



Sale Primary School No 545

Science and Technology Policy 2003

TECHNOLOGY STUDIES - SCIENCE & TECHNOLOGY POLICY

This program aims to incorporate the principles of science & technology studies into existing programs across the curriculum.

1.0 PURPOSE:

To develop children's awareness and understanding about their physical world and beyond.

To provide a balanced program that will foster children's curiosity and develop the skills necessary to investigate the world around them.

2.0 BROAD GUIDELINES:

2.1 To provide a balanced and sequential program that addresses the strands as set out in the CSF II.

2.2 To ensure the use of inclusive teaching and learning strategies.

2.3 The need for professional development will be determined and addressed annually.

To develop in students:

2.4 Skills that promote inquiry learning such as observing, questioning, investigating, hypothesising, recording and analysing.

2.5 Knowledge central to life and living, natural and processed materials, earth and beyond and the physical world.

2.6 An understanding of the 'investigate, design, produce and evaluate' approach

2.7 Knowledge and skills associated with information, systems and materials technology.

3.0 IMPLEMENTATION:

Programs will ~

3.1 **Involve students in their learning** by:

- doing hands-on, inquiry-based activities
- working both cooperatively and individually
- using concrete materials to stimulate curiosity and interest
- linking new knowledge to prior knowledge
- reflecting on understanding

3.2 Incorporate the delivery of the CSF II outcomes through the use of the 545 Integrated Studies Two Year Planner (*see appendix 1*)

3.3 Use Information technology as a learning tool wherever applicable
Nb: refer to 545 Learning Technology Scope & Sequence document

3.4 Be supported by Family Science Nights, visiting shows, communication to the school community

3.5 Be enhanced by staff and team PD sessions as well access to outside professional development.

4.0. RESOURCES

4.1 The management and provision of resources is the responsibility of the Science and Technology Committee. Borrowing procedures will be clearly defined. The purchasing plan will be determined by teacher's need and by the projected integrated units for the year.

4.2 Staff will have access to consumable resources that are currently housed in the science and technology storeroom

5.0. EVALUATION

5.1 Reviews will be conducted according to the school cyclic plan.

5.2 **Assessment of students** will focus on the skills (*See appendix2*) rather than knowledge involved in Science and Technology. Assessment tasks should be included in all unit plans.

5.3 Assessment activities include:-

observation	discussion	checklists	recorded work
experiments	presentations	self-evaluation	anecdotal records
CSF 11 annotated work samples			

5.4 Assessment in technology will be centred on the four phases ~ investigating, designing, producing, evaluating.

(For assessment strategies see Appendix 3)

6.0 REFERENCES

STEPS

Science Alive

Helix Magazines

Scientrific magazines

Science Trek

Primary Investigations (Teacher Resources)

Technology: Annotated Work Samples

Reading Room:

Foundations

Horizons (hanging bags)

Infoactive

Informazing

Infotexts

Software

CSF 11 Annotated work samples CDs

Kidspiration P-4

Inspiration 5/6

curriculum@work

Websites

www.enchantedlearning.com
www.educationonline
www.abc.net.au/science
www.gould.edu.au
www.csiro.au/helix
www.bbc.co.uk/nature/blueplanet/

APPENDIX 1 Integrated Studies Two Year Planner

KLA	Odd Years	Even Years
SCIENCE	<input type="checkbox"/> Chemical Sciences <ul style="list-style-type: none"> ▪ Substances: structure, properties and uses ▪ Reaction and change <input type="checkbox"/> Earth and Space sciences <ul style="list-style-type: none"> ▪ The changing Earth ▪ Our place in space 	<input type="checkbox"/> Biological science <ul style="list-style-type: none"> ▪ Living together: past, present and future. ▪ Structure and function <input type="checkbox"/> Physical sciences <ul style="list-style-type: none"> ▪ Energy and its uses ▪ Forces and their effects
SOSE- Level 1-3	Society and Environment- Level 1-3; <i>In the early years of schooling SOSE explores all the following concepts;</i>	
	<u>Geography</u> -significant features of natural and urban environments	<u>Civics and citizenship</u> -Democratic values, law making (including rule making), opportunities for participation, rights and responsibilities of citizens <u>Economics</u> -general ideas related to the nature of transactions, resource use, and the nature of work and business
	<u>History</u> -relevant periods, events and people in Australia's past and present. <u>Culture</u> -Traditions of the various communities within Australian society	
SOSE- Level 4	<u>Geography(level 4)</u> <ul style="list-style-type: none"> ▪ significant features of natural and urban environments. ▪ interaction between people and environments • distribution of human and natural phenomena over the surface of the earth. 	<u>Economy and Society(level 4)</u> <ul style="list-style-type: none"> • structure and management of the economy and its resources, • the world of work and business, ▪ Australia's political and legal systems.
	<u>History(level 4)</u> <ul style="list-style-type: none"> ▪ History at level 4 is extended to include the study of an Asian country to develop students' understanding of the similarities and differences between it and Australia. 	
HEALTH	<input type="checkbox"/> Health of Individuals <ul style="list-style-type: none"> ▪ Promotion of health and well-being and prevention of illness and injury. ▪ Access to health information, products and services. ▪ Social skills ▪ drug education. 	<input type="checkbox"/> Self and Relationships <ul style="list-style-type: none"> ▪ Human development (level 3 and 4) ▪ Identity ▪ Developing and maintaining relationships ▪ Social skills ▪ drug education.

