Discover Primary Science and Maths
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DPSM CLASSROOM ACTIVITIES

Planning Guide for Teachers

2014/2015

www.primaryscience.ie

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MAKE THE MOST OF DISCOVER PRIMARY SCIENCE AND MATHS (DPSM) CLASSROOM ACTIVITIES

There are over 100 classroom activities designed to support the teaching of Science and Maths available to download (in Irish and English) at **www.primaryscience.ie**

This booklet sets out the DPSM activities in a guide to facilitate both teacher and school planning for Science teaching.

USE THIS GUIDE TO IDENTIFY THE FOLLOWING AT A GLANCE:

- Activities which are suitable for different class levels.
- The specific strands and strand units of the SESE Science curriculum to which the activities relate.
- Learning objectives for each activity.
- Opportunities for applying the skills of 'working scientifically' and 'designing and making'.

WORKING SCIENTIFICALLY

- Questioning
- Observing
- Predicting
- Investigating and experimenting
- Estimating and measuring
- Analysing
  - Sorting and classifying
  - Recognising patterns
  - Interpreting
  - Recording and communicating

DESIGNING AND MAKING

- Exploring
- Planning
- Making
- Evaluating

Simply pick the section relevant to the class level you are teaching. Browse the curriculum links and learning objectives to find the activities that best suit your requirements.

* An asterisk in front of an activity denotes an acivity which is listed more than once, with the learning objective for the strand/strand unit under which it is listed being printed first and in bold.

M Denotes activities with strongest opportunities to integrate maths.

DPSM/ESERO FRAMEWORK FOR INQUIRY

The DPSM/ESERO Framework for Inquiry has been developed by DPSM facilitators & teachers working with science education specialists and is designed to be used in the planning and teaching of a topic, or theme, on the SESE Science curriculum.

The DPSM/ESERO Framework for Inquiry is designed to bring you through the inquiry based teaching and learning process as you plan and teach a particular topic or theme. Use the following 10 steps to help you:

Curriculum

1. Once you have decided on the topic or theme, write down the **Curriculum Strand, Strand Unit, Learning Objectives,** and **Skills Development** that you intend to address. Use the curriculum links and learning objectives in the tables in this guide to find DPSM activities that best suit your requirements. You can download the required activity from www.primaryscience.ie.

Engage

2. Consider how you will **Engage** your learners. How will you introduce the new experience to the children by using a **Trigger** such as a picture, video, story, "show and tell" object. This should be something that will stimulate discussion.
3. The discussion should lead to **Wondering.** This could be posing a problem, providing a scenario, asking them to brainstorm, or draw a mind map to come up with possible solutions.
4. **Exploring,** encourage the children to consider various options and to compare the alternatives that they develop.

Investigate

5. You present the problem to be investigated by posing a **Starter Question** for investigation. This could also come from the children themselves.
6. Consider how the children will **Predict** and provide reasons for their predictions. It is important that they record their predictions so that they can compare these to their findings.
7. When it comes to **Conducting the Investigation,** consider how you will organise the children to design, plan and conduct the inquiry based activity. Consider also what makes a fair test. This needs to include how they will collect and organise their data.
8. Plan for **Sharing: Interpreting the data / results,** how you will get the children to share what they have found, what the data is telling them and how they use their results to draw conclusions.

Take the Next Step

9. Consider how to extend their new understanding and skills by **Applying Learning** to a new scenario or problem; **Making Connections** with the world around them or with other curriculum areas; or **Thoughtful Actions** on helping make their own environment a better place based on what they have learned.

Reflection

10. It is important for you to reflect back by asking yourself some key questions on what you have achieved or what could be done better the next time. If possible, provide opportunities for the children to reflect on their own learning.

You can use the blank DPSM/ESERO Framework for Inquiry to plan out your topic or theme. The filled in DPSM/ESERO Framework for Inquiry provides some pointers for each of the steps outlined above.

DPSM/ESERO FRAMEWORK FOR INQUIRY

THEME	Overall theme
CURRICULUM	**Strand:** **Strand Unit:** **Curriculum Objectives:** **Skills Development:**

ENGAGE

THE TRIGGER	WONDERING	EXPLORING

INVESTIGATE

STARTER QUESTION	PREDICTING	CONDUCTING THE INVESTIGATION	SHARING: INTERPRETING THE DATA / RESULTS

TAKE THE NEXT STEP

APPLYING LEARNING	MAKING CONNECTIONS	THOUGHTFUL ACTIONS

REFLECTION	

DPSM/ESERO FRAMEWORK FOR INQUIRY

THEME	Overall theme
CURRICULUM	**Strand:** **Strand Unit:** **Curriculum Objectives:** **Skills Development:** Use the DPSM Planning Guide to identify the strand/strand units and the appropriate curriculum/learning objectives that your pupils should achieve.

