
Spin painter
A fan
A helicopter

Design and make Activities for Forces

Land yacht to carry toys for a set distance
Plasticine boat
Windmill made from card
Bridge made from playing cards
Bridge made from art straws
Parachute
A see-saw – lesson in concept story book
A raft
A mobile hanging decoration
A pick-up truck
A wind-up toy using elastic bands
A wind turbine to spin a coloured disc
A lifting device with pulleys, levers and gears
A pop-up book/card
A water wheel to turn a gear system
Pneumatic frog/mouse

Design and Make Activities for Environmental Awareness and Care

Wormery
Milk Carton Garden
Bird Boxes
Stethoscope
Water Filter
Egg Box Garden
Woodland garden in a bottle
Indoor Compost Display
Milk Carton Bird Feeder
Recycled Paper
Green School's notice board made from recycled materials e.g. corks, CDs, bottle tops
Hanging containers for plants using old paint cans
Milk carton / yogurt pot seed germinator
Flower pots made from varnished papier mache

Design and Make for Properties and Characteristics of Materials

Waterproof outfit for a teddy or doll – lesson in concept story book
A new waterproof kitchen cloth
An outfit for someone going on holiday to a very hot or a cold place
Different varieties of chocolate buns e.g. cereal and chocolate
Flavoured ice cream
Tea cosy
Cover for hot water bottle
Refreshments for guests at a concert e.g. iced tea, lemonade, fruit juice etc
Papier mache
An instrument to measure the strength of the wind – links to Geog
A bridge that takes account of flexibility, form, stability and strength

Infants – Year Two

Months	Strand Unit	Content	Curriculum	Teacher Guidelines
Sept – Oct	**Plants and animals**	Investigate living things in various habitats, e.g. trees, ponds….. Investigate parts of living things, e.g. flower, stem, leaf…. Observe growth and change of living things Explore conditions of change – need for growth etc Explore seasonal change	Page 24	Pages 26, 62, 64, 66, 68, 70, 78, 82, 84
Nov-Dec	**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
Jan	**Sound**	Explore sound and difference of sound, high/low etc Explore making sound - percussion	25	
Feb	**Heat**	Investigate hot/cold through our weather/bodies Explore how to maintain heat/cold	Page 25	
March-May	**Materials and Change**	Observe the effects of water on objects/materials Observe the effects of heating/cooling objects/materials	Page 27	Page 124

Rang 1 & 2 – Year Two

Months	Strand Unit	Content	Curriculum	Teacher Guidelines
Sept-Oct	**Plants and Animals**	Investigate living things in various habitats Investigate parts of living things Grouping living things by characteristics, e.g. migration Explore the conditions needed for growth and change, e.g. heat, light.. Explore life cycles of plants and animals	Page 42	Page 48, 62, 64, 68, 70, 73, 78, 80, 82
Nov-Dec	**Light**	Explore sources and importance of light Observe transparency of materials to light Importance of the sun for light, heat Learn dangers of the sun, eyes, skin etc Investigate various sounds and how to make these sounds	Page 43	Page 38, 108, 109, 136, 138
Jan	**Sound**	Develop percussion instruments		
Feb	**Heat**	Explore various sources of heat: sun, fire, radiator Investigate how to measure heat Measure and compare temperatures	Page 44	Page 125, 126
March-May	**Materials and change**	Observe effects of heating/cooling solids and liquids Explore how to maintain temperature Mixing materials and the effects, eg paint		

Rang 3 & 4 – Year Two

Month	Strand Unit	Content	Curriculum	Teacher Guidelines
Sept-Oct	**Plants and Animals**	Investigate living things in various habitats Explore conditions of growth and how animals adapt to environments Uses of keys in the identification of species Explore food chains and life cycles	Page 62	Page 48, 62, 64, 68, 70, 73, 78, 80, 82, 85
June	**Science and the Environment**	Explore technology in the everyday context Identify the positive/negative effects of technology on our environment	Page 69	
Nov-Dec	**Light**	Light as a form of energy, explore transparency of materials Explore natural and artificial light Observe the light spectrum Observe refection of light Identity the importance /dangers of the sun	Page 63	
Jan	**Sound**	Sound as a form of energy Creation of sound through vibration How sound travels through materials	Page 63	Page 94
Feb	**Heat**	Use of thermometer Explore heat transfer Uses of heat in the home – energy saving.... Significance/dangers of the sun's heat	Page 64	Page 127

