

INFORMATION AND COMMUNICATIONS TECHNOLOGIES – I C T

Australian Curriculum/QCARF: Technology.

<http://www.australiancurriculum.edu.au/technologies/introduction>

At Port Curtis Road State School we are continuing to use the Queensland Essential Learnings and Standards to plan, teach, assess and report on technology whilst we are transitioning to the Australian Curriculum. The QELS continues to provide students with opportunities to engage and demonstrate the Essential Learnings as described in the Queensland Curriculum and Reporting Framework. Quality work including assessment against the standards continues to occur in all classrooms.

Technology

Assessable elements and descriptors of quality for A–E

Assessable elements and descriptors support teacher judgments about the standard a student has achieved.

Assessable elements:

- identify the valued features of the key learning area to be assessed
- draw from the two dimensions of the Essential Learnings: **Ways of working** and **Knowledge and understanding**
- can be used together or independently when designing assessment.

Descriptors:

- indicate the qualities evident in student work
- use an A–E scale.

ASSESSABLE ELEMENTS	DESCRIPTORS				
	A	B	C	D	E
	The student work demonstrates evidence of:				
Knowledge and understanding	Comprehensive knowledge and understanding of concepts, facts and procedures	Thorough knowledge and understanding of concepts, facts and procedures	Satisfactory knowledge and understanding of concepts, facts and procedures	Variable knowledge and understanding of concepts, facts and procedures	Rudimentary knowledge and understanding of concepts, facts and procedures
Investigating and designing	Discerning interpretation and analysis of information and evidence to generate well-reasoned design ideas	Logical interpretation and analysis of information and evidence to generate convincing design ideas	Relevant interpretation and analysis of information and evidence to generate credible design ideas	Variable interpretation and analysis of information and evidence to generate design ideas	Rudimentary interpretation and analysis of information and evidence to generate design ideas
Producing	Controlled and skilful implementation of production processes to make products	Purposeful and effective implementation of production processes to make products	Appropriate and credible implementation of production processes to make products	Variable implementation of production processes to make products	Minimal implementation of production processes to make products
Evaluating	Perceptive evaluation of products and processes	Informed evaluation of products and processes	Relevant evaluation of products and processes	Narrow evaluation of products and processes	Cursory evaluation of products and processes
Reflecting	Perceptive reflection on the impact of technology and on their learning	Informed reflection on the impact of technology and on their learning	Relevant reflection on the impact of technology and on their learning	Superficial reflection on the impact of technology and on their learning	Cursory reflection on the impact of technology and on their learning



The Australian Curriculum: Technologies describes two distinct but related subjects:

- Design and Technologies, in which students use design thinking and technologies to generate and produce designed solutions for authentic needs and opportunities
- Digital Technologies, in which students use computational thinking and information systems to define, design and implement digital solutions

PCRSS core Technology planning documents	PCRSS Technology resources
<ul style="list-style-type: none"> • ACARA Scope & Sequence documents • C2C units • Essential Learnings for Technology & ICT • PCRSS Technology & ICT program (to be reviewed and updated in 2016) • PCRSS E-Smart program (familiarisation and development of program in 2016) 	<ul style="list-style-type: none"> • Desktop computers • I-Pads • XO's



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Major outcomes

Using ICTs as an effective tool for learning both supports KLA learning and provides all students with the opportunity to become competent, discriminating, creative and productive users of ICT.

Using ICT to develop KLA knowledge and skills:

- supports student achievement and consolidation of the Essential Learnings
- enables ways of working and learning, through authentic and challenging tasks, that are not possible or are less efficient without technologies
- stimulates student engagement in learning.

Developing knowledge and skills in the use of ICT:

- provides the capacity to select and use ICT to inquire, create, and communicate with others
- increases understanding of the impact of ICT on society, including potential risks to health and safety
- develops flexibility through a repertoire of skills that can be selected for different demands and can be recombined and built upon to meet new challenges.

In Years 1, 2 and 3, students develop concept maps, tables and other devices to illustrate the links between selected information and data to ideas and conclusions. They create and combine media elements into publishing environments to create powerful messages and share ideas using online tools such as email and chatrooms. They host informed conversations with adults about safely using equipment and online services and can confidently learn with digital tools and resources.

In Years 4 and 5, students process selected information and query data from student-developed databases and spreadsheets to develop arguments, predict trends and provide clear advice to targeted audiences. They create a well-designed media-enriched message in multiple genres matching medium to purpose and audience. They effectively use online and intranet tools to learn cooperatively and recognise the intellectual property of digital products, as well as the bias and authenticity of online sources. They have high levels of digital competence when processing information from one format to another and have strong capacity to help others use ICT services, systems and environments including interactive simulations and learning objects.

