

Information and Communication Technology

Lower Secondary Subject Area Guidelines

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Rationale

Modern technological societies are characterised by the rapid expansion of knowledge and the ease of access to, and exchange of, information in a digital format. Active and informed participation in this world requires citizens to be adaptable and self-directed users of information and communication technology. They need to work analytically and creatively, behave ethically, be socially responsible and work collaboratively.

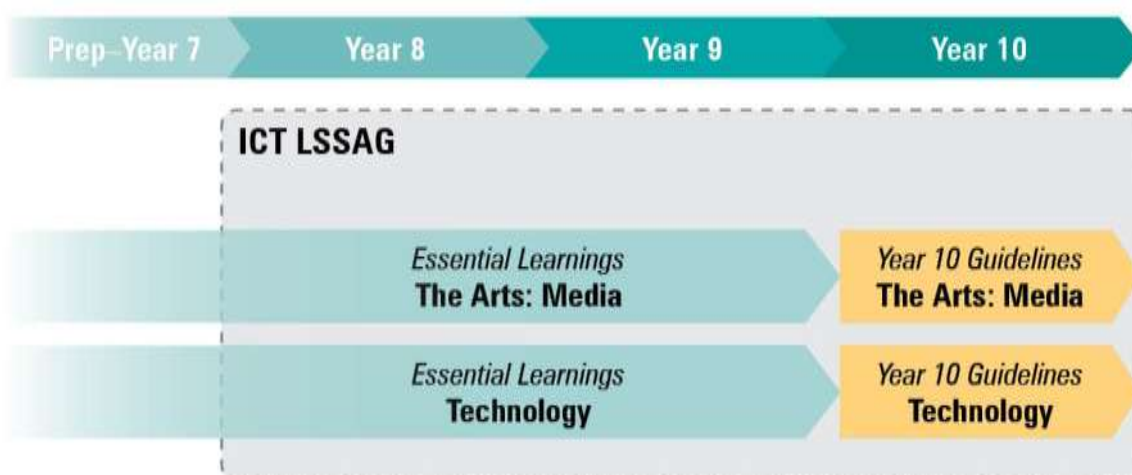
In the study of Information and Communication Technology (ICT), students develop and demonstrate the knowledge, practices and dispositions necessary to operate effectively in information-rich environments. They understand the transformation of data to information, of information to knowledge, as well as the interdependence of human and technological agencies that lead to these transformations.

The Ways of working and the Knowledge and understanding outlined in these guidelines are drawn from the:

- *Technology Essential Learnings (ELs)* and *The Arts — Media ELs*
- *Year 10 Guidelines: Technology* and *Year 10 Guidelines: The Arts — Media*
- The Arts: Media learning area.*

Figure 1 below shows the relationship between the *ELs* and the *Year 10 Guidelines* and how a selection of Ways of working and Knowledge and understanding can be used to construct a course of study using the Information and Communication Technology Lower Secondary Subject Area Guidelines (ICT LSSAG).

Figure 1: Essential Learnings, Year 10 Guidelines and ICT LSSAG



* See the QSA website to download the *Essential Learnings* <www.qsa.qld.edu.au/574.html> and *Year 10 Guidelines* <www.qsa.qld.edu.au/10954.html>.

1.

