



STRATEGIC MANAGEMENT PLAN

INTEGRATION OF ICT

2008 TO 2012

Information Technology Committee

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CONTENTS

- 1 Executive Summary
- 2 Introduction to St Philomena's School Moree
- 3 Overview of St Philomena's Strategic ICT Management Plan
- 4 Current situation
 - a ICT staff
 - b Network
 - c Internet
 - d Hardware
 - e Software
 - f Staff development
 - g School ICT culture
 - h ICT and the curriculum
 - i Technical support
- 5 Strategic Plan
- 6 Staff Development

1 Executive Summary

Schools are now educating a generation of students who are growing up in a digital world. As the use of ICT continues to grow globally, students will increasingly demand an education that embraces ICT. The remote and disadvantaged nature of the community in which St Philomena's is located means that the school has an obligation to students and teachers to provide a supportive and progressive approach to ICT.

As part of the St Philomena's School Strategic Management Plan, the following Intent Statement needs to be addressed:

“The school has an effective and efficient model for ensuring the integration of ICT into student learning.”

Definition of IT/ICT

Information technology is defined as the processes, applications and equipment by which we access, organise, analyse, evaluate and present information.

*ICT means **Information and Communication Technologies**. It is the standard term used in the EEC and is becoming the preferred term in Australia. It isn't just about computers, it's calculators, PDAs, digital cameras, scanners, video cameras, MP3 players, the internet, digital data logging, etc.*

2 Introduction to St Philomena's School Moree

St Philomena's is a Central (K-10) School located in Moree, north-west New South Wales. St Philomena's is a co-educational school currently enrolling approximately 500 students of which 175 are enrolled in Years 7-10. It is the only Catholic high school in a large regional Catholic community and so attracts students from a number of feeder schools.

St Philomena's Mission Statement is *to provide students with a catholic education in a caring, disciplined environment where striving for excellence and respect for others.*

3 Overview of St Philomena's Strategic ICT Management Plan

The Strategic Plan has been developed in accordance with the 2006 school ICT Policy and in view of current developments and trends in ICT. It takes into account that current technologies are becoming obsolete at a rapid rate and that the school will need to remain flexible in order to accommodate changes as they emerge. The Strategic Plan will be constantly reviewed when and as new technologies emerge, as well as new teaching pedagogies that address ICT in the curriculum.

4 Current situation

a Network

School, Administration, Library and Student networks have been set up and are managed by Armidale Diocese CSO with minimal input from school staff. Network administration is mostly conducted remotely by the Diocesan IT administrators. On site network administration is conducted by Administration staff. There are no regular scheduled visits to the school to administer the network by CSO ICT staff.

The School network topology consists of optical fibre running from the main server located in the school administration area to the Primary, Secondary and Library areas. Subsidiary servers are located in the Primary and Secondary computer laboratories with Cat 5E data cabling running from these servers to classrooms. LAN provision to the music, PDHPE and drama classrooms (Wiradjuri building) is through a 100 MB wireless link.

Network software is

There are differing levels of access to the network.

- Executive staff
- Teaching and auxiliary staff
- Students

Teaching staff are unable to place resources, for example worksheets or stimulus material onto the student server directly and have to provide this material to the ICT coordinator to be placed onto the student server. The nature of the network is such that staff are not able to access different levels from one workstation but rather have to use different computers to do so.

On enrolment in the school, students are allocated a username and password which are identical. The username/password is simply the student's first and second initial and surname e.g. ajbloggs.

b ICT Staff - Secondary

St Philomena's does not employ any staff with a sole responsibility for ICT. The current situation is that a full-time teacher takes responsibility for ICT in the following ways:

- Teach Year 9/10 Information and Software Technology elective
- Teach Stage 4 Technology (Mandatory)
- Contact person for service difficulties and faults in Secondary
- Low order repair and on-going maintenance of school ICT assets
- Liaise with CSO ICT staff when necessary to correct problems.

A part-time technology assistant is employed on a casual basis to carry out some technical repairs and maintenance on school ICT assets in the Primary department.

c Internet

The school is connected to the internet via a 2 MB broadband internet connection provided by (unknown ISP). All users have access to the internet upon login to the school network. Content filtering is managed by the CSO.

d Hardware

i Computers

At present there are two computer laboratories within the school – one in the Primary department and one in the Secondary department. In addition to this, there are a small numbers of computers co-located within primary and secondary classrooms and the school library, available for student use. All computers use MS Windows XP as the operating system.

Each computer laboratory has a wide-screen television which is linked to the teacher's computer via a coaxial cable. These are used to illustrate teaching and learning points, but are not effective as the small size of the screen and poor resolution mean that most students are not able to see what is on the screen.

Two laptops are available for use by staff to assist in curriculum development as well as in classroom lessons.

ii ***Smartboards***

There are currently two Smartboard electronic whiteboards available for use: one in the Primary and one in the Secondary departments. These have been used extensively by a small number of staff trained in their use with great success as a teaching aide.

iii ***Other Hardware resources***

There are three data projectors available for use within the school. They are located in the main office area and teacher staffrooms.

There are nine digital still cameras which are used by teachers and students.

Two scanners are connected to the Secondary lab and one in the Primary lab.

e **Software**

The majority of computers operate with Windows XP as the operating system with an increasing number of machines using Vista. The main software application suite is MS Office 2003 Professional. MS Office 2007 is being introduced to the school alongside Vista.