In Years 6, students model scenarios and simulate real-world trends using spreadsheets and abstract trends and conclusions from student-developed and other databases. Students create interactive and non-linear digital texts to engage or persuade audiences, and illustrate the flow of information between concepts and/or storylines. They contribute to eLearning events and take responsibility for portraying a positive online presence. They have digital competence in writing to web applications and can customise their personal digital environment.

TECHNOLOGIES		
By the end of Year 3	Knowledge and understanding	Learning and assessment focus
<p>Ways of working</p> <p>Students are able to:</p> <ul style="list-style-type: none"> • identify the purpose for design ideas • generate simple ideas for designs • communicate major features of their designs, using 2D or 3D visual representations and words • select resources, simple techniques and tools to make products • plan and sequence main steps in production procedures • make products by following production procedures to manipulate and process resources • follow guidelines to apply safe practices • evaluate products and processes by identifying what worked well, what did not and ways to improve • reflect on the uses of technology and describe the impact in everyday situations • reflect on learning to identify new understandings. 	<p>Technology as a human endeavour</p> <p>Technology is part of our everyday lives and activities.</p> <ul style="list-style-type: none"> • Products include artefacts, systems and environments <i>e.g. designing and making a greeting card; designing a lending system to keep track of books in a library; making an environment for a pet to live in.</i> • Designs for products are influenced by purpose, audience and availability of resources <i>e.g. forms of transport and transportation systems have changed over time; toys and games are designed to meet the needs of particular age groups.</i> • Technology and its products impact on everyday lives in different ways <i>e.g. computers, software and mobile phones have simplified everyday activities; products, including fishing boats, rods and reels, help us catch fish; shopping trolleys carry groceries.</i> 	<p>Students use their imagination and creativity to make sense of the designed world as they investigate products used in everyday situations and identify how these meet needs and wants. They develop an understanding of characteristics of a range of resources (information, materials and/or systems). They gain an awareness of local Australian resources and how these have contributed to technology processes and products, in the past and present. They see the place of technology in people's work and community lives.</p> <p>Students use the essential processes of Ways of working to develop and demonstrate their Knowledge and understanding. They work technologically, individually and collaboratively to develop creative responses to design situations. They explore the use of technology practice. They suggest and communicate design ideas based on their own experiences and investigations. They manipulate and process resources and consider what has worked well and what could be improved. They reflect on their learning and consider the uses and impacts of technology in familiar everyday situations.</p> <p>Students use tools and technologies, including information and communication technologies (ICTs). They explore the use of ICTs to inquire, create and communicate within technology contexts. Students demonstrate evidence of their learning over time in relation to the following assessable elements:</p> <ul style="list-style-type: none"> • knowledge and understanding • investigating and designing • producing • evaluating • reflecting.
<p>By the end of Year 5</p> <p>Students are able to:</p> <ul style="list-style-type: none"> • identify and analyse the purpose and context for design ideas • generate design ideas that match requirements • communicate the details of their designs using 2D or 3D visual representations • select resources, techniques and tools to make products • plan production procedures by identifying and sequencing steps • make products to match design ideas by manipulating and processing resources • identify and apply safe practices • evaluate products and processes to identify strengths, limitations, effectiveness and improvements • reflect on and identify the impacts of products and processes on people and their communities • reflect on learning to identify new understandings and future applications. 	<p>By the end of Year 5</p> <p>Technology as a human endeavour</p> <p>Technology influences and impacts on people, their communities and environments.</p> <ul style="list-style-type: none"> • Different ideas for designs and products are developed to meet needs and wants of people, their communities and environments <p>e.g. playgrounds are designed for children; community swimming pools are designed to cater for specific needs and all age groups; community centres are designed to accommodate a range of activities.</p> <ul style="list-style-type: none"> • Aspects of appropriateness influence product design and production decisions <p>e.g. team uniforms are designed to have specific functions and to look good; cultural protocols are followed when an Aboriginal person uses traditional designs on a product.</p> <ul style="list-style-type: none"> • The products and processes of technology can have positive or negative impacts <p>e.g. cars are a convenient method of transportation but impact on the environment; mining for resources can contribute to a community's economy and impact on the natural environment.</p>	<p>Students explore the designed world and recognise that they can be both users and creators of technology. They identify and understand the characteristics of a range of resources (information, materials and/or systems) and assess their suitability for a specific purpose and context. They investigate the characteristics of Australian resources and their impact on technology products and processes of the past and present. They understand that technology can contribute to many different kinds of activities, including work and leisure. They are aware that people of all ages and backgrounds choose to work in technology-related fields.</p> <p>Students use the essential processes of Ways of working to develop and demonstrate their Knowledge and understanding. They develop their ability to work technologically by generating, assessing and communicating design ideas and by selecting, manipulating and processing resources, to individually and collaboratively design and make products. They analyse how technology and its products and processes impact on people, their environments and local communities. They reflect on their learning and evaluate products and processes.</p> <p>Students select and use tools and technologies, including information and communication technologies (ICTs), in purposeful ways. They use ICTs as an integral component of their learning, to inquire, create and communicate within technology contexts. Students demonstrate evidence of their learning over time in relation to the following assessable elements:</p> <ul style="list-style-type: none"> • knowledge and understanding • investigating and designing • producing • evaluating • reflecting.