ENGAGE

THE TRIGGER	WONDERING	EXPLORING
• Relating the new experience to the children • Using objects (e.g. torch for simple circuits, sycamore seeds for spinners etc.) • Play with toys, objects (e.g. magnets) • Use DVD clips, digital images of the scientific phenomenon • Story • The mystery box • A mystery demonstration	• Discuss everyday experiences • Concept mapping • Concept cartoons • Think and draw • Question and answer session • Free writing • Brainstorming • Manipulation of materials • Newspaper article (fictional/actual) • The science talk ball	• The Invitation to learn • New experience presented to the children • The children discuss this and try to provide explanation • Teacher identifies children's 'alternative ideas' • Children's questions about the exploration • Provides them with opportunities to explore the phenomenon

INVESTIGATE

STARTER QUESTION	PREDICTING	CONDUCTING THE INVESTIGATION	SHARING: INTERPRETING THE DATA / RESULTS
• Starter question for investigation • Teacher or children pose the question/scenario/ present the problem to be investigated	• Children record predictions and provide reasons for their predictions	• In groups the children design, plan and conduct inquiry • Collect and organise data	• Children interpret and discuss their results • Present their findings: Propose explanations and solutions based on the data • Drawing conclusions

TAKE THE NEXT STEP

APPLYING LEARNING	MAKING CONNECTIONS	THOUGHTFUL ACTIONS

- Discuss implications of their findings e.g. bigger spinner falls more slowly than smaller one. Therefore if I was to jump out of a plane I would choose a bigger parachute as it would fall more slowly
- Debating
- Making connections
- Apply their knowledge to a new learning situation
- Consider how to extend their new understanding and skills - further exploration, address new questions

REFLECTION	

- Did I meet my learning objectives?
- Are the children moving on with their science skills?
- Are there cross curriculum opportunities here?
- What questions worked very well?
- What questions didn't work well?
- Ask the children would they change anything or do anything differently.

JUNIOR INFANTS TO SECOND CLASS

STRAND + STRAND UNIT	ACTIVITY	LEARNING OBJECTIVES (with curriculum page number in brackets) "The child should be enabled to..."	SKILLS ('Questioning' and 'Predicting' should be included in most activities, along with the following):
MYSELF	Myself - fingerprints	".. recognise and/or measure physical similarities and differences between individuals .." (41)	Experimenting, Observing
	*Sound Insulation	**" .. use all the senses (.. hearing ..) to become aware of and explore environments" (24)** See also under 'Sound': ".. differentiate between .. loud and soft sounds" (43); and 'Properties and Characteristics of Materials': "..investigate materials for different properties" (27)	Observing, Estimating and Measuring, Analysing M
PLANT AND ANIMAL LIFE LIVING THINGS	Investigating Fruit	".. sort and group living things into sets .. fruit .." (24)	Observing, Analysing (Sorting and Classifying) M
	How Plants Drink	".. observe growth and change in some living things" (24)	Experimenting, Observing
	*Investigating Children's Coats	**".. recognise that plants and animals provide us with materials with which to make clothes, e.g. sheep, cows, cotton" (SESE Teacher Guidelines P.47, for integrated approach to CLOTHES.)** See also under 'Heat': ".. identify ways of keeping objects and substances warm and cold .. clothes" (25); and also under 'Properties and Characteristics of Materials': ".. investigate materials for different properties, e.g. materials that keep us warm" (27); become aware of and investigate the suitability of different kinds of clothes for variations in temperature.. recognise that some fabrics keep us warmer than others" (46)	Analysing (Sorting and Classifying), Recording M
	*Make a Bird Feeder	**".. develop some awareness of plants and animals .. " (42)** See also under 'Environmental Awareness and Care': ".. identify, discuss and implement simple strategies for improving and caring for the environment .. caring for living and non-living things in the locality" (28)	Designing and Making
	Signs of Spring	**".. observe, identify and explore a variety of living things in local habitats.." (42)** See also under 'Caring for My Locality': ".. observe and develop an awareness of living things in local .. environment" (48)	Observing, Recording, Communicating

STRAND + STRAND UNIT	ACTIVITY	LEARNING OBJECTIVES (with curriculum page number in brackets) "The child should be enabled to..."	SKILLS ('Questioning' and 'Predicting' should be included in most activities, along with the following):
LIGHT	Which Colours Show Up Best?	"..explore dark and bright colours and become aware of different shades of colour" (25)	Observing, Estimating and Measuring, Analysing M
	Design and Make Traffic Lights	"..observe colours in the local environment.. in the street" (25)	Designing and Making
SOUND	Strange Sounds	".. explore ways of making different sounds using a variety of materials" (43)	Experimenting, Observing
	Investigating Sound	" .. recognise and identify a variety of sounds .." (25); "identify and differentiate between high and low sounds.." (25)	Observing M
	*Sound Insulation	**".. differentiate between .. loud and soft sounds" (43)** See also under 'Myself': " .. use all the senses (.. hearing ..) to become aware of and explore environments" (24); and also under: **'Properties and Characteristics of Materials':** "..investigate materials for different properties" (27)	M Observing, Estimating and Measuring, Analysing
HEAT	*Keeping Ice Lollies Cool	**"..identify ways of keeping objects and substances warm and cold .. *wrapping and covering*" (25)** See also under 'Properties and Characteristics of Materials': "..investigate materials for different properties" (27)	Investigating (Fair Testing), Measuring, Analysing (Sorting and Classifying). M
ENERGY & FORCES	*Investigating Children's Coats	**".. identify ways of keeping objects and substances warm and cold .. clothes" (25)** See also under 'Plants and Animals': ".. recognise that plants and animals provide us with materials with which to make clothes, e.g. sheep, cows, cotton" (SESE Teacher Guidelines P.47, for integrated approach to CLOTHES.) And also under 'Properties and Characteristics of Materials': ".. investigate materials for different properties, e.g. materials that keep us warm" (27); become aware of and investigate the suitability of different kinds of clothes for variations in temperature .. recognise that some fabrics keep us warmer than others" (46)	Analysing (Sorting and Classifying), Recording M
MAGNETISM AND ELECTRICITY	Which is the Strongest Magnet?	".. use magnets of different shapes and sizes in purposeful play .. " (44)	Investigating (Fair Testing), Recording, Analysing M
	Static Electricity and Wriggly Worms	".. explore the effects of static electricity" (44)	Experimenting, Observing, Designing and Making
FORCES	The Moon, Craters and Meteorites	".. investigate how forces act on objects" (45)	Investigating (Fair Testing), Estimating and Measuring, Analysing M
	Paper Helicopters	"..investigate how forces (e.g. gravity) act on objects .. through experimenting with different materials" (26)	Experimenting, Observing M
	Dancing Raisins	".. investigate how forces act on objects.. investigate floating and sinking with a wide range of materials and objects" (45)	Experimenting, Observing