Software currently used within the school includes:

- RISC student welfare monitoring package
- PEEL database
- ClickView digital video library
- Vision Controller
- Subject specific software
- MS Office 2003/7 packages
- Reporter Pro student reporting package
- First Class timetabling package

f **Staff development**

Most staff have undertaken professional development for ICT curriculum integration, ICT related pedagogy and teacher ICT skills however this is generally in an ad hoc manner.

The school provides inservice training in ICT during a Pupil Free Day each year.

An increasing number of staff are implementing ICT integrated curriculum and developing ICT related activities at the classroom level.

g **School ICT culture**

There is a willingness by staff to accept ICT, however, a low degree of personal expertise and confidence with both hardware and software prevents a

more effective use of the resources. Unreliability of equipment has also discouraged many staff from greater use of ICT resources. There is a large use of the Internet by both staff and students as a research tool and also by staff for dissemination of information eg staff bulletins.

The School website is promoted through the School Newsletter and is a useful tool for providing information about the school.

h ICT and the curriculum

ICT is integrated into the curriculum at the planning, implementation and assessment stages where possible.

Students are encouraged to use ICT resources in researching and completing assessment tasks.

Staff are encouraged to use ICT both in the planning stages and throughout lessons wherever possible or practical.

i Technical Support

Technical support is provided remotely through Armidale CSO. A part-time assistant has been employed on occasion to provide technical support such as repairs to school hardware or installing software. Network administration is conducted remotely with infrequent visits to the school from ICT staff based in Armidale.

5 Strategic Plan

a ICT Vision

Given the remote location of St Philomena's, the school intends to utilise ICT as fully as possible in order to maximise the learning opportunities for our students and enable teaching staff to provide the students in their care with as wide a range of educational opportunities as possible.

The ICT capabilities of students will be increased and enhanced through continual exposure to and use of ICT in all areas of the curriculum. The ratio of computers to students will be increased to equal, if not better, the federally mandated ratio of 1:2. In addition, an ongoing program of repair and replacement will see the average age of assets decrease from 5 years to 3 years.

The use of computers in general classrooms, in addition to the current laboratories, will be encouraged. The obsolete units currently in general classrooms will be replaced with modern, reliable equipment. Access to computers that are capable of functioning on demand will serve to improve the usage rate of ICT within classrooms on a daily basis.

In addition to increasing the quantity and quality of computer workstations available for student use in laboratories and classrooms, greater use of electronic whiteboards/smartboards will be made. Additional smartboards are to be purchased and placed in classrooms in order to maximise learning opportunities during classes. Other ICT resources including digital still and video cameras will be upgraded or purchased so that both students and staff will be able to fully explore ICT opportunities within the curriculum.

Staff ICT capabilities are to be enhanced through ongoing mandatory and voluntary professional development as well as other measures including membership of the NSW Country Areas Program. Staff will be encouraged to work together to share expertise in ICT as well as develop teaching and learning programs that reflect the importance of ICT in modern life. Strategies to be employed include team teaching, classroom visitations as well as team development of integrated curricula that maximise ICT opportunities for students.

b ICT Audit

An audit of ICT assets in St Philomena's is underway.

c Identification of required resources

A range of ICT resources are required in order to develop an ICT-friendly culture at St Philomena's. These include additional:

- i Computers,
- ii Electronic whiteboards,
- iii Digital still and video cameras, and
- iv Data projectors.

At present the ratio of computers to students is close to 1:2. However, the average age and condition of the computers available to both students and staff means that many are unreliable or unable to be used to run modern software applications. New computers are required to replace the obsolete or underpowered units that are currently in use so as to make the most of educational and general software applications that are available.

Additional smartboards are urgently required. At present there is only one smartboard available to secondary students. Teachers and students use this board extensively and have commented frequently on the need for additional units, in particular in the Science classrooms. Given that there is only one board available for use, students and staff have not been given many opportunities to develop their skills in using this valuable resource and as a result the level of expertise is limited.

Digital cameras are currently used within the school however as they are relatively old they will need to be upgraded in the near future. In addition a

digital video camera would be utilised extensively by a range of faculties including Drama, PDHPE and LOTE.

Data projectors are required in the computer laboratories to replace the current television screens that are intended for use to demonstrate teaching points.

d School ICT Capacity

At present there is adequate physical capacity within the school to house the additional resources that are required. The school is fully airconditioned with a combination of evaporative and refrigerative systems.

The school LAN consists of an optical fibre backbone with Cat 5E cabling distributed throughout the classrooms. Installation of additional smartboards will require additional data cabling as well as upgrading switches and network servers in the secondary department. In addition to this, the arrangements for housing servers and switches in the secondary department need to be revised as the current location and physical size of the cabinets are unsuitable.

The school has a comprehensive electronic security system in place to detect and deter intruders. In addition access to the great majority of secondary classrooms is physically restricted after hours through security gates that are locked at the conclusion of each day and on weekends. Cyber security is provided through the Armidale CSO as well as installation of LAN antivirus software.

6 Staff Development

It is recognised that staff ICT development is an ongoing process as skills learnt today may well be obsolete in six month's time. All staff are encouraged to develop their knowledge and understanding of current and future ICT trends as part of their individual professional development. Information regarding ICT inservices and conferences is distributed to all staff when it becomes available. The school will continue to develop staff ICT skills through the use of one pupil free day per year.

St Philomena's has become a member of the NSW Country Areas Program for remote and disadvantaged schools. This program stresses the need for ongoing innovative development of curriculum that reflects the ICT intense world we are part of. Staff are able to access professional development as well as teaching and learning resources through CAP as well as its associated website.