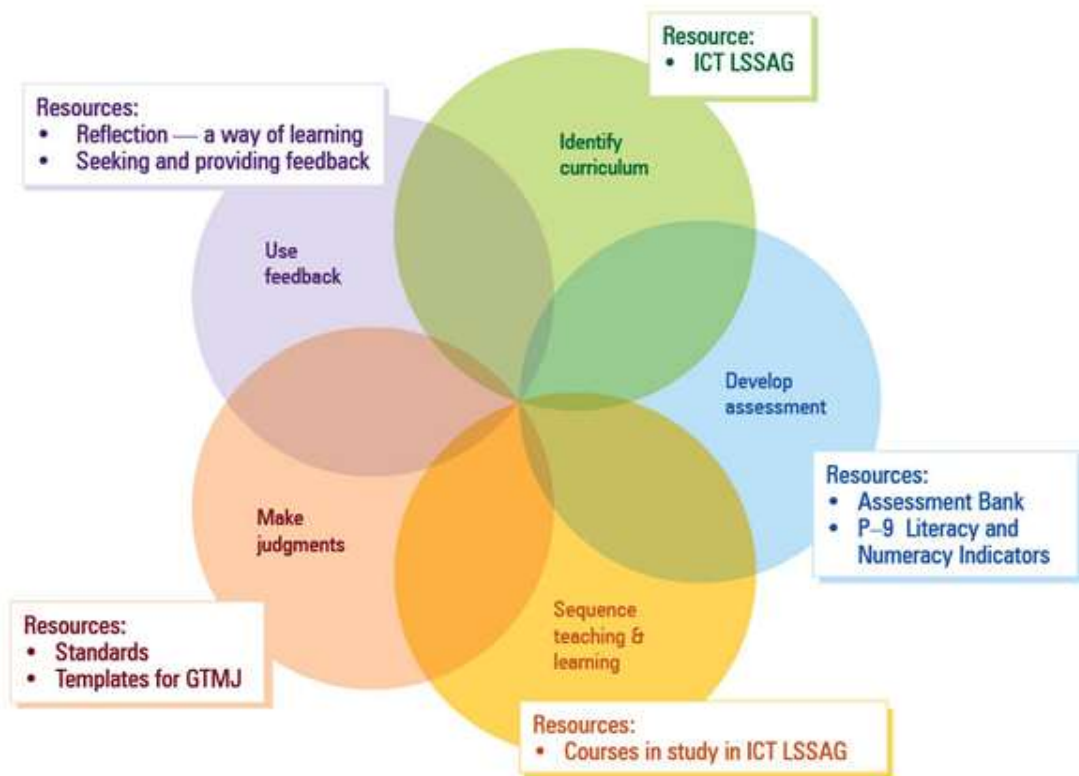
Planning using these guidelines

The development of a course of study is a school-based decision. A school may decide to use all or part of the information contained in these guidelines to construct a course of study.

The ICT LSSAG allows teachers to develop a variety of courses of study to meet the specific needs and interests of students, and may be used to plan:

- part of a specialised Year 8, Year 9 or Year 10 ICT course
- part of a combined Years 8 and 9 or Years 9 and 10 ICT course
- term- or semester-length units of work
- an integrated, multidisciplinary or transdisciplinary course of study that combines learning statements from other learning areas, e.g. Enterprise education.

Figure 2: Five processes for planning



Mapping Essential Learnings and Year 10 Guidelines

The following sections include the Ways of working from the *ELs* and *Year 10 Guidelines* for specific learning areas that link to ICT. They also include tables that map the *ELs* and *Year 10 Guidelines* to ICT knowledge and understanding examples. These lists of examples are not exhaustive.

Technology Essential Learnings by the end of Year 9

Ways of working

Students are able to:

- investigate and analyse specifications, standards and constraints in the development of design ideas
- consult, negotiate and apply ethical principles and cultural protocols to investigate, design and make products
- generate and evaluate design ideas and communicate research, design options, budget and timelines in design proposals
- select resources, techniques and tools to make product that meet detailed specifications
- plan, manage and refine production procedures for efficiency
- make products to meet detailed specifications by manipulating or processing resources
- identify, apply and justify workplace health and safety practices
- evaluate the suitability of products and processes against criteria and recommend improvements
- reflect on and analyse the impacts of products and processes on people, their communities and environments
- reflect on learning, apply new understandings and justify future applications.