STRAND + STRAND UNIT	ACTIVITY	LEARNING OBJECTIVES (with curriculum page number in brackets) "The child should be enabled to..."	SKILLS ('Questioning' and 'Predicting' should be included in most activities, along with the following):
ENERGY & FORCES — FORCES	Design a Boat	".. investigate how forces act on objects.. investigate how some objects may be made to float by hollowing them out" (45)	Investigating
	Rocket Launch	".. explore, through informal activity with toys, forces such as pushing and pulling" (26)	Investigating and Experimenting, Estimating and Measuring
	*Aeroplanes	".. investigate how forces act on objects" (45)	Experimenting, Observing, Designing and Making M
	Moving Air	".. become aware of and explore how .. moving air can make things move" (45)	Investigating, Estimating and Measuring M
	Gravity	".. investigate how forces act on objects"(45)	Investigating, Observing
	Why Wear a Seat Belt?	".. explore, through informal activity with toys, forces such as pushing and pulling" (26)	Experimenting, Observing
	*Material for a Lifejacket	**".. investigate how forces act on objects ..investigate floating and sinking with a wide range of materials and objects" (45)** See also under 'Properties and Characteristics of Materials': ".. investigate materials for different properties, e.g materials that absorb water and those that are waterproof" (27)	Experimenting, Analysing M
	*Investigating Slopes	**".. observe and investigate the movement of objects such as toys on various materials and surfaces.. *level and inclined surfaces, rough and smooth surfaces*" (45)** See also under 'Properties and Characteristics of Materials': ".. describe and compare materials, noting the differences in .. texture" (46)	Investigating (Fair Testing), Estimating and Measuring M
	*Investigating Stretchiness	**".. explore how the shape of objects can be changed by.. pulling.." (26)** See also under 'Properties and Characteristics of Materials': ".. group materials according to certain criteria ... flexibility" (27)	IInvestigating (Fair Testing), Estimating and Measuring M
	Investigating Pulleys	".. explore how objects may be moved by pushing and pulling" (45)	Experimenting, Designing, Making, Estimating and Measuring M
	Make Your Own Hovercraft	".. observe and investigate the movement of objects such as toys on various materials and surfaces" (45)	Experimenting, Observing, Designing and Making
MATERIALS — PROPERTIES AND CHARACTERISTICS OF MATERIALS	Pass the Parcel	"..describe and compare materials, noting the differences in the colour, shape and texture"(27)	Observing, Communicating
	*Keep the Damp Out	**" .. investigate materials for different properties, e.g .. *materials that absorb water and those that are waterproof*" (27)** See also under 'Materials and Change': ".. explore the effects of water on a variety of materials" (27)	Investigating (Fair Testing) and Experimenting
	Which Ball is Bounciest?	".. investigate materials for different properties" (27)	Investigating (Fair Testing), Estimating and Measuring, Recording M

STRAND + STRAND UNIT	ACTIVITY	LEARNING OBJECTIVES (with curriculum page number in brackets) "The child should be enabled to..."	SKILLS ('Questioning' and 'Predicting' should be included in most activities, along with the following):
PROPERTIES AND CHARACTERISTICS OF MATERIALS — MATERIALS	*Investigating Children's Coats	**".. investigate materials for different properties, e.g. materials that keep us warm" (27); become aware of and investigate the suitability of different kinds of clothes for variations in temperature.. *recognise that some fabrics keep us warmer than others"* (46)** See also under 'Plants and Animals': ".. recognise that plants and animals provide us with materials with which to make clothes, e.g. sheep, cows, cotton" (SESE Teacher Guidelines P.47, for integrated approach to CLOTHES.) and under 'Heat': ".. identify ways of keeping objects and substances warm and cold .. clothes" (25)	Analysing (Sorting and Classifying), Recording M
	Design a Bridge	".. begin to explore how different materials may be used in construction .. structures" (46) See also: ".. explore how to make a paper bridge stronger" (p. 37 of SESE Teacher Guidelines)	Investigating and Experimenting, Analysing M
	*Material for a Lifejacket	**".. investigate materials for different properties, e.g *materials that absorb water and those that are waterproof*" (27)** See also under 'Forces': "investigate how forces act on objects ..investigate floating and sinking with a wide range of materials and objects" (45)	Experimenting, Sorting and Classifying
	*Investigating Slopes	**".. describe and compare materials, noting the differences in .. texture" (46)** See also under 'Forces' ".. observe and investigate the movement of objects such as toys on various materials and surfaces .. level and inclined surfaces, rough and smooth surfaces" (45)	Investigating, Observing, Estimating and Measuring' M
	*Investigating Stretchiness	**".. group materials according to certain criteria .. *flexibility*" (27)** See also under 'Forces': ".. explore how the shape of objects can be changed by .. pulling.." (26)	Investigating, Analysing, Estimating and Measuring M
	*Sound Insulation	**".. investigate materials for different properties" (27)** See also under 'Myself': " .. use all the senses (.. hearing ..) to become aware of and explore environments" (24); and under 'Sound': ".. differentiate between .. loud and soft sounds" (43)	Investigating, Analysing M
	Which Paper Absorbs Best	**".. group materials according to their properties and/or composition"** "..identify how materials are used"	Design, Plan and Carry Out Simple Investigations M
	*Keeping Ice Lollies Cool	**".. investigate materials for different properties" (27)** See also under 'Heat': ".. identify ways of keeping objects and substances warm and cold .. wrapping and covering" (25)	Investigating (Fair Testing), Measuring, Analysing (Sorting and Classifying) M
MATERIALS AND CHANGE	*Keep the Damp Out	**".. explore the effects of water on a variety of materials" (27)** See also under 'Properties and Characteristics of Materials': " .. investigate materials for different properties, e.g .. materials that absorb water and those that are waterproof" (27)	Investigating (Fair Testing), Observing
	*Investigating Plastic	**"..begin to investigate how materials may be changed by mixing" (47)** See also under 'Caring for My Locality': ".. become aware of ways in which the environment can be polluted or harmed .. litter"(48)	Experimenting, Observing M
	Pop Top	".. explore the effects of heating and cooling on a range of liquids and solids" (46)	Experimenting, Observing