To assist in developing the effectiveness of school ICT staff there needs to be more intensive contact between them and the Diocesan ICT team. Greater understanding of the operation and maintenance of the school network by school staff will allow for improved outcomes at all levels.

The ICT Committee at St Philomena's plans to realise its current ICT goals by 2009. Beyond this year, the inception of the plan could lead to the

introduction of outdated technology. A full revision of ICT developments and a consideration of alternative technologies would be essential to avoid a delay in delivering resources that would satisfy staff, students and curricula to realistic world standards.

A timeframe for implementation of the strategic plan is attached at Annexure A.

ANNEXURE A

Timeframe for Implementation

Item	To be completed by	Comments
Purchase of new computers	December 2008	Time and quantity dependent on funding. Implementation of progressive modernisation/replacement program dependent on recurrent funding.
Replacement of PCs in classrooms	December 2008	Old units from computer lab to replace obsolete and damaged equipment in classrooms. Placement of computers in rooms in addition to evaluation of teaching/learning programs to be reconsidered in order to encourage ongoing use.
Purchase and installation of additional smartboards into general classrooms	June 2009	Quantity dependent on financial constraints. All staff to receive inservice training in smartboard use as well as provision of refresher training.
Upgrade LAN access to classrooms for smartboard installation	June 2009	Installation of data point adjacent to smartboard currently in R2.
Installation of data projector in secondary computer lab	June 2009	
ICT inservice training	Ongoing	Access to ICT conferences/training days/classroom and school visits as available. Staff professional development in best practice pedagogies to be ongoing as part of regular staff meetings.

St Philomena's School Moree



Draft Computer Skills

7-10

Mapping of Information and Communications Technologies in Revised Mandatory Stages 4 and 5 Syllabuses

English

Stage 4

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
1	A student responds to and composes texts for understanding, interpretation, critical analysis and pleasure	1.16 Students learn about: conventions associated with generic definitions of literary, film, television and other multimedia, information, everyday and workplace texts	p 20
1	A student responds to and composes texts for understanding, interpretation, critical analysis and pleasure	1.8 Students learn to: graphically represent aspects of texts such as the storyline of a novel or film, the structure of a poem, the set of a play, and links in a webpage	p 20
11	A student uses, reflects on and assesses individual and collaborative skills for learning	11.14 Students learn about: research techniques using books, indexes and the internet	p 30
3	A student responds to and composes texts in different technologies	3.1 Students learn to: use the features of information and communication technologies to compose a range of imaginative, critical and factual texts for television, the internet, radio, email and text messaging	p 22

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
3	A student responds to and composes texts in different technologies	3.10 Students learn about: technologies, software and their functions appropriate for particular tasks in English	p 22
3	A student responds to and composes texts in different technologies	3.11 Students learn about: etiquette and ethical behaviour associated with email and internet use	p 22
3	A student responds to and composes texts in different technologies	3.3 Students learn to: use the features of information and communication technologies, including word processing, importing and manipulating of graphics, and formatting to compose a variety of texts for different purposes and audiences	p 22
3	A student responds to and composes texts in different technologies	3.4 Students learn to: respond to interactive and simulation texts in print form and on computer to plan, design and investigate a situation	p 22
3	A student responds to and composes texts in different technologies	3.5 Students learn to: use the tools of word processing (including find and replace, word counts, insert page numbers and page breaks, spellcheck and thesaurus functions) for composing.	p 22
3	A student responds to and composes texts in different	3.6 Students learn about: the ways different modes work together to shape	p 23

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
	technologies	meaning in multimedia texts such as film, CD-ROM, websites and television	
3	A student responds to and composes texts in different technologies	3.7 Students learn about: technical features of audio and visual recording, word processing, graphics and formatting used for composing texts	p 22
3	A student responds to and composes texts in different technologies	3.8 Students learn about: terminology associated with responding to and composing information and communication technology (ICT) texts	p 22
3	A student responds to and composes texts in different technologies	3.9 Students learn about: the forms, features and structures of interactive and simulation texts, multimedia texts and websites, including layout and design, and the nature and capacity for interaction	p 22
4	A student uses and describes language forms and features, and structures of texts appropriate to different purposes, audiences and contexts	4.11 Students learn about: the interaction of different language modes and different media to create meaning in multimodal texts	p 23
6	A student draws on experience, information and ideas to imaginatively and	6.2 Students learn to: compose a range of imaginative texts including narrative, poetry,	p 25

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
	interpretively respond to and compose texts	instructions, scripts, advertisements and websites	
6	A student draws on experience, information and ideas to imaginatively and interpretively respond to and compose texts	6.8 Students learn about: the ways 'the real world' is represented in the imaginary worlds of texts including literature, film, media and multimedia texts	p 25

Stage 5

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
10	A student questions, challenges and evaluates cultural assumptions in texts and their effects on meaning	10.8 Students learn about: the effects of personal, social, historical and technological perspectives on language and communication	p 41
11	A student uses, reflects on, assesses and adapts their individual and collaborative skills for learning with increasing independence and effectiveness	11.4 Students learn to: choose learning processes, resources and technologies appropriate for particular tasks and situations	p 42
3	A student selects, uses, describes and explains how different technologies affect and shape meaning	3.1 Students learn to: respond to and compose increasingly complex texts in different technologies considering the effects of the technology including layout and design on	p 34