Knowledge and understanding

Technology ELs by the end of Year 9		Examples
<p>Technology as a human endeavour</p> <p>Technology influences and impacts on people, their communities and environments in local and global contexts.</p>	<p>New products and technologies are designed and developed to meet changing needs and wants of intended audiences, and include artefacts, systems, environments, services and processes.</p>	<p>Examples may include:</p> <ul style="list-style-type: none"> design elements and principles, genre conventions and technical constraints in digital communication and publishing responses to design briefs that simulate real-life practice, taking into account functional, aesthetic, technical, economic and cultural considerations.
	<p>Product design and production decisions are influenced by aspects of appropriateness and by detailed specifications, constraints and standards of production.</p>	<p>Examples may include:</p> <ul style="list-style-type: none"> changes to sources, forms and information management and how they affect design and production decisions design principles, e.g. colour, layout, usability, alignment, symmetry, consistency suitability of product, e.g. cultural, ethical, historical and economic considerations.
	<p>People can influence decisions made about the design, development and use of technology to change the impact on people, their communities and environments at local and global levels.</p>	<p>Examples may include:</p> <ul style="list-style-type: none"> nature, purpose and future of online communities and services, e.g. social networking solutions ownership, privacy and control of information social and ethical issues related to the development and application of software selection, design and management of web-based portals to enable communities to host and participate in events and share information, e.g. Ning, iGoogle personal portal applications that simulate human behaviour, e.g. avatars and text-to-speech software impact of variation in access to digital communication and publishing, e.g. socioeconomic conditions, geography, disability impact of digital communication and publishing, e.g. ebooks, audio books.
<p>Information, materials and systems (resources)</p> <p>Resources originate from different sources, exist in various forms and are manipulated to meet specifications and standards to make products.</p>	<p>Characteristics of resources are compared, contrasted and selected to meet detailed specifications and predetermined standards of production to best suit the user.</p>	<p>Examples may include:</p> <ul style="list-style-type: none"> nature of information and access to information in order to produce a product to meet the user's requirements, e.g. user interface design, binary and/or hexadecimal number systems types of data and their characteristics, e.g. multimedia elements, textual, numeric nature of interfaces and the familiar metaphors used to represent machine operations and techniques, e.g. interactions with specialised software, screen icons for software applications, virus software control and modification of interfaces to meet human needs and expectations, e.g. display interface control, navigation and viewing options, nature of plug-in and inbuilt applications data integrity, e.g. factors affecting validity and credibility of information

Technology ELs by the end of Year 9		Examples
		<ul style="list-style-type: none"> • comparison of resources to determine appropriateness.
	<p>Techniques and tools are selected, controlled and managed to manipulate or process resources to meet detailed specifications and predetermined standards of production.</p>	<p>Examples may include:</p> <ul style="list-style-type: none"> • techniques and strategies for data collection and data mining • techniques and strategies for accessing electronic information, e.g. information literacy cycle, operational strategies, search strategies • techniques to produce software solutions to ICT challenges, e.g. steps in a program management process, importance of accurate problem definition, design specification for software development, nature and purpose of end-user documentation • techniques for transforming and transmitting information for different audiences, e.g. debugging and troubleshooting strategies • scripting language, e.g. HTML, JavaScript, Lingo, ActionScript, network configuration files • software applications and algorithms that incorporate multiple selection and user input, e.g. navigation and selection structure within simple programming environments, procedures for checking user input, hyperlinks, sequence, selection and iteration constructs of the chosen programming language • graphics principles and techniques, e.g. manipulation, layers, masks, effects, modes, bitmapping, vector graphics • animation principles and techniques, e.g. tweening, masking, simulations • sound- and video-editing principles and techniques, e.g. streaming formats, appropriate resolutions.

The Arts — Media Essential Learnings by the end of Year 9

Ways of working

Students are able to:

- make decisions about arts elements, languages and cultural protocols in relation to specific style, function, audience and purpose of arts works
- create and shape arts works by manipulating arts elements to express meaning in different contexts
- modify and refine genre-specific arts works, using interpretive and technical skills
- present arts works to particular audiences for a specific purpose, style and function, using genre-specific arts techniques, skills, processes and cultural protocols
- respond by deconstructing arts works in relation to social, cultural, historical, spiritual, political, technological and economic contexts, using arts elements and languages
- reflect on learning, apply new understandings and justify future applications.