STRAND + STRAND UNIT	ACTIVITY	LEARNING OBJECTIVES (with curriculum page number in brackets) "The child should be enabled to..."	SKILLS ('Questioning' and 'Predicting' should be included in most activities, along with the following):
MATERIALS AND CHANGE	*Make a Lava Lamp	**"..begin to investigate how materials may be changed by mixing" (47)** See also under 'Environmental Awareness and Care': ".. become aware of ways in which the environment can be polluted or harmed (oil spillages at sea)" (48)	Experimenting, Observing M
ENVIRONMENTAL AWARENESS & CARE CARING FOR MY LOCALITY	*Investigating Plastic	**".. become aware of ways in which the environment can be polluted or harmed .. *litter*"(48)** See also under 'Materials and Change': "..begin to investigate how materials may be changed by mixing" (47)	Experimenting, Observing, Designing and Making M
	*Make a Bird Feeder	**".. identify, discuss and implement simple strategies for improving and caring for the environment .. *caring for living and non-living things in the locality*" (28)** See also under 'Plants and Animals': ".. develop some awareness of plants and animals" (42)	Designing and Making
	*Make a Lava Lamp	**".. become aware of ways in which the environment can be polluted or *harmed (oil spillages at sea)*" (48)** See also under 'Materials and Change': ".. begin to investigate how materials may be changed by mixing" (47);	Experimenting, Observing M
	Signs of Spring	**".. observe and develop an awareness of living things in local .. environment" (48)** See also under 'Plants and Animals': ".. observe, identify and explore a variety of living things in local habitats" (42)	Observing, Measuring Recording and Communicating M

THIRD CLASS TO SIXTH CLASS

SOME CURRICULUM PAGE NUMBERS REFER TO CONTENT FOR YOUNGER CLASSES BUT THE ACTIVITIES CAN BE TAUGHT TO SENIOR CLASSES IN A MORE ADVANCED MANNER.

STRAND + STRAND UNIT	ACTIVITY	LEARNING OBJECTIVES (with curriculum page number in brackets) "The child should be enabled to..."	SKILLS ('Questioning' and 'Predicting' should be included in most activities, along with the following):
HUMAN LIFE	Exploring Lungs	".. become aware of and investigate breathing .. investigate breathing rate before and after exercise" (61)	Investigating, Recording M
	Exercise Your Heart	".. identify some requirements for growth and development in the human .. exercise" (41)	Investigating, Recording M
LIVING THINGS	Myself- Fingerprints, Dominant Eye, Blind Spot	(Variety and Characteristics of living things) ".. recognise and/or measure physical similarities and differences between individuals" (41)	Investigating, Experimenting
	How Much Air Can My Lungs Hold?	(Variety and Characteristics of living things) ".. recognise and/or measure physical similarities and differences between individuals" (41)	M Measuring, Recording
	My Reaction Time	(Variety and Characteristics of living things) ".. recognise and/or measure physical similarities and differences between individuals" (41)	Investigating, Measuring M
	Height and Shoe Size	(Variety and Characteristics of living things) ".. recognise and/or measure physical similarities and differences between individuals" (41)	Questioning, Recording Analysing (..look for and recognise relationships) M
	Make Your Own Teeth	".. design and make a clay model of a set of teeth (or part of a set of teeth" (61)	Designing and Making
PLANT AND ANIMAL LIFE	Starch is Everywhere	".. group and compare living things into sets according to their similarities and differences" (84)	Experimenting, Analysing (Sorting and Classifying)
	Growing Tomatoes	".. investigate the factors that affect plant growth" (84)	Investigating and Experimenting, Observing
	How Plants Drink	".. become aware of some of the basic life processes in animals and plants" (84)	Observing and investigating
LIVING THINGS	*Make a Bird Feeder	**".. become aware of some of the basic life processes in animals and plants .. *design and make an animal home that provides for .. feeding* .." (62)** See also under 'Environmental Awareness and Care': ".. realise that there is a personal.. responsibility for taking care of the environment" (70)	Designing and Making
	Signs of Spring	".. measure, compare and record .. capacity, time, .. temperature .. using appropriate .. equipment .. rain gauges .. thermometers .." (57)	M Estimating, Measuring, Observing and Recording