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
		meaning	
3	A student selects, uses, describes and explains how different technologies affect and shape meaning	3.2 Students learn to: identify and critically evaluate the ways information, ideas and issues are shaped by and presented through technology	p 34
3	A student selects, uses, describes and explains how different technologies affect and shape meaning	3.3 Students learn to: use advanced word processing tools including formatting of references and bibliographies, formatting multiple page documents including weblinks, importing data from internet and manipulating images to compose and format texts for different purposes, audiences and contexts, including the workplace	p 34
3	A student selects, uses, describes and explains how different technologies affect and shape meaning	3.4 Students learn to: evaluate the impact on contemporary society of multimedia texts and information and communication technologies and speculate on future developments	p 34
3	A student selects, uses, describes and explains how different technologies affect and shape meaning	3.5 Students learn about: different techniques used to compose multimedia texts	p 34

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
3	A student selects, uses, describes and explains how different technologies affect and shape meaning	3.6 Students learn about: the ways in which modern technologies of communication are used to inform, persuade and entertain	p 34
3	A student selects, uses, describes and explains how different technologies affect and shape meaning	3.7 Students learn about: the ways in which modern technologies of communication are used to shape, adapt and re-present past and present cultures, including popular culture and youth cultures, for particular audiences	p 34
3	A student selects, uses, describes and explains how different technologies affect and shape meaning	3.8 Students learn about: advanced tools and uses of information and communication technologies including references, bibliographies, formatting multiple page documents, weblinks, importing data from the internet and manipulating images	p 34
3	A student selects, uses, describes and explains how different technologies affect and shape meaning	3.9 Students learn about: the nature, scope and ethical use of information and communication technologies in contemporary society	p 34
8	A student investigates the relationships between and among texts	8.11 Students learn about: the patterns of texts composed in different modes, media and multimedia	p 39

Geography

Stage 4

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
4.1	A student identifies and gathers geographical information	Stage 4 requires students to develop and refine search techniques using the internet (suggested for 4G1)	pp 11, 25 26
4.2	A student organises and interprets geographical information	Stage 4 requires students to collect and interpret electronic information (suggested for 4G2)	pp 11, 25, 28
4.3	A student uses a range of written , oral, and graphic forms to communicate geographical information	Stage 4 requires students to create a desktop published document for a specific audience (suggested for 4G1)	pp 11, 25, 26
4.3	A student uses a range of written , oral, and graphic forms to communicate geographical information	Stage 4 requires students to practise ethical behaviour when using email and the internet (suggested for 4G3)	pp11, 25, 30
4.3	A student uses a range of written , oral, and graphic forms to communicate geographical information	Stage 4 requires students to design and create a multimedia presentation (suggested for 4G2)	pp 11, 25, 28
4.3	A student uses a range of written , oral, and graphic	Stage 4 requires students to use a range of digital images, maps, sound and	pp 11, 25,

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
	forms to communicate geographical information	other appropriate multimedia sources to develop a multimedia presentation or web page (suggested for 4G4)	32
4.3	A student uses a range of written , oral, and graphic forms to communicate geographical information	Stage 4 requires students to use email for a specific geographical purpose (suggested for 4G3)	pp 11, 25 , 30

Stage 5

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
5.1	A student identifies, gathers and evaluates geographical information	Stage 5 requires students to import data from other ICT applications into student research findings (suggested for 5A2)	pp 11, 35, 38
5.2	A student analyses, organises and synthesises geographical information	Stage 5 requires students to access, collect and interpret electronic information (suggested for 5A4)	pp11, 35, 42
5.2	A student analyses, organises and synthesises geographical information	Stage 5 requires students to critically analyse a website, including the ethics of the site (suggested for 5A4)	pp 11, 35, 42
5.2	A student analyses, organises and synthesises	Stage 5 requires students to design and create a simple database from	pp 11, 35,

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
	geographical information	student research (suggested for 5A2)	38
5.3	A student selects and uses appropriate written, oral, and graphic forms to communicate geographical information	Stage 5 requires students to create a formatted, multiple paged document containing web links to communicate geographical information (suggested for 5A1)	pp 11, 35, 36
5.3	A student selects and uses appropriate written, oral, and graphic forms to communicate geographical information	Stage 5 requires students to design and create a multimedia presentation or web page to communicate geographical information to a particular audience, including maps and diagrams as appropriate (suggested for 5A3)	pp 11, 35, 40

History

Stage 4

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
4.10	A student selects and uses appropriate oral, written and other forms, including ICT, to communicate effectively about the past	Topic 1. ICT skills appropriate for this topic may include: draw conclusions about the usefulness of sources for an historian, including a website	p 22
4.10	A student selects and uses appropriate oral, written and other forms, including ICT, to communicate effectively about the past	Topic 2. ICT skills appropriate for this topic may include: communicate effectively about the past through a desktop published document	p 24
4.10	A student selects and uses appropriate oral, written and other forms, including ICT, to communicate effectively about the past	Topic 3 identify origin, purpose and context of historical sources, including ICT sources	p 26
4.10	A student selects and uses appropriate oral, written and other forms, including ICT, to communicate effectively about the past	Topic 3. ICT skills appropriate for this topic may include: choose appropriate software relevant for historical research	p 26
4.10	A student selects and uses appropriate oral, written and other forms, including ICT, to communicate effectively about the	Topic 3. ICT skills appropriate for this topic may include: practise ethical behaviour when using the internet during	p 26