March-May	**Materials and change**	Effects of heating/cooling on solids, liquids and gases Conductors and insulators of change Mixing and separating of materials Testing of materials under different criteria, e.g. use of water, forces	Page 66	

Rang 5 & 6 – Year Two

Month	**Strand Unit**	**Content**	**Curriculum**	**Teacher Guidelines**
Sep-Oct	**Plants and Animals**	Investigate living things in various habitats Explore conditions of growth and how animals adapt to environments Uses 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	Page 84	Page 62, 64, 66, 68, 70, 78, 82
June	**Science and the Environment**	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 91	
Nov-Dec	**Light**	Characteristics of light – energy form, spectrum, reflection, refraction Uses of lens. Importance of sight Importance of the sun – photosynthesis Dangers of sunlight	Page 85	Page 95

Jan	**Sound**	Characteristics of sound – vibration, energy, travel, travel through materials Making sound through percussion, vibration Importance of hearing	Page 85	
Feb	**Heat**	Use/explanation of terms conduction, convection, radiation Transfer of heat, sources, renewable, non-renewable heat Use of thermometer	Page 86	Page 128
March-May	**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	

Design and Make Activities for Environmental Awareness and Care

Flower boxes and containers from reclaimable waste
Decorated jam jars with candles
Christmas present boxes from cardboard boxes and recycled wrapping paper
Grow a tree in a milk carton
Windmill
Water wheel
Solar panel
Pizza box solar oven
Suitable home for a pet/mini-beast/animal
Suitable home for woodlice
Glasshouse

Design and Make for Properties and Characteristics of Materials

A bridge that is stable and holds five toy cars – links to Forces
A small desk for a doll's house
A glider
A parachute

Bake bread
An erupting volcano
A house
A filter using a combination of sand, gravel, pebbles etc in plastic bottle
A composter in a plastic bottle

Design and Make Activities for Sound

Loudspeaker- card in cone shape
String telephone
Shakers
Percussion instruments- shakers, tambourine, xylophone, triangle – mentioned as objective in curriculum (this is the only strand unit that has design and make as an objective)
Earmuffs
Rubber band banjo
Stethoscope –funnel and plastic tubing
Glass bottle xylophone
Straw oboe
Model of how ear works
Sound cannon

Design and Make Suggestions for Heat

Rice Crispy buns
A cold drink
A tea cozy
A cover for a hot drink to keep it warm
An outfit for teddy in the s now or on a sun holiday
A hot air balloon
Dancing snakes (spirals)
Mini greenhouse for growing seeds/plants
A solar panel to heat water on a sunny day
A thermometer
Blinds to keep a car cool in hot weather

Design and Make for Light

A road-sign
Coat for a traffic warden
Plastic bottle glasshouse
A pair of shades
Shadow puppets
Shadow theatre
A sundial using a shadow stick
Motor to spin wheels of colour
Lampshade
Shadow clock
Kaleidoscope
Glasshouses with different coloured 'glass'
Cover for a cold drink
A periscope
A magnifier- drop of water on a sticky tape, marble, jar of water
An animated movie
A sun canopy, umbrella or beach lounger
A box camera

Design and Make for Plants and Animals
Simple bird feeders (using empty milk/soup cartons)
Plant and animal figures
Papier mache models of plants and animals
Plant pots using recyclable materials –foil/juice cartons/shoeboxes/eggshells etc
Model houses for growing seeds using recyclable materials e.g. shoe boxes, juice cartons
Wormery
Fishing net for pond dipping
A matching game for tree/animal/plant parts
Design your own tree using papier mache, autumn leaves, fabric etc
A bird cake for the bird table in winter – lard balls filled with oats/ cooked rice/ nuts etc.
Grass-heads using lawn seed, compost (or sand or soil) and pop socks. Use elastic bands or buttons for eyes/ears
A caterpillar observatory
A vivarium and/or woodlouse habitat with different choice of chambers
A pooter for collecting small mini beasts
Woodlice choice chamber from old ice-cream or other recyclable containers
A key for identification
A butterfly observatory
A bird bath
A bird table
A tree trail www.ppds.ie
A nature trail www.ppds.ie
Mobiles of food chains
Construct a simple key to differentiate between a small number of common flowers, trees, mini-beasts, animals etc