STRAND + STRAND UNIT	ACTIVITY	LEARNING OBJECTIVES (with curriculum page number in brackets) "The child should be enabled to..."	SKILLS ('Questioning' and 'Predicting' should be included in most activities, along with the following):	
ENERGY & FORCES — LIGHT	Make a Periscope	".. investigate how mirrors .. are good reflectors of light .. design and make a periscope" (85)	Measuring, Designing and Making	M
	*Rainbow Spinner	**".. investigate the splitting and mixing of light" (85)** See also under 'Magnetism and Electricity': ".. investigate current electricity .. use wires, bulbs, motors and batteries" (86)	Measuring, Observing	M
	Mirror Writing	".. investigate how mirrors and other shiny objects are good reflectors of light" (63)	Investigating and Experimenting, Observing	
	Creepy Reflections and Floating Finger	".. investigate how mirrors and other shiny objects are good reflectors of light"(63)	Investigating and Experimenting, Observing	
	*Solar Energy	**".. learn that light is a form of energy" (63,85)** See also under 'Heat': ".. recognise a variety of sources of heat, e.g. solar energy" (86), and 'Environmental Awareness': ".. become aware of the importance of the Earth's renewable and non-renewable resources" (90)	Experimenting, Analysing	M
	*Satellites and Reflection	**".. investigate how mirrors and other shiny objects are good reflectors of light" (63)** See also under 'Science and the Environment': ".. appreciate the application of science and technology in familiar contexts .. information and communication technologies" (91)	Investigating and Experimenting, Measuring	M
	Investigating Mirrors	**".. investigate how mirrors and other shiny surfaces are good reflectors of light"** "..effects of flat shiny surface, curved shiny surface" (63, 85)	Experimenting, Observing, Analysing	M
	Investigating Refraction	".. investigating the refraction of light..explore how objects may be magnified using simple lens or magnifier.." (85)	Experimenting, Observing, Analysing, Designing and Making	M
SOUND	Strange Sounds	".. understand and explore how different sounds may be made by making a variety of materials vibrate" (63)	Experimenting, Observing	
	String Telephone	".. explore the fact that sound travels through materials" (63)	Experimenting, Observing	M
	*Sound Insulation	**".. appreciate the importance of hearing", "explore how sound travels through materials .. identify materials that muffle sounds, design and make a pair of ear muffs" (85)** See also under 'Properties and Characteristics of Materials': ".. group materials according to their properties .. e.g. ability to muffle sounds" (66)	Fair Testing, Estimating, Measuring, Investigating, Analysing, Designing and Making	M
ENERGY & FORCES — HEAT	*Keeping Warm	**".. measure changes in temperature using a thermometer" (64)** See also under 'Properties and characteristics of Materials': ".. experiment to establish which materials are conductors of heat or insulators" (66)	Estimating and Measuring, Investigating, (Fair Testing)	M
	*Solar Energy	**".. recognise a variety of sources of heat, e.g. solar energy" (86);** see also under 'Light' ".. learn that light is a form of energy" (63,85); and 'Environmental Awareness' ".. become aware of the importance of the Earth's renewable and non-renewable resources" (90)	Experimenting, Analysing	
	*Friction – Slip or Stick	**".. recognise a variety of sources of heat ... *friction in mechanical movement*" (86)** See also under 'Forces': ".. explore the effects of friction on movement" (65,87)	Experimenting, Observing	
	Water Fountain	" .. know that heat energy can be transferred .. in water .." (86)	Experimenting, Observing	
MAGNETISM AND ELECTRICITY	Magnetic Car	".. learn that magnets can push or pull magnetic material"(64)	Experimenting, Observing, Designing and Making	

STRAND + STRAND UNIT	ACTIVITY	LEARNING OBJECTIVES (with curriculum page number in brackets) "The child should be enabled to..."	SKILLS ('Questioning' and 'Predicting' should be included in most activities, along with the following):
ENERGY & FORCES – MAGNETISM AND ELECTRICITY	Magnetic Race	".. investigate that magnets attract certain materials through other materials" (64)	Designing and Making
	Make an Electric Quiz	".. investigate current electricity by constructing simple circuits" (64)	Investigating and Experimenting, Designing and Making
	Make a Lighthouse	".. investigate current electricity by constructing simple circuits .. e.g. design and make .. a lighthouse" (64)	Experimenting, Designing and Making
	*Rainbow Spinner	**".. investigate current electricity .. *use wires, bulbs, motors and batteries*" (86)** See also under 'Light': ".. investigate the splitting and mixing of light" (85)	Experimenting, Observing, M
	*Motors and Vehicles	**".. investigate current electricity .. *use wires, bulbs, motors and batteries*" (86)** See also under 'Forces': ".. identify and explore how objects and materials may be moved .. by machines using rollers, wheels, axles, gear wheels, chains and belts" (87)	Experimenting, Designing and Making
	Design and Make Traffic Lights	".. investigate current electricity .. design and make set of traffic lights" (86)	Experimenting, Designing and Making M
	*Measuring and Saving Energy	**".. become aware of and understand the dangers of electricity .. dangers of mains electricity .. importance of circuit breakers" (86)** See also under 'Materials and change' ".. identify ways in which homes and buildings are heated and insulated" (89); and under 'Environmental Awareness': ".. come to appreciate the need to conserve resources .. turning off lights .." (90) and 'Caring for the Environment' ".. participate in activities that contribute to the enhancement of the environment .. become aware of the need to use energy wisely in school and at home" (92)	M Estimating and Measuring, Recording, Analysing
ENERGY & FORCES – FORCES	The Moon, Craters and Meteorites	".. investigate falling objects" (65)	Investigating (Fair Testing), Estimating and Measuring M
	Starting and Stopping	".. explore how objects may be moved; explore how some moving objects may be slowed down" (65)	Predicting, Experimenting
	Wag the Dog	".. explore how levers may be used to help lift different objects .. design and make a toy using a lever" (65,87)	Experimenting, Designing and Making
	Make a Rocket	".. identify and explore how objects and materials may be moved" (87)	Experimenting
	Paper Helicopters	".. investigate falling objects" (65); "explore the effect of friction on movement .. e.g. air resistance" (87)	Investigating (Fair Testing), Experimenting M
	Can You Balance?	".. investigate how forces act on objects" (45)	Experimenting
	Dancing Raisins	".. investigate floating and sinking with a wide range of materials and objects" (45)	Observing
	Diving Drops and Sinking Feelings	".. investigate floating and sinking with a wide range of materials and objects" (45)	Experimenting, Observing
	Friction – Slip or Stick?	**".. explore the effects of friction on movement" (65,87)** See also under 'Heat': ".. recognise a variety of sources of heat .. friction in mechanical movement" (86)	Experimenting, Observing
	Design And Make A Paper Rocket	".. become aware of and explore how moving air can make things move" (45)	Investigating (Fair Testing), Estimating and Measuring, Recording, analysing, Designing and Making M