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
	past	an historical inquiry	
4.8	A student locates, selects and organises relevant information from a number of sources, including ICT, to conduct basic historical research	Topic 2. ICT skills appropriate for this topic may include: use an image bank to gather relevant images for an historical inquiry	p 24
4.8	A student locates, selects and organises relevant information from a number of sources, including ICT, to conduct basic historical research	Topic 2. ICT skills appropriate for this topic may include: locate, select and organise information from a range of sources, including a website	p 24
4.8	A student locates, selects and organises relevant information from a number of sources, including ICT, to conduct basic historical research	Topic 4. ICT skills appropriate for this topic may include: locate, select and organise information, including computer-based sources	p 29
4.8	A student locates, selects and organises relevant information from a number of sources, including ICT, to conduct basic historical research	Topic 4. ICT skills appropriate for this topic may include: communicate effectively in an historical inquiry using appropriate ICT	p 29
4.8 and 4.10	A student locates, selects and organises relevant information from A number of sources, including ICT, to conduct basic historical research. A	In Stage 4 Mandatory, students will: demonstrate their skills in evaluating the usefulness of a website as an historical resource; build on already developed generic	p 17

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
	student selects and uses appropriate oral, written and other forms, including ICT, to communicate effectively about the past	research skills of accessing, collecting, retrieving and interpreting electronic information to the stage where they can use an image bank as a resource for historical research; demonstrate their ability to design and create a desktop-published document to communicate their understanding of history; practise ethical behaviour when using the internet	

Stage 5

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
		Topic 4. ICT skills appropriate for this topic may include: create a formatted, multi-paged document as part of an historical inquiry	p 36
		Topic 5. ICT skills appropriate for this topic may include: select suitable software to present a research task using ICT.	p 38
5.10	A student selects and uses appropriate oral, written and other forms, including ICT, to communicate effectively about the	Topic 2. ICT skills appropriate for this topic may include: identify, comprehend and use historical sources, including a database/website, as	p 32

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
	past for different audiences	part of an historical enquiry	
5.10	A student selects and uses appropriate oral, written and other forms, including ICT, to communicate effectively about the past for different audiences	Topic 6. ICT skills appropriate for this topic may include: select appropriate computer-based applications, eg Publisher, PowerPoint, to communicate the results of an historical inquiry	p 40
5.10	A student locates, selects and organises relevant historical information from a number of sources, including ICT, to undertake historical inquiry	Topic 7. ICT skills appropriate for this topic may include: use knowledge, understandings and relevant evidence to create an appropriate historical text, using ICT	p 42
5.8	A student locates, selects and organises relevant historical information from a number of sources, including ICT, to undertake historical inquiry	Topic 1. ICT skills appropriate for this topic may include: comprehend and use historical sources, including a website locate, select and organise historical information from a variety of sources, including ICT	p 30
5.8	A student locates, selects and organises relevant historical information from a number of sources, including ICT, to undertake historical inquiry	Topic 6. ICT skills appropriate for this topic may include: locate, select and organise historical information from relevant websites for the purpose of an historical investigation	p 40

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
5.8	A student locates, selects and organises relevant historical information from a number of sources, including ICT, to undertake historical inquiry	Topic 7. ICT skills appropriate for this topic may include: use knowledge, understandings and relevant evidence to create an appropriate historical text, using ICT	p 42
5.8 and 5.10	A student locates, selects and organises relevant historical information from a number of sources, including ICT, to undertake historical inquiry. A student selects and uses appropriate oral, written and other forms, including ICT, to communicate effectively about the past for different audiences	In Stage 5 History Mandatory, students will: continue to develop their skills in critically analysing a website and a range of historical texts including consideration of layout and design features; continue to develop skills in the collection and interpretation of electronic information for the purpose of historical enquiry; demonstrate their ability to create a formatted, multiple-paged document and to produce documents for particular audiences; practise ethical behaviour when using email or the internet; demonstrate their ability to select suitable hardware/software for a particular purpose.	p17

Languages

Stage 4 - Modern Languages only

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
4.UL.3	A student establishes and maintains communication in familiar situations	Students learn about - the use of information and communication technologies for communicative purposes	Syllabus section 7.5
4.UL.3	A student establishes and maintains communication in familiar situations	Students learn to - produce original text using information and communication technologies	Syllabus section 7.5
4.UL.4	A student applies a range of linguistic structures to express own ideas in writing	Students learn about - the use of information and communication technologies for communicative purposes	Syllabus section 7.5
4.UL.4	A student applies a range of linguistic structures to express own ideas in writing	Students learn to - produce original text using information and communication technologies	Syllabus section 7.5

Stage 4 - Modern and Classical Languages

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
4.MBC.2	A student demonstrates knowledge of key features of the culture of [LANGUAGE] speaking	Students learn about - collecting and interpreting electronic information, with	Syllabus section 7.5

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
	communities/anciant worlds	consideration of its ethical use, in order to identify and reflect on representations of culture	
4.MBC.2	A student demonstrates knowledge of key features of the culture of [LANGUAGE] speaking communities/anciant worlds	Students learn to - research and present information on [LANGUAGE]-speaking communities using a range of information and communication technologies, including CD-ROMs and the internet	Syllabus section 7.5