Technologies	
<p>Design and Technologies <i>By the end of Year 2</i>, students describe the purpose of familiar products, services and environments and how they meet the needs of users and affect others and environments. They identify the features and uses of technologies for each of the prescribed technologies contexts. With guidance, students create designed solutions for each of the prescribed technologies contexts. They describe given needs or opportunities. Students create and evaluate their ideas and designed solutions based on personal preferences. They communicate design ideas for their designed products, services and environments using modelling and simple drawings. Following sequenced steps, students demonstrate safe use of tools and equipment when producing designed solutions.</p>	<p>Digital Technologies <i>By the end of Year 2</i>, students identify how common digital systems (hardware and software) are used to meet specific purposes. They use digital systems to represent simple patterns in data in different ways. Students design solutions to simple problems using a sequence of steps and decisions. They collect familiar data and display them to convey meaning. They create and organise ideas and information using information systems, and share information in safe online environments.</p>
<p>Design and Technologies <i>By the end of Year 4</i>, students explain how products, services and environments are designed to best meet needs of communities and their environments. They describe contributions of people in design and technologies occupations. Students describe how the features of technologies can be used to produce designed solutions for each of the prescribed technologies contexts. Students create designed solutions for each of the prescribed technologies contexts. They explain needs or opportunities and evaluate ideas and designed solutions against identified criteria for success, including environmental sustainability considerations. They develop and expand design ideas and communicate these using models and drawings including annotations and symbols. Students plan and sequence major steps in design and production. They identify appropriate technologies and techniques and demonstrate safe work practices when producing designed solutions.</p>	<p>Digital Technologies <i>By the end of Year 4</i>, students describe how a range of digital systems (hardware and software) and their peripheral devices can be used for different purposes. They explain how the same data sets can be represented in different ways. Students define simple problems, design and implement digital solutions using algorithms that involve decision-making and user input. They explain how the solutions meet their purposes. They collect and manipulate different data when creating information and digital solutions. They safely use and manage information systems for identified needs using agreed protocols and describe how information systems are used.</p>
<p>Design and Technologies <i>By the end of Year 6</i>, students describe competing considerations in the design of products, services and environments, taking into account sustainability. They describe how design and technologies contribute to meeting present and future needs. Students explain how the features of technologies impact on designed solutions for each of the prescribed technologies contexts. Students create designed solutions for each of the prescribed technologies contexts suitable for identified needs or opportunities. They suggest criteria for success, including sustainability considerations, and use these to evaluate their ideas and designed solutions. They combine design ideas and communicate these to audiences using graphical representation techniques and technical terms. Students record project plans including production processes. They select and use appropriate technologies and techniques correctly and safely to produce designed solutions.</p>	<p>Digital Technologies <i>By the end of Year 6</i>, students explain the fundamentals of digital system components (hardware, software and networks) and how digital systems are connected to form networks. They explain how digital systems use whole numbers as a basis for representing a variety of data types. Students define problems in terms of data and functional requirements and design solutions by developing algorithms to address the problems. They incorporate decision making, repetition and user interface design into their designs and implement their digital solutions, including a visual program. They explain how information systems and their solutions meet needs and consider sustainability. Students manage the creation and communication of ideas and information in collaborative digital projects using validated data and agreed protocols.</p>

Class:

Teacher(s):

Class:

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TECHNOLOGY						
Technology	P-1	2016	<p>Name: Unit 1 - Digital Technologies Years P-1-2 Band (V5.0) Duration: 20 Weeks Year Level: Years P-1-2 Applicable Learning Area: Digital Technologies</p> <p>Computers: Handy helpers</p> <p>In this unit students will learn and apply digital technology knowledge and skills through guided play and tasks integrated into other subject areas. They will:</p> <ul style="list-style-type: none"> • explore and describe how digital systems are used for particular purposes in daily life • collect, explore and sort familiar data and use digital systems to present the data creatively to convey meaning • describe, follow and apply a sequence of steps and decisions (algorithms) in non-digital and digital contexts • develop foundational skills in computational and systems thinking when solving problems • work with others to create and organise ideas and information • share ideas, information and solutions in a safe online environment. <p>Suggested partner units include:</p> <p>Mathematics Year 1 Unit 2, in which students are required to collect, record and represent data for a group of people as a process to solve real-life problems.</p>			
		<p>Name: Unit 1 - Design and Technologies Years P-1-2 Band (V5.0) Duration: 13 Weeks</p> <p>Year Level: Years P-1-2 Applicable Learning Area: Design and Technologies</p> <p>Spin it!</p> <p>In this unit, students will explore how technologies use forces to create movement in products. They will design and make a spinning toy for a small child that is fun and easy to use. Suggestions for alternative projects are also described.</p> <p>Students will apply these processes and production skills:</p> <ul style="list-style-type: none"> • Investigating spinning toys and analyse how they are made and how they work. • Generating and refining design ideas, communicated by simple drawings and models. • Producing a functional product that appeals to the client. • Evaluating their design and production processes. • Collaborating and managing by working with others and by sequencing the steps for the project. <p>This unit can partner with Science Year 2 Unit 2 - Toy factory.</p>		<p>Name: Unit 2 - Design and Technologies Years P-1-2 Band (V5.0) Duration: 13 Weeks</p> <p>Year Level: Years P-1-2 Applicable Learning Area: Design and Technologies</p> <p>Grow, grow, grow</p> <p>In this unit, students will explore how plants and animals are grown for food, clothing and shelter, and how food is selected and prepared for healthy eating. They will examine how farms meet peoples' needs. They will design solutions for problems on a farm to produce food and follow steps to make a healthy snack. Suggestions for alternative projects are also described.</p> <p>Students will apply the following processes and production skills:</p> <ul style="list-style-type: none"> • Investigating environments and analysing how they meet a purpose. • Generating and refining design ideas, communicated by simple drawings. • Producing a simple drawing of a designed solution that responds to a client's need. • Evaluating their design and production processes. • Collaborating and managing by working with others and by sequencing production steps. <p>The suggested partner units for this Design and Technologies unit are:</p> <ul style="list-style-type: none"> • Science Prep Unit 1 - Our living world • Science Year 2 Unit 3 - Good to grow • Science Year 2 Unit 4 - Save planet Earth. <p>Throughout the unit, ensure all students have opportunities to develop their higher-order thinking skills. Students develop skills in thinking when they are encouraged to reflect, inquire, generate, and analyse, synthesise and evaluate. Resources that support higher-order thinking skills:</p> <ul style="list-style-type: none"> • Helpful Information - Higher-order thinking skills P-2 		
Yrs 2 - 3	2016	<p>TECHNOLOGY: Ways of working</p> <p>Students are able to:</p> <ul style="list-style-type: none"> • identify the purpose for design ideas • generate simple ideas for designs • communicate major features of their designs, using 2D or 3D visual representations and words • select resources, simple techniques and tools to make products • follow guidelines to apply safe practices • reflect on learning to identify new understandings. 		<p>ICT Creating with ICT:</p> <ul style="list-style-type: none"> • Records evidence of their learning (e.g. uses a still camera, digital voice recorders, or scanners to capture progress points). <p>Ethics, issues and ICT:</p> <ul style="list-style-type: none"> • Develops and applies basic protocols and practices for safe, secure and responsible use of ICT by following school rules and procedures. • Reflects on their personal safety and information security practices when using ICT (e.g. recognises importance of not sharing password information with others). <p>Operating ICT:</p> <ul style="list-style-type: none"> • Follows advice and draws on personal knowledge and experience to use ICT (e.g. uses menus and toolbars to open programs). 		
		<p>Term 1</p> <p>Poster Design</p>	<p>Term 2</p> <p>Storyboard for life stages-Science</p>	<p>Term 3</p> <p>Design for collage-Art; Poster/multi-modal presentation - Investigating and relating shadows to the Earth's rotation-Science</p>	<p>Term 4</p> <p>Design for Landscape painting-Art</p>	
		<p>Term 1</p> <p>Powerpoint – Plant Adaptations (Science)</p>	<p>Term 2</p> <p>Advertisement – (Literacy and History)</p>	<p>Term 3</p> <p>Powerpoint – Weather - Olympics</p>	<p>Term 4</p> <p>Class Newsletter (News Report & Recount –School Camp Solar Oven (School Camp – Science)</p>	
Yrs 4 - 6	2016	<p>Term 1</p> <p>Powerpoint – Plant Adaptations (Science)</p>		<p>Term 2</p> <p>Advertisement – (Literacy and History)</p>	<p>Term 3</p> <p>Powerpoint – Weather - Olympics</p>	<p>Term 4</p> <p>Class Newsletter (News Report & Recount –School Camp Solar Oven (School Camp – Science)</p>