TECHNOLOGY	<i>Materials and Movement (level 1-3)</i>	
	<i>Information (level 1-4)</i>	
	<i>Materials(Level4)</i>	<i>Systems(level 4)</i>

APPENDIX 2

Overview of assessment in Science

Assessing the full range of learning outcomes in CSF II Science requires a variety of assessment strategies as achievement in different types of learning outcomes may be demonstrated in different ways. The following table summarises the broad range of competencies inherent in Science learning outcomes and curriculum focus statements, when they can be assessed, suitable forms of assessment and recording methods.

What?	When?	How?	Recording
Science knowledge: <ul style="list-style-type: none"> • biological sciences • chemical science • earth and space sciences • physical science 	<ul style="list-style-type: none"> • Ongoing during and after Science lessons • On completion of units • On completion of projects or practical investigations 	<ul style="list-style-type: none"> • Teacher-designed tests • Observation • Student work samples • Oral reports • Talking with students • Diagnostic tasks • Student designed tests • Self-assessment • Modelling 	<ul style="list-style-type: none"> • Anecdotal records • Annotated class lists • Content-related checklists • Science journals • Cumulative checklists • In KIDMAP • Photographs
Application of scientific knowledge: <ul style="list-style-type: none"> • explaining • predicting 	<ul style="list-style-type: none"> • Ongoing during and after Science lessons • On completion of units • During class discussions 	<ul style="list-style-type: none"> • Teacher designed tests • Concept mapping • Open-ended questions • Problem-solving activities • Debates 	<ul style="list-style-type: none"> • Anecdotal records • Annotated class lists • Checklists specific to applications • Student folios containing samples of student work
Science process skills: <ul style="list-style-type: none"> • identifying • classifying • investigating • analysing • testing • collecting • recording data • measuring • reasoning • drawing conclusions 	<ul style="list-style-type: none"> • During and after practical sessions • When planning and during investigations • During and after excursions 	<ul style="list-style-type: none"> • Observation • Practical tests • Fieldwork • Bundling activities • Practical investigations • Surveys and interviews • Practical reports • Design tasks 	<ul style="list-style-type: none"> • Annotated class lists specific to processes identified • Anecdotal records • Folio of student practical reports • Video, audio recordings
Scientific attitudes: <ul style="list-style-type: none"> • flexibility • curiosity • respect for evidence • critical reflection 	<ul style="list-style-type: none"> • Ongoing during and after Science lessons • During individual and group projects 	<ul style="list-style-type: none"> • Science journals • Questionnaires • Talking informally with students • Practical reports • Library research tasks 	<ul style="list-style-type: none"> • Anecdotal records detailing attitudes • Folio of student practical reports • Checklist specific to attitudes listed

<p>Scientific communication:</p> <ul style="list-style-type: none"> • appropriate language • to a range of audiences 	<ul style="list-style-type: none"> • Ongoing during discussions • Following completion of project reports • During individual or group presentations 	<ul style="list-style-type: none"> • Oral presentations • Practical reports • Drawing • Research project reports • Role-plays, performances • Peer-assessment • Creative writing 	<ul style="list-style-type: none"> • Video, audio recordings • Anecdotal records • Folio of student practical and research reports
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APPENDIX 3 Technology Assessment Tasks