Mathematics

Stage 4

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
DS4.1	A student constructs, reads and interprets graphs, tables, charts and statistical information	Students learn to interpret data displayed in a spreadsheet	p 114
DS4.2	A student collects statistical data using either a census or a sample, and analyses data using measures of location and range	Students learn about using spreadsheets to tabulate and graph data	p 115
DS4.2	A student collects statistical data using either a census or a sample, and analyses data using measures of location and range	Students learn to use spreadsheets, databases, statistics packages, or other technology, to analyse collected data, present graphical displays, and discuss ethical issues that may arise from the data	p 115
PAS4.3	A student uses the algebraic symbol system to simplify, expand and factorise simple algebraic expressions	Students learn to interpret statements involving algebraic symbols in other contexts eg creating and formatting spreadsheets	p 85
PAS4.5	A student graphs and interprets linear relationships on the number plane	Students learn to use a graphics calculator and spreadsheet software to graph and compare a range of linear relationships	p 96

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
SGS4.2	A student identifies and names angles formed by the intersection of straight lines, including those related to transversals on sets of parallel lines, and makes use of the relationships between them	Students learn to use dynamic geometry software to investigate angle relationships	p 153
SGS4.3	A student classifies, constructs, and determines the properties of triangles and quadrilaterals	Students learn to use dynamic geometry software to investigate the properties of geometrical figures	pp 154, 156
SGS4.4	A student identifies congruent and similar two-dimensional figures stating the relevant conditions	Students learn to use dynamic geometry software to investigate the properties of geometrical figures	pp 154, 156

Stage 5

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
DS5.1.1	A student groups data to aid analysis and constructs frequency and cumulative frequency tables and graphs	Students learn to use spreadsheets, databases, statistics packages, or other technology, to analyse collected data, present graphical displays, and discuss ethical issues that may arise from the data	p 116

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
DS5.2.1	A student uses the interquartile range and standard deviation to analyse data	Students learn to use spreadsheets, databases, statistics packages, or other technology, to analyse collected data, present graphical displays, and discuss ethical issues that may arise from the data	p 116
NS5.1.2	A student solves consumer arithmetic problems involving earning and spending money	Students learn to compare employment conditions for different careers where information is gathered from a variety of mediums including the Internet eg employment rates, payment	p 70
NS5.1.2	A student solves consumer arithmetic problems involving earning and spending money	Students learn to interpret spreadsheets or tables when comparing simple interest and compound interest on an investment over various time periods	p 70
PAS5.1.2	A student determines the midpoint, length and gradient of an interval joining two points on the number plane and graphs linear and simple non-linear relationships from	Students learn to apply ethical considerations when using hardware and software	pp 97, 100

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
	equations		
PAS5.1.2	A student determines the midpoint, length and gradient of an interval joining two points on the number plane and graphs linear and simple non-linear relationships from equations	Students learn to use a graphics calculator and spreadsheet software to graph, compare and describe a range of linear and simple non-linear relationships	pp 97, 101
PAS5.2.2	A student solves linear and simple quadratic equations, solves linear inequalities and solves simultaneous equations using graphical and analytical methods	Students learn to write formulae for spreadsheets	pp 90
PAS5.2.2	A student solves linear and simple quadratic equations, solves linear inequalities and solves simultaneous equations using graphical and analytical methods	Students learn to use a graphics calculator and spreadsheet software to plot pairs of lines and read off the point of intersection	pp91
PAS5.2.3	A student uses formulae to find midpoint, distance and gradient and applies the gradient/intercept form to interpret and graph straight lines	Students learn to apply ethical considerations when using hardware and software	pp 97, 100
PAS5.2.3	A student uses formulae to find midpoint, distance and gradient and applies the	Students learn to use a graphics calculator and spreadsheet software to graph a	p 100

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
	gradient/intercept form to interpret and graph straight lines	variety of equations of straight lines, and compare and describe the similarities and differences between the lines	
PAS5.2.4	A student draws and interprets graphs including simple parabolas and hyperbolas	Students learn to use a graphics calculator and spreadsheet software to graph, compare and describe a range of linear and simple non-linear relationships	pp 97, 101
PAS5.2.5	A student draws and interprets graphs of physical phenomena	Students learn to use spreadsheets to generate examples of everyday graphs	p 105
PAS5.2.5	A student draws and interprets graphs of physical phenomena	Students learn to use technology such as data loggers to collect data for constant speeds and graph the data to compare and contrast graphs	pp105, 106
PAS5.3.3	A student uses various standard forms of the equation of a straight line and graphs regions on the number plane	Students learn to apply ethical considerations when using hardware and software	p 102
PAS5.3.3	A student uses various standard forms of the equation of a straight line and graphs regions	Students learn to use a graphics calculator and spreadsheet software to graph , compare and describe	p 102

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
	on the number plane	a range of linear relationships	
PAS5.3.4	A student draws and interprets a variety of graphs including parabolas, cubic, exponentials and circles and applies coordinate geometry techniques to solve problems	Students learn to draw and compare graphs using a graphics calculator and/ or a computer graphing package	p 103
PAS5.3.5	A student analyses and describes graphs of physical phenomena	Students learn to use technology such as data loggers to collect data for constant speeds and graph the data to compare and contrast graphs	pp105, 106
PAS5.3.6	A student uses a variety of techniques to sketch a range of curves and describes the features of curves from the equation	Students learn to use a graphics calculator and spreadsheet software to graph, compare and describe a range of polynomials	p 107
PAS5.3.7	A student recognises, describes and sketches polynomials, and applies the factor and remainder theorems to solve problems	Students learn to use a graphics calculator or software package to sketch polynomials of odd and even degree and investigate the relationship between the number of zeros and the degree of the polynomial	p 108