STRAND + STRAND UNIT	ACTIVITY	LEARNING OBJECTIVES (with curriculum page number in brackets) "The child should be enabled to..."	SKILLS ('Questioning' and 'Predicting' should be included in most activities, along with the following):
ENERGY & FORCES	Design a Boat	".. investigate the pushing force of water" (65)	Investigating (Fair Testing)
	Rocket Launch	".. identify and explore how objects may be moved" (87)	Investigating, Experimenting
	Acrobatic Clown	".. come to appreciate that gravity is a force" (87)	Experimenting, Designing and Making
	*Make Your Own Windmill	**".. identify and explore how objects and materials may be moved .. *design and make a windmill*" (87)** See also under 'Environmental Awareness': ".. foster an appreciation of the ways in which people use the Earth's resources .. using wind .. energy to produce power" (90)	Designing and Making
	Design a Catapult	".. identify how objects and materials may be moved" (87)	Estimating and Measuring, Recording, Designing and Making M
	Gravity	".. investigate falling objects (65); explore how some moving objects may be slowed down .. design and make a parachute (65); come to appreciate that gravity is a force" (87)	Investigating, Designing and Making M
	*Investigating Slopes	**".. explore the effect of friction on movement through experimenting with toys and objects on various surfaces" (65)** See also under 'Materials': ".. describe and compare materials, noting the differences in colour, shape and texture" (66)	Investigating (Fair Testing), Estimating and Measuring M
	*Investigating Stretchiness	**".. explore how objects may be moved .. *by twisting and stretching*" (65)** See also under 'Materials': ".. group materials according to their properties" (66)	Investigating (Fair Testing), Estimating, Measuring M
	Seat Belt	".. explore the effect of friction on movement and how it may be used to slow or stop moving objects" (87)	Experimenting, Observing
	Design and Make a Water Pump	".. identify and explore how objects and materials may be moved .. by pouring and pumping" (87)	Designing and Making
	Design and Make a Foam Rocket	"..identify how objects and materials may be moved"(87); "come to appreciate that gravity is a force" (87)	Experimenting, Measuring, Designing and Making M
	*Air and Water Power	**".. identify and explore how objects and materials may be moved .. *using trapped air pressure (pneumatics), using trapped liquid under pressure (hydraulics)*" (87)** See also under 'Science and the Environment': ".. appreciate the application of science and technology in familiar contexts .. pneumatic drill." (91)	Experimenting, Estimating and Measuring, Designing and Making M
	*Investigating Pulleys	**".. explore how objects may be moved by machines, e.g. pulleys .. *design and make a pulley system*" (65)** See also under 'Science and the Environment': ".. appreciate the application of science and technology in familiar contexts .. pulleys .. crane on a building site" (91)	Experimenting, Estimating and Measuring, Designing and Making M
	*Motors and Vehicles	**".. identify and explore how objects and materials may be moved .. *by machines using rollers, wheels, axles, gear wheels, chains and belts*" (87)** See also under 'Magnetism and Electricity': ".. investigate current electricity .. use wires, bulbs, motors and batteries" (86)	Designing and Making
	*Aeroplanes	**".. investigate how forces act on objects" (45)** See also under 'Environmental Awareness and Care/ Science and the Environment': ".. identify ways in which science and technology contribute positively to society .. transport .."(69)	Experimenting, Observing, Designing and Making M