Knowledge and understanding

The Arts — Media ELs by the end of Year 9		Examples
Media involves constructing meaning, considering specific audiences and specific purposes, by manipulating media languages and technologies to shape representations.	Still and moving images, sounds and words are used to construct and reconstruct meaning in media texts.	Examples may include: <ul style="list-style-type: none"> • nature of digital media and digital storytelling • 2-D and 3-D animation, cartooning and technology models and simulations • combination of audio/video elements to deliver meaning to an identified context and purpose.

Year 10 Guidelines: Technology

Ways of working

Students are able to:

- investigate and analyse products, processes or services in response to design challenges
- or problems
- design solutions to challenges or problems, considering appropriateness, purpose and constraints, including budgets and timelines
- develop and use production plans to manage and refine procedures, using suitable techniques and tools, to make quality-controlled products, processes or services
- use safe and ethical practices relevant to specific contexts
- create products, processes or services to meet challenges or problems by manipulating or processing resources (information, materials and systems)

- communicate design solutions in response to challenges or problems using suitable modes and genres for presenting technical ideas and design concepts for a given audience and purpose
- use evaluation throughout the design and production process to validate and refine the effectiveness of solutions to challenges or problems
- analyse and evaluate the ethics and impacts of products, processes and services on local and global communities and environments
- reflect on learning, applying new understandings of technological processes to wider contexts.

Knowledge and understanding

Year 10 Guidelines: Technology		Examples
<p>Products, processes and services</p> <p>Individual characteristics of different technological resources (information, materials or systems) will decide how they are applied in products, processes or services that have been designed to meet a challenge.</p>	<p>Information takes different forms that can be collected, analysed and organised.</p>	<p>Examples may include:</p> <ul style="list-style-type: none"> • numerical and graphical data organised into databases • client surveys and consumer behaviour trends analysed to identify needs and then used to develop the design solutions.
	<p>Materials have characteristics which are compared, contrasted and selected to meet detailed specifications and production standards.</p>	<p>Examples may include:</p> <ul style="list-style-type: none"> • adaptive technologies and development of effective and innovative interfaces for target groups.
	<p>Systems incorporate multiple processes that work together to meet challenges and can be managed with tools.</p>	<p>Examples may include:</p> <ul style="list-style-type: none"> • management and maintenance of complex systems and subsystems, e.g. quality-control procedures, use of fail-safe mechanisms, security, flowcharts, models, networks • logic of systems and subsystems, e.g. Von Neumann design • logic and development of algorithms, e.g. linear, non-linear, iterative sequencing of steps, nature of variables, flowcharts • development and use of simulations.
<p>Techniques and tools</p> <p>Techniques and tools are selected to manipulate resources to meet detailed specifications and predetermined standards, and their characteristics inform the selection for specific tasks.</p>	<p>Practical experiences with techniques and tools provide opportunities to develop skills.</p>	<p>Examples may include:</p> <ul style="list-style-type: none"> • techniques required to construct an information system that enable others to query, analyse and summarise data, e.g. developing databases.
	<p>Safe practices are part of the control and management process.</p>	<p>Examples may include:</p> <ul style="list-style-type: none"> • health and safety considerations • privacy and intellectual property considerations • hardware and software installation, configuration, diagnosis, backup, security and maintenance procedures • cyber safety.
	<p>Design ideas are represented by specialist forms of technical communication.</p>	<p>Examples may include:</p> <ul style="list-style-type: none"> • project management processes, e.g. project plans and proposals • appropriate terminology, language, formats,

Year 10 Guidelines: Technology		Examples
		graphical representations and conventions.
Impacts and consequences Decisions made about the design, development and use of technology are based on that technology's probable impact on people, their communities and environments at local and global levels.	New products and technologies are designed and developed to meet changing needs.	Examples may include: <ul style="list-style-type: none"> change management in our contemporary society possible, probable and preferred futures involving information products and their contribution to individuals and society, e.g. mobile communication applications.
	Impacts and consequences of products, processes and services include aesthetic, cultural, economic, environmental, ethical, functional and social factors.	Examples include: <ul style="list-style-type: none"> benefits, risks and ethics associated with ICTs, e.g. identity theft, privacy ways to evaluate online communication strategies, e.g. suitability, effectiveness, accessibility social and ethical issues related to the development and application of software current trends in ICT, e.g. cloud computing.