<p>When investigating, students may be involved in:</p>	
<p>Writing</p> <ul style="list-style-type: none"> • Reports • Newsletters • Books • Stories • Activity sheets • Concept maps • Letters to resource groups • Letters on e-mail • An Internet homepage • Instructions • Lists • Safety rules • Questionnaires • Projects <p>Reports</p> <ul style="list-style-type: none"> • Written reports • Verbal reports • Pictorial reports • Reports using electronic media <p>Vocabulary</p> <ul style="list-style-type: none"> • Glossaries • Lists • Definitions <p>Explaining</p> <ul style="list-style-type: none"> • How a system works • Why materials are suitable for particular purposes 	<p>Resources</p> <ul style="list-style-type: none"> • Use written resources • Use the Internet • Use CD-ROMs and software programs • Use videos and audio cassettes <p>Presentations</p> <ul style="list-style-type: none"> • Investigation findings • Interviews • Debates • Displays • Audio presentation • Visual presentation (electronic) • Plays • Role-plays • Performances <p>Research</p> <ul style="list-style-type: none"> • Library research • Small group research • Independent research • Conduct surveys and interviews • CD-ROM research • Internet research <p>Computer</p> <ul style="list-style-type: none"> • Use computer programs • Access the Internet • Send an e-mail • Print out investigation • Store investigation data • Use a computer software and hardware
<p>When designing, students may be involved in:</p> <p>Graphic skills</p> <ul style="list-style-type: none"> • Presenting designs • Drawing design ideas • Posters • Collages • Murals • Drawings • Plans • Flow charts • Maps • Diagrams • Annotations • Labelled diagrams • Tables • Graphs • Paintings • Label • Symbols <p>Presentations</p> <ul style="list-style-type: none"> • Design folio • Choices of materials for design • Design plans to a set format 	<p>Writing</p> <ul style="list-style-type: none"> • Design briefs • Design plan • Design ideas • Evaluation criteria • Materials list • Budget <p>Verbal</p> <ul style="list-style-type: none"> • Explain design choices • Describing design <p>Computer skills</p> <ul style="list-style-type: none"> • Computer skills to present design plans • Explore computer programs • Investigate layouts • Graphics program to design a system • Generate design ideas • Simulate how designs will work <p>Practical skills</p> <ul style="list-style-type: none"> • Create prototypes • Create 3-D models • Test materials • Test techniques

• Presentation of preferred design solution	
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<p>When producing, students may be involved in:</p> <p>Practical skills</p> <ul style="list-style-type: none"> • Make models and prototypes • Follow design plans to make products • Dismantle and assemble systems • Create a display <p>Plans</p> <ul style="list-style-type: none"> • Follow design plans • Plans showing sequences • Production plans • Flow charts <p>Tools and equipment</p> <ul style="list-style-type: none"> • Use tools and equipment in production • Develop skills in using tools and equipment • Use equipment safely • Maintain and pack away equipment • Manipulate materials • Join materials <p>Demonstrate</p> <ul style="list-style-type: none"> • How to use tools and equipment • How to maintain equipment and tools • Production skills and processes • Safe practices • How to use a computer software 	<p>Computers</p> <ul style="list-style-type: none"> • Generate information products • Using computer programs • Use CD-ROMs to create information products • Produce information for the Internet • Send an e-mail • Use word-processing programs • Use graphics programs • Use multimedia programs • Computer simulations • Produce a data base • Simulate how their model will work <p>Electronic equipment</p> <ul style="list-style-type: none"> • Use a video camera to produce a video • Use a camera to produce a photographic record • Record on audio cassette <p>Safety</p> <ul style="list-style-type: none"> • Using equipment and tools safely • Using materials safely • Record safety rules
<p>When evaluating, students may be involved in:</p> <p>Explaining</p> <ul style="list-style-type: none"> • Characteristics of materials • Creating an information product • Use of tools or equipment • Maintenance of tools and equipment • Production methods • Product function • Answer questions <p>Presentations</p> <ul style="list-style-type: none"> • Present products to an audience • Demonstrate how product works • Conduct a board meeting • Discuss products with the class <p>Tests</p> <ul style="list-style-type: none"> • Test products against criteria • Test function of products • Record test results • Test effectiveness of products 	<p>Assessing</p> <ul style="list-style-type: none"> • Complete evaluation proformas • Judge products against designs. • Use design criteria to choose the best design solution • Conduct market research • Conduct interviews • Conduct surveys • Assess whether products are suitable for intended audience • Compare products to commercial designs • Record how design was modified or improved <p>Computer skills</p> <ul style="list-style-type: none"> • Fill in evaluation proforma on computer <p>Writing</p> <ul style="list-style-type: none"> • Evaluations • Self-evaluation