STRAND + STRAND UNIT	ACTIVITY	LEARNING OBJECTIVES (with curriculum page number in brackets) "The child should be enabled to..."	SKILLS ('Questioning' and 'Predicting' should be included in most activities, along with the following):	
MATERIALS – PROPERTIES AND CHARACTERISTICS OF MATERIALS	Kitchen Detectives - Acids and Alkalis	".. group materials according to their properties" (66)	Investigating and Experimenting, Analysing	
	*Keeping Warm	**".. experiment to establish which materials are conductors of heat or insulators" (66);** See also under 'Heat': ".. measure changes in temperature using a thermometer" (64)	Investigating (Fair Testing), Analysing	M
	*Cleaning Dirty Water	**".. explore some ways in which materials may be separated" (67)** See also under 'Materials and change': ".. explore some ways in which materials may be separated .. filtration" (89) and 'Science and the Environment': ".. examine some ways that science and technology have contributed positively to the use of the Earth's resources .. purifying water" (91)	Experimenting, Observing	
	Air Pressure	".. identify and investigate a range of common materials in the immediate environment .. air .." (66)	Experimenting	
	Design a Bridge	".. investigate how materials may be used in construction .. structures" (66) ".. identify how materials are used .. examine how shape affects the strength of structures" (88)	Investigating (Fair Testing), Experimenting, Designing and Making	M
	Which Paper Absorbs Best?	".. group materials according to their properties" (66)	Investigating (Fair Testing)	M
	Starch is Everywhere	".. group materials according to their properties and/or composition .. e.g. foods" (88)	Experimenting, Observing, Analysing	
	*Amazing Triangles	**".. investigate how materials may be used in construction .. structures" (66)** **".. identify how materials are used .. *examine how shape affects the strength of structures*" (88)** See also under 'Environmental Awareness': ".. identify positive aspects of natural and built environments through observation, discussion and recording .. shapes in rural and urban areas" (90)	Experimenting, Observing, Designing and Making	M
	Surface Tension and Bubbles	".. identify and investigate a range of common materials in the immediate environment .. water .." (66) See also: ".. explore the surface tension of water .." (SESE Teacher Guidelines p.48)	Experimenting, Observing	
	Paper Strength	".. group materials according to their properties .. e.g. strength" (66)	Investigating (Fair Testing)	M
	*Sound Insulation	**".. group materials according to their properties .. e.g. ability to muffle sounds" (66)** See also under 'Sound': ".. appreciate the importance of hearing", ".. explore how sound travels through materials .. identify materials that muffle sounds, design and make a pair of ear muffs" (85)	Investigating (Fair Testing), Estimating and Measuring, Analysing, Designing and Making	M
	*Investigating Slopes	**".. describe and compare materials, noting the differences in colour, shape and texture" (66)** See also under 'Forces': ".. explore the effect of friction on movement through experimenting with toys and objects on various surfaces" (65)	Investigating (Fair Testing), Estimating and Measuring	M
	*Investigating Stretchiness	**".. group materials according to their properties" (66)** See also under 'Forces': ".. explore how objects may be moved .. by twisting and stretching" (65)	Investigating (Fair Testing), Estimating, Measuring	M
	Keep the Damp Out	".. group materials according to their properties" (66)	Investigating, Analysing	

STRAND + STRAND UNIT	ACTIVITY	LEARNING OBJECTIVES (with curriculum page number in brackets) "The child should be enabled to..."	SKILLS ('Questioning' and 'Predicting' should be included in most activities, along with the following):	
MATERIALS AND CHANGE	*Cleaning Dirty Water	**".. explore some ways in which materials may be separated .. filtration" (89)** See also under 'Properties and characteristics of Materials': ".. explore some ways in which materials may be separated" (67); and under 'Science and the Environment': ".. examine some ways that science and technology have contributed positively to the use of the Earth's resources .. purifying water" (91)	Experimenting, Observing	
MATERIALS	Creeping Colours	".. explore some simple ways in which materials may be separated" (67)	Experimenting, Observing	
MATERIALS	*Chemical Energy: Make a Lava Lamp	**"..investigate how a wide range of materials may be changed by mixing" (89)** See also under 'Caring for the Environment': ".. identify and discuss a local, national or global environmental issue .. an incident of pollution (oil) .." (92)	Experimenting, Observing	M
MATERIALS	*Investigating Plastic	**".. investigate how .. materials may be changed by mixing ..",** **".. explore the effects of heating and cooling on .. liquids .. *permanent changes*" (89)** See also under 'Science and the Environment': ".. examine some ways that science and technology have contributed positively to the use of the Earth's resources .. mixing materials to produce new materials"(91) ".. recognise and investigate aspects of human activities that may have positive or adverse effects on environments" (91)	Experimenting, Observing, Designing and Making	M
MATERIALS	Custard Bouncy Balls	".. investigate how a wide range of materials may be changed by mixing" (89)	Experimenting	
MATERIALS	Grow Some Crystals	".. investigate how a wide range of materials may be changed by mixing" (89)	Experimenting, Observing	
MATERIALS	Snake Spiral	".. explore the effects of heating and cooling on range of liquids, solids and gases .. heat causing air to rise" (66)	Experimenting, Observing	
MATERIALS	Water Fountain	".. explore the effects of heating and cooling on a range of liquids, solids and gases" (66)	Experimenting, Observing	
MATERIALS	Make a Rocket	".. investigate how a wide range of materials may be changed by mixing" (89)	Experimenting, Observing	
MATERIALS	Dyeing with Red Cabbage	".. investigate how a wide range of materials may be changed by mixing" (89)	Observing, Designing and Making	
MATERIALS	Make Your Own Butter	".. investigate how a wide range of materials may be changed by mixing" (89)	Experimenting	
MATERIALS	Making Concrete Blocks	".. investigate how a wide range of materials may be changed by mixing" (89)	Designing and Making	M
MATERIALS	Investigating Soil	".. explore some simple ways in which materials may be separated .. allowing sediment to settle in a jar of liquid" (89)	Analysing	M