Year 10 Guidelines: The Arts — Media

Ways of working

Students are able to:

- generate and synthesise ideas, research and develop material, and solve problems about the key concepts
- create design proposals for products by applying the key concepts and using preproduction formats in a range of genres for a range of purposes
- create products by applying the key concepts and using production practices
- analyse and evaluate products and their contexts of production and use, with justification, by applying the key concepts
- reflect on their own learning, apply new understandings and make connections to inform future media experiences.

Knowledge and understanding

Year 10 Guidelines: The Arts — Media		Examples
Media production and use involves expressing ideas in a variety of contexts, genres and styles through the key concepts of technologies, representation, audiences, institutions and languages.	Technologies are the tools and associated processes that are used to express ideas in media production and use.	Examples may include: <ul style="list-style-type: none"> interfaces constructed to meet human needs, e.g. use of hotkeys, macros, web-based development tools a range of digital communication and publishing media that comply with technical constraints, create meaning and suit the needs of particular audiences.

Assessment

Planning an assessment program

The assessment program for a course of study using the ICT LSSAG should include a range and balance of assessment types that provide opportunities for students to demonstrate their learning across:

- the standards
- assessment techniques and instruments that include:
 - a range of assessment conditions
 - written and nonwritten modes.

Standards

In a lower secondary context, the standards applied to the course may be drawn from the standards linked to the *Essential Learnings* and/or the *Year 10 Guidelines*. All sets of standards (for the *Technology* and *The Arts ELs by the end of Year 9* and the *Year 10 Guidelines: Technology* and *Year 10 Guidelines: The Arts — Media*) align to the curriculum content used in the ICT LSSAG.

The assessable elements identify the valued features of each key learning area and indicate what evidence of student learning is collected and assessed. The assessable elements for the *Technology* and *The Arts ELs* are shown in Figure 3. Schools should decide how to use these assessable elements when designing an Information communication and Technology course of study and assessment program.

Figure 3: Assessable elements of Technology and The Arts ELs

		Assessable elements	
		The Arts	Technology
Dimension	Knowledge and understanding	Knowledge and understanding	Knowledge and understanding
	Ways of working	Creating	Investigating and designing
		Presenting	Producing
		Responding	Evaluating
		Reflecting	Reflecting

Assessment techniques and instruments

The following advice has been designed to help schools use the ICT LSSAG to build student learning towards assessment techniques that are valued in the *Year 10 Guidelines* for Technology, The Arts, and senior ICT subjects. The suggested formats have been modified from those in the senior syllabuses to suit Years 8–10 students. Teachers should use their judgment to determine assessment conditions appropriate to the targeted year level.

Folios

Folios consist of projects and documentation. They may include:

- design briefs, design ideas, concept maps, management plans, working notes and sketches, procedures, data collection and analyses, test or survey results
- product development, construction, models and prototypes, trade displays, software development
- a diary or journal of relevant, significant tasks carried out by the student; documentation of planning, justifying, managing and evaluating; evidence of decision-making processes, group consultations, interactions with clients
- peer and self-reflection, including feedback from small or large group discussions or responses to evaluation questions.

Investigative analysis

Investigative analysis involves research assignments, reports or system evaluations that:

- use information to establish cause and effect, compare or contrast, indicate consequences or relationships
- modify or transform information from one form to another
- draw a conclusion based on information or data
- make and support a recommendation or propose action based on information or data
- analyse sustainable practice, ethical principles and their impacts on society, culture, the economy, and the environment
- consider appropriateness based on purpose and constraints.