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
SGS5.2.2	A student develops and applies results for proving that triangles are congruent or similar	Students learn to use dynamic software to investigate the properties of geometrical figures	p 158
SGS5.3.1	A student constructs arguments to prove geometrical results	Students learn to use dynamic geometry software to investigate and test conjectures about geometrical figures	pp159, 160, 162
SGS5.3.2	A student determines properties of triangles and quadrilaterals using deductive reasoning	Students learn to use dynamic geometry software to investigate and test conjectures about geometrical figures	pp159, 160, 162
SGS5.3.3	A student constructs geometrical arguments using similarity tests for triangles	Students learn to use dynamic geometry software to investigate and test conjectures about geometrical figures	pp159, 160, 162

Music

Stage 4

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
4.6	A student experiments with different forms of technology in the composition process	Students learn to - explore forms of musical notation, including computer-based applications, as a method of recording their own musical ideas	p 24

PDHPE

Stage 4

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
4.8	A student describes how to access and assess health information, products and services	Students learn to analyse electronic and print sources of health information and describe specific cues that indicate their reliability and accuracy	p 29

Stage 5

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
5.5	A student composes, performs and appraises movement in a variety of challenging contexts	Students learn to enter performance data into a prepared spreadsheet template, format and analyse with consideration of ethical issues, eg use, interpretation and publication of data	p 36
5.6	A student analyses attitudes, behaviours and consequences related to health issues affecting young people	Students learn to use simulation software to make health decisions and solve problems relevant to young people, eg determining strategies that promote safe road use	p 38
5.7	A student analyses influences on health decision-making and develops strategies to promote health and safe behaviours	Students learn to identify a key issue for individual or group action. Raise awareness and gather support for the issue using ICT skills including a mailmerge	p 38

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
5.9	A student formulates goals and applies strategies to enhance participation in lifelong physical activity	Students learn to use the internet and other resources to locate information about opportunities for physical activity in the local area	p 40

Science

Stages 4 & 5

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
4.15	A student uses given criteria to gather first-hand data	Students learn to - 4/5.15 b) use independently a range of data collection strategies and technologies such as data loggers	p 41
4.16	A student accesses information from identified secondary sources	Students learn to - 4/5.16 a) use a range of sources, including databases, CD-ROMs and the internet, to access information	p 41
4.17	A student evaluates the relevance of data and information	Students learn to - 4/5.17 d) organise data using a variety of methods including diagrams, tables, spreadsheets and databases	p 42
4.17	A student evaluates the relevance of data and information	Students learn to - 4/5.17 g) apply mathematical concepts and computer based technologies to assist analysis of data and information	p 42
4.18	A student with guidance, presents information to an audience to achieve a particular purpose	Students learn to - 4/5.18 e) use drawings, diagrams, graphs, tables, databases, spreadsheets and flow charts to show relationships and present information clearly and/or succinctly	p 42
5.15	A student gathers first-hand data	Students learn to - 4/5.15 b) use independently a range of data collection	p 41

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
	accurately	strategies and technologies such as data loggers	
5.16	A student accesses information from a wide variety of secondary sources	Students learn to - 4/5.16 a) use a range of sources, including databases, CD-ROMs and the internet, to access information	p 41
5.17	A student explains trends, patterns and relationships in data and/or information from a variety of sources	Students learn to - 4/5.17 d) organise data using a variety of methods including diagrams, tables, spreadsheets and databases	p 42
5.17	A student explains trends, patterns and relationships in data and/or information from a variety of sources	Students learn to - 4/5.17 g) apply mathematical concepts and computer based technologies to assist analysis of data and information	p 42
5.18	A student selects and uses appropriate forms of communication to present information to an audience	Students learn to - 4/5.18 e) use drawings, diagrams, graphs, tables, databases, spreadsheets and flow charts to show relationships and present information clearly and/or succinctly	p 42

Technology (Mandatory)

Stage 4

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
4.2.1	A student generates and communicates creative design ideas and solutions	Students learn about communication methods including digital presentations	p 22
4.2.1	A student generates and communicates creative design ideas and solutions	Students learn about using ICTs to plan, develop and document design projects	p 22
4.2.1	A student generates and communicates creative design ideas and solutions	Students learn to compose a design folio for a specific audience in electronic format including features such as tabs, indents, headers and footers, margins and line and paragraph spacing and using appropriate layout and graphic design	p 22
4.2.1	generates and communicates creative design ideas and solutions	Students learn to manipulate images with tools such as editing, resizing, grouping, aligning and positioning	p 22
4.2.1	A student generates and communicates creative design ideas and solutions	Students learn to use ICTs to communicate information including saving a document in various file types and storage locations from within the application	p 22
4.2.1	A student generates and communicates creative design ideas	Students learn to use word processing features including page numbering	p 22

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
	and solutions	and page breaks, find and replace, word count, spell check and thesaurus, columns and sections, inserting text/ objects/ images	
4.2.2	A student selects, analyses, presents and applies research and experimentation from a variety of sources	Students learn about research methods - searching techniques including use of the Internet	p 23
4.2.2	A student selects, analyses, presents and applies research and experimentation from a variety of sources	Students learn to use the internet when researching	p 23
4.3.1	A student applies a broad range of contemporary and appropriate tools, materials and techniques with competence in the development of design projects	Control technologies Students learn about: component categories for hardware, including input devices, processors and output devices	p 27
4.3.1	A student applies a broad range of contemporary and appropriate tools, materials and techniques with competence in the development of design projects	Control technologies Students learn about: data types, formats and information as inputs of design and production	p 27
4.3.1	A student applies a broad range of	Control technologies Students learn about:	p 27