STRAND + STRAND UNIT	ACTIVITY	LEARNING OBJECTIVES (with curriculum page number in brackets) "The child should be enabled to..."	SKILLS ('Questioning' and 'Predicting' should be included in most activities, along with the following):
MATERIALS AND CHANGE **MATERIALS**	*Measuring and Saving Energy	**".. identify ways in which homes and buildings are heated and insulated" (89)** See also under 'Magnetism and Electricity': ".. become aware of and understand the dangers of electricity .. dangers of mains electricity .. importance of circuit breakers" (86) and under 'Environmental Awareness': ".. come to appreciate the need to conserve resources .. turning off lights .." (90) and 'Caring for the Environment': ".. participate in activities that contribute to the enhancement of the environment .. become aware of the need to use energy wisely in school and at home" (92)	Estimating and Measuring, Recording, Analysing M
ENVIRONMENTAL AWARENESS **ENVIRONMENTAL AWARENESS AND CARE**	*Solar energy	**".. become aware of the importance of the Earth's renewable and non-renewable resources" (90)** See also under 'Light': ".. learn that light is a form of energy" (63,85) and 'Heat:' ".. recognise a variety of sources of heat, e.g. solar energy" (86)	Investigating (Fair Testing), Designing and Making M
	*Make Your Own Windmill	**".. foster an appreciation of the ways in which people use the Earth's resources .. *using wind .. energy to produce power*" (90)** See also under 'Forces': ".. identify and explore how objects and materials may be moved .. design and make a windmill" (87)	Designing and Making
	*Measuring and Saving Energy	**".. come to appreciate the need to conserve resources .. turning off lights .." (90)** See also under 'Magnetism and Electricity': ".. become aware of and understand the dangers of electricity .. dangers of mains electricity .. importance of circuit breakers" (86) and also under 'Materials and Change': ".. identify ways in which homes and buildings are heated and insulated" (89) and 'Caring for the Environment' ".. participate in activities that contribute to the enhancement of the environment .. become aware of the need to use energy wisely in school and at home" (92)	Estimating and Measuring, Recording, analysing M
	*Amazing Triangles	**"identify positive aspects of natural and built environments through observation, discussion and recording .. shapes in rural and urban areas" (90)** See also under 'Properties and Characteristics of Materials': ".. investigate how materials may be used in construction .. structures" (66) ".. identify how materials are used .. examine how shape affects the strength of structures" (88)	Experimenting, Observing, Designing and Making M
SCIENCE AND THE ENVIRONMENT	*Investigating Plastic	**".. examine some ways that science and technology have contributed positively to the use of the Earth's resources .. *mixing materials to produce new materials*" (91)** **".. recognise and investigate aspects of human activities that may have positive or adverse effects on environments" (91)** See also under 'Materials and Change': ".. investigate how .. materials may be changed by mixing ..", ".. explore the effects of heating and cooling on .. liquids .. permanent changes" (89)	Experimenting, Observing, Designing and Making M

STRAND + STRAND UNIT	ACTIVITY	LEARNING OBJECTIVES (with curriculum page number in brackets) "The child should be enabled to...	SKILLS ('Questioning' and 'Predicting' should be included in most activities, along with the following):	
ENVIRONMENTAL AWARENESS AND CARE SCIENCE AND THE ENVIRONMENT	*Cleaning Dirty Water	**".. examine some ways that science and technology have contributed positively to the use of the Earth's resources .. purifying water" (91)** See also under 'Properties and characteristics of Materials': ".. explore some ways in which materials may be separated" (67); and under 'Materials and Change': ".. explore some ways in which materials may be separated .. filtration" (89)	Experimenting, Observing	
	*Aeroplanes	**".. identify some ways in which science and technology contribute positively to society .. *transport* .." (69)** See also under 'Forces': ".. investigate how forces act on objects" (45)	Experimenting, Observing	M
	*Satellites and Reflection	**".. appreciate the application of science and technology in familiar contexts .. information and communication technologies" (91)** See also under 'Light': ".. investigate how mirrors and other shiny objects are good reflectors of light" (63)	Experimenting, Measuring	M
	*Investigating Pulleys	**".. appreciate the application of science and technology in familiar contexts .. pulleys .. crane on a building site" (91)** See also under 'Forces': ".. explore how objects may be moved by machines, e.g. pulleys .. design and make a pulley system" (65)	Experimenting, Estimating and Measuring	M
	*Air and Water Power	**".. appreciate the application of science and technology in familiar contexts .. pneumatic drill." (91)** See also under 'Forces': ".. identify and explore how objects and materials may be moved .. using trapped air pressure (pneumatics), using trapped liquid under pressure (hydraulics)" (87)	Experimenting, Estimating and Measuring, Designing and Making	M
ENVIRONMENTAL AWARENESS AND CARE CARING FOR THE ENVIRONMENT	*Measuring and Saving Energy	**".. participate in activities that contribute to the enhancement of the environment .. *become aware of the need to use energy wisely in school and at home*" (92)** See also under 'Magnetism and Electricity': ".. become aware of and understand the dangers of electricity .. dangers of mains electricity .. importance of circuit breakers" (86) and under 'Materials and Change': ".. identify ways in which homes and buildings are heated and insulated" (89) and under 'Environmental Awareness': ".. come to appreciate the need to conserve resources .. turning off lights .." (90)	Estimating, Measuring Recording and Analysing	M
	*Make a Bird Feeder	**".. realise that there is a personal .. responsibility for taking care of the environment" (70)** See also under 'Living Things': ".. become aware of some of the basic life processes in animals and plants .. design and make an animal home that provides for .. feeding .." (62)	Designing and Making	
	Investigating Soil	".. identify and discuss a local, national or global environmental issue .. such as .. farming practices" (92)	Analysing, Estimating and Measuring	
	*Chemical Energy: Make a Lava Lamp	**".. identify and discuss a local, national or global environmental issue .. *an incident of pollution (oil)* .." (92)** See also under 'Materials and Change': ".. investigate how a wide range of materials may be changed by mixing" (89)	Experimenting, Observing	M

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