Nonwritten responses

Nonwritten responses are spoken and/or signed (e.g. debate, seminar, lesson) and/or multimodal (e.g. webpage, board game). Examples include:

- debate
- roleplay or interview
- development of video, website or computer software program
- song or poem
- radio or TV news report
- team discussion
- board game
- trade display.

Project work

Project work involves a variety of techniques (e.g. investigative analysis and nonwritten response) completed in teams, individually or by a combination of individual and teamwork. Students may present their findings in a written or nonwritten format, or a combination of both. Project work should be undertaken over an extended period of time and involve the use of students' own time and class time. Examples include:

- business plan
- seminar
- conference
- design brief.

Courses of study

Using inquiry

As knowledge is constantly expanding and changing, programs should be designed to nurture skills that develop an inquiring mind. To ensure an inquiry approach underpins teaching and learning in ICT, the skills of inquiry require explicit teaching.

The design–develop–evaluate cycle can be used as a method of inquiry. The cycle is used to enact and involves:

- design — identifying the problem, analysing tasks, specifying the solution/s, selecting and applying appropriate design methodology
- develop — applying the design and testing for errors
- evaluate — evaluating the contexts, inputs, processes and products.

Examples of term- or semester-length units of study

Multiple courses of study with different focuses can be developed from the ICT LSSAG. Schools could use a contextual approach in creating a structure for the course of study. Any of the below suggested contexts could be used to deliver a course of study. These include, but are not limited to:

- Animation
- Game design
- Graphic design
- Interactive media
- Mobile technology
- Multimedia
- Networking
- Online communication
- Robotics
- Video production
- Web design.

The following pages contain examples of how the *ELs* and *Year 10 Guidelines* can be used to plan and develop units of study for Years 8–10 students.

Please note that these examples do not preclude other ways of planning and packaging the learning statements. They are not full units of work, and need to be further developed with assessment and learning experiences to complete a course of study.

Example 1: Webpage design

Technology ELs by the end of Year 9	
Knowledge and understanding	Ways of working
<p>Technology as a human endeavour <i>Technology influences and impacts on people, their communities and environments in local and global contexts.</i></p> <ul style="list-style-type: none"> • New products and technologies are designed and developed to meet changing needs and wants of intended audiences, and include artefacts, systems, environments, services and processes. • Product design and production decisions are influenced by aspects of appropriateness and by detailed specifications, constraints and standards of production. <p>Information, materials and systems (resources) <i>Resources originate from different sources, exist in various forms, and are manipulated to meet specifications and standards to make products.</i></p> <ul style="list-style-type: none"> • Techniques and tools are selected, controlled and managed to manipulate or process resources to meet detailed specifications and predetermined standards of production. 	<p>Students are able to:</p> <ul style="list-style-type: none"> • investigate and analyse specifications, standards and constraints in the development of design ideas • consult, negotiate and apply ethical principles and cultural protocols to investigate, design and make products • generate and evaluate design ideas and communicate research, design options, budget and timelines in design proposals • select resources, techniques and tools to make products that meet detailed specifications • plan, manage and refine production procedures for efficiency • make products to meet detailed specifications by manipulating or processing resources • identify, apply and justify workplace health and safety practices • evaluate the suitability of products and processes against criteria and recommend improvements • reflect on and analyse the impacts of products and processes on people, their communities and environments • reflect on learning, apply new understandings and justify future applications.