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
	contemporary and appropriate tools, materials and techniques with competence in the development of design projects	robots and other mechatronic devices, sensors, actuators such as motors, switches, lights programmable logic controllers (PLCs) and associated hardware	
4.3.1	A student applies a broad range of contemporary and appropriate tools, materials and techniques with competence in the development of design projects	Control technologies Students learn to: recognise, connect and use input and output devices to construct systems including sensors, switches, wiring, lights and motors for a design project	p 27
4.3.1	A student applies a broad range of contemporary and appropriate tools, materials and techniques with competence in the development of design projects	Control technologies Students learn to: select and use appropriate program development techniques and structures for an identified need	p 27
4.3.1	A student applies a broad range of contemporary and appropriate tools, materials and techniques with competence in the development of design projects	Graphics Technologies Students learn to: use computer aided drawing (CAD) in the development of the design project	p 27
4.3.1	A student applies a broad range of contemporary and appropriate tools,	Information Technologies Students learn about: range, suitability and use of data types including	p 31

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
	materials and techniques with competence in the development of design projects	hypertext	
4.3.1	A student applies a broad range of contemporary and appropriate tools, materials and techniques with competence in the development of design projects	Information Technologies Students learn about: software including presentation, draw and paint, word processing, databases and spreadsheets	p 31
4.3.1	A student applies a broad range of contemporary and appropriate tools, materials and techniques with competence in the development of design projects	Information Technologies Students learn about: the function, selection and correct use of a range input and output tools including - printer - scanner - storage devices	p 31
4.3.1	A student applies a broad range of contemporary and appropriate tools, materials and techniques with competence in the development of design projects	Information Technologies Students learn about: the internet as a source of information	p 31
4.3.1	A student applies a broad range of contemporary and appropriate tools, materials and techniques with	Information Technologies Students learn to: select and correctly use the appropriate tools of information technology for	p 31

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
	competence in the development of design projects	a design project	
4.3.1	A student applies a broad range of contemporary and appropriate tools, materials and techniques with competence in the development of design projects	Information Technologies Students learn to: select and use appropriate data types for particular purposes select and justify the use of correct file formats in a design project	p 31
4.3.1	A student applies a broad range of contemporary and appropriate tools, materials and techniques with competence in the development of design projects	Information Technologies Students learn to: select and use software for specific purposes in a design project	p 31
4.3.1	A student applies a broad range of contemporary and appropriate tools, materials and techniques with competence in the development of design projects	Media Technologies Students learn about: collecting information from primary and secondary sources including digitising sound, text, graphics	p 32
4.3.1	A student applies a broad range of contemporary and appropriate tools, materials and techniques with competence in the development of design	Media Technologies Students learn about: processing techniques for combining and manipulating such as special effects, cropping, tweening, morphing	p 32

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
	projects		
4.3.1	A student applies a broad range of contemporary and appropriate tools, materials and techniques with competence in the development of design projects	Media Technologies Students learn about: range, suitability and use of data types in a range of media such as video, animation, audio	p 32
4.3.1	A student applies a broad range of contemporary and appropriate tools, materials and techniques with competence in the development of design projects	Media Technologies Students learn about: software including desktop publishing, presentation, video editing, draw and paint, word processing, web design	p 32
4.3.1	A student applies a broad range of contemporary and appropriate tools, materials and techniques with competence in the development of design projects	Media Technologies Students learn about: the function and correct use of a range of input and output tools used for - capturing images such as digital cameras, videos, scanners - storing - printing	p 32
4.3.1	A student applies a broad range of contemporary and appropriate tools, materials and techniques with competence in the development of design projects	Media Technologies Students learn about: the internet as a source of information	p 32

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
4.3.1	A student applies a broad range of contemporary and appropriate tools, materials and techniques with competence in the development of design projects	Media Technologies Students learn to: select and use techniques appropriate for the purposes of a design project	p 32
4.3.2	A student demonstrates responsible and safe use of a range of tools, materials and techniques in each design project	Students learn to maintain tools and equipment including computer equipment	p 23
4.4.1	A student explains the impact of innovation and emerging technologies on society and the environment	Students learn to explain the impact of innovations and emerging technologies on society and the environment including new ICTs	p 24
4.6.2	identifies and explains ethical, social, environmental and sustainability considerations related to design projects	Students learn to demonstrate appropriate ethics and etiquette in relation to computer use such as general computer care, passwords, file security, network use, printing and shared resources	p 25

Visual Arts

Stage 4

Outcome No.	Outcome	Content or other syllabus requirement	Page No.
4.1	A student uses a range of strategies to explore different artmaking conventions and procedures to make artworks	2D/ 4D forms graphics-based programs to create and manipulate digitally generated images (including scanned images, digital camera, internet images, CD), video stills, animations and web page designs	p 25
4.1	A student uses a range of strategies to explore different artmaking conventions and procedures to make artworks	2D/ 4D forms importing images (through scanning, internet, digital camera and CD) into graphics and word-processed documents	p 25
4.6	A student selects different materials and techniques to make artworks	2D forms: graphics including computer generated and enhanced	p 16
4.6	A student selects different materials and techniques to make artworks	2D forms: photo and digital media including wet photography and digital media (still)	p 16
4.6	A student selects different materials and techniques to make artworks	4D forms digital animation	p 16