Year 10 Guidelines: Technology	
Knowledge and understanding	Ways of working
<p>Techniques and tools <i>Techniques and tools are selected to manipulate resources to meet detailed specifications and predetermined standards, and their characteristics inform the selection for specific tasks.</i></p> <ul style="list-style-type: none"> • Design ideas are represented by specialist forms of technical communication. <p>Impacts and consequences <i>Decisions made about the design, development and use of technology are based on that technology's probable impact on people, their communities and environments at local and global levels.</i></p> <ul style="list-style-type: none"> • New products and technologies are designed and developed to meet changing needs. 	<p>Students are able to:</p> <ul style="list-style-type: none"> • investigate and analyse products, processes or services in response to design challenges or problems • design solutions to challenges or problems, considering appropriateness, purpose and constraints, including budgets and timelines • develop and use production plans to manage and refine procedures, using suitable techniques and tools, to make quality-controlled products, processes or services • use safe and ethical practices relevant to specific contexts • create products, processes or services to meet challenges or problems by manipulating or processing resources (information, materials and systems) • communicate design solutions in response to challenges or problems using suitable modes and genres for presenting technical ideas and design concepts for a given audience and purpose • use evaluation throughout the design and production process to validate and refine the effectiveness of solutions to challenges or problems • analyse and evaluate the ethics and impacts of products, processes and services on local and global communities and environments

Year 10 Guidelines: Technology	
Knowledge and understanding	Ways of working
	<ul style="list-style-type: none"> reflect on learning, applying new understandings of technological processes to wider contexts.

		Year 8	Year 9	Year 10
Identified curriculum		Constructed using the identified curriculum from the <i>Technology Essential Learnings by the end of Year 9</i>		Constructed using the identified curriculum from the <i>Year 10 Guidelines: Technology</i>
Design	Problem identification	You have been asked to develop a webpage to attach to the school website.	Your school principal has asked you for a new structure and design for the school website.	Your school principal has asked you to develop a section on the school website that allows local businesses to advertise their products/services.
	Solution specification	Design and develop a personal webpage using rapid-development tools.	Design and develop a school webpage using website design templates.	Design and develop a section on the school website for business advertising, using relevant scripting language.
Develop	Implementation and testing	<ul style="list-style-type: none"> Examine the different technologies surrounding web design. Compare the basic linear nature of printed material, and the dynamic nature of webpages. Consider features of good webpage design. Discuss suitable subjects for the webpage, and the range of audiences that the page could be produced for. Sketch and draft a design of the webpage. Use a rapid webpage development tool to create a personal webpage. 	<ul style="list-style-type: none"> Use a flowchart to show how websites are structured and linked. Produce a mind map that considers subjects, contents and audience. Draft sketches of the new website. Examine different uses and structures of webpage design templates. Create the website for the school using webpage design templates. 	<ul style="list-style-type: none"> Interview the principal to determine needs and wants, criteria and requirements. Consider and discuss the ethics involved in the construction of a website. Examine asset management, e.g. file and folder organisation. Draft and annotate sketches of the new website. Examine different scripting language and their uses in web design. Create the website using relevant scripting language.

		Year 8	Year 9	Year 10
Evaluate	Student evaluation	Evaluate the suitability of the webpage against the design brief. Reflect on the impact of the product on improved storage practices at home.	Evaluate the suitability of the webpage against the design brief and suggest improvements. Reflect on the impact of the website on people, their communities and the environment.	Evaluate the suitability of the website against the design brief and the usability of the product by the targeted client. Reflect on the ethics and impacts of the website on local communities and environments.

Example 2: Using databases

Technology ELs by the end of Year 9	
Knowledge and understanding	Ways of working
<p>Information, materials and systems (resources)</p> <p><i>Resources originate from different sources, exist in various forms and are manipulated to meet specifications and standards to make products.</i></p> <ul style="list-style-type: none"> • Characteristics of resources are compared, contrasted and selected to meet detailed specifications and predetermined standards of production to best suit the user. • Techniques and tools are selected, controlled and managed to manipulate or process resources to meet detailed specifications and predetermined standards of production. 	<p>Students are able to:</p> <ul style="list-style-type: none"> • investigate and analyse specifications, standards and constraints in the development of design ideas • consult, negotiate and apply ethical principles and cultural protocols to investigate, design and make products • generate and evaluate design ideas and communicate research, design options, budget and timelines in design proposals • select resources, techniques and tools to make products that meet detailed specifications • plan, manage and refine production procedures for efficiency • make products to meet detailed specifications by manipulating or processing resources • identify, apply and justify workplace health and safety practices • evaluate the suitability of products and processes against criteria and recommend improvements • reflect on and analyse the impacts of products and processes on people, their communities and environments • reflect on learning, apply new understandings and justify future applications.

Year 10 Guidelines: Technology	
Knowledge and understanding	Ways of working
<p>Products, processes and services</p> <p><i>Individual characteristics of different technological resources (information, materials or systems) will decide how they are applied in products, processes or services that have been designed to meet a challenge.</i></p> <ul style="list-style-type: none"> • Information takes different forms that can be collected, analysed and organised. • Systems incorporate multiple processes that work together to meet challenges and can be managed with tools. <p>Techniques and tools</p> <p><i>Techniques and tools are selected to manipulate resources to meet detailed specifications and predetermined standards, and their characteristics inform the selection for specific tasks.</i></p> <ul style="list-style-type: none"> • Design ideas are represented by specialist forms of technical communication. 	<p>Students are able to:</p> <ul style="list-style-type: none"> • investigate and analyse products, processes or services in response to design challenges or problems • design solutions to challenges or problems, considering appropriateness, purpose and constraints, including budgets and timelines • develop and use production plans to manage and refine procedures, using suitable techniques and tools, to make quality-controlled products, processes or services • use safe and ethical practices relevant to specific contexts • create products, processes or services to meet challenges or problems by manipulating or processing resources (information, materials and systems) • communicate design solutions in response to challenges or problems using suitable modes and genres for presenting technical ideas and design concepts for a given audience and purpose • use evaluation throughout the design and production process to validate and refine the effectiveness of solutions to challenges or problems • analyse and evaluate the ethics and impacts of products, processes and services on local and global communities and environments • reflect on learning, applying new understandings of technological processes to wider contexts.

		Year 8	Year 9	Year 10
Identified curriculum		Constructed using the identified curriculum from the <i>Technology Essential Learnings by the end of Year 9</i>		Constructed using the identified curriculum from the <i>Year 10 Guidelines: Technology</i>
Design	Problem identification	The school needs to send personalised invitations to a school production to a number of guests. Students need to identify a quick and efficient way of achieving this outcome.	The school production involves a complex and varied number of tasks and people. The school needs a database of tasks and allocated roles.	The school production requires a quick and efficient ticketing system.
	Solution specification	Students are to develop a simple database for personalised invitations to a school function.	Students are to work with existing information to form a basic database of the school drama production tasks and the person/s responsible for each task.	Students are to design and develop an information system for ticketing sales for each performance of the school production.
Develop	Implementation and testing	<ul style="list-style-type: none"> • Discuss the different types of information systems. • Examine how different information systems can be used to organise information. • Gather the information for the database. • Decide on elements of information, e.g. fields and data type. • Assemble a table to organise the gathered information. • Design and create a mail merge. • Merge data with a form letter to be sent to invited participants. 	<ul style="list-style-type: none"> • Brainstorm and order the main areas of work involved in the administration of a school drama production. • Analyse the information, processes and outcomes involved in solving this problem. Use appropriate flowcharting software to represent this process. • Create a basic database of the school drama production tasks and the person/s responsible for each. • Add, modify and delete information in that database. • Format and print an existing report on the database. 	<ul style="list-style-type: none"> • Use SQL to input data and build the database. • Import and export information into the database. • Manipulate data by adding, deleting and modifying information. • Format and print reports of the information for relevant stakeholders. • Create and run basic and simple queries on the database. • Develop a form to display relevant information.
Evaluate	Student evaluation	Evaluate the suitability of the product against the design brief. Reflect on the impact of the product on improved storage practices at home.	Evaluate the suitability of the product against the design brief and suggest improvements.	Evaluate the suitability of the product against the design brief and the usability of the product by the targeted client.

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