Information and communication technology (ICT) capability

Introduction

In the Australian Curriculum, students develop ICT capability as they learn to use ICT effectively and appropriately to access, create and communicate information and ideas, solve problems and work collaboratively in all learning areas at school, and in their lives beyond school. The capability involves students in learning to make the most of the digital technologies available to them, adapting to new ways of doing things as technologies evolve and limiting the risks to themselves and others in a digital environment.

The Melbourne Declaration on the Educational Goals for Young Australians (MCEETYA 2008) recognises that in a digital age, and with rapid and continuing changes in the ways that people share, use, develop and communicate with ICT, young people need to be highly skilled in its use. To participate in a knowledge-based economy and to be empowered within a technologically sophisticated society now and into the future, students need the knowledge, skills and confidence to make ICT work for them at school, at home, at work and in their communities.

Information and communication technologies are fast and automated, interactive and multimodal, and they support the rapid communication and representation of knowledge to many audiences and its adaptation in different contexts. They transform the ways that students think and learn and give them greater control over how, where and when they learn.

Scope of ICT capability

The nature and scope of ICT capability is not fixed, but is responsive to ongoing technological developments. This is evident in the emergence of advanced internet technology over the past few years and the resulting changes in the ways that students construct knowledge and interact with others.

Students develop capability in using ICT for tasks associated with information access and management, information creation and presentation, problem solving, decision making, communication, creative expression, and empirical reasoning. This includes conducting research, creating multimedia information products, analysing data, designing solutions to problems, controlling processes and devices, and supporting computation while working independently and in collaboration with others.

Students develop knowledge, skills and dispositions around ICT and its use, and the ability to transfer these across environments and applications. They learn to use ICT with confidence, care and consideration, understanding its possibilities, limitations and impact on individuals, groups and communities.

For a description of the organising elements for ICT capability, go to Organising elements.

ICT capability across the curriculum

ICT capability supports and enhances student learning across all areas of the curriculum. Students develop and apply ICT knowledge, skills and appropriate social and ethical
protocols and practices to investigate, create and communicate, as well as developing their ability to manage and operate ICT to meet their learning needs.

Learning areas provide the content and contexts within which students develop and apply the knowledge, skills, behaviours and dispositions that comprise ICT capability.

**ICT capability and the Technologies learning area**

Information and communication technology is represented in two ways in the Australian Curriculum: through the ICT capability that applies across all learning areas and within the Technologies curriculum through Digital technologies. The ICT capability will be reviewed (and revised if necessary) to ensure that there is consistency with the Technologies curriculum following its development.

The ICT capability is addressed through the learning areas and is identified wherever it is developed or applied in content descriptions. It is also identified where it offers opportunities to add depth and richness to student learning in content elaborations. An icon indicates where ICT capability has been identified in learning area content descriptions and elaborations. A filter function on the Australian Curriculum website assists users to find where ICT capability has been identified in F–10 curriculum content. Teachers may find further opportunities to incorporate explicit teaching of ICT capability depending on their choice of activities. Students can also be encouraged to develop capability through personally relevant initiatives of their own design.

- Information and communication technology in English (http://www.australiancurriculum.edu.au/English/General-capabilities)
- Information and communication technology in Mathematics (www.australiancurriculum.edu.au/Mathematics/General-capabilities)
- Information and communication technology in Science (www.australiancurriculum.edu.au/Science/General-capabilities)
- Information and communication technology in History (www.australiancurriculum.edu.au/History/General-capabilities)

**Background**

This background summarises the evidence base from which the ICT capability’s introduction, organising elements and learning continuum have been developed. It draws on recent international and national research, as well as initiatives and programs that focus on ICT across the curriculum.

ICT capability is based on sets of relevant knowledge, skills, behaviours and dispositions. Internationally, such capability is typically represented developmentally across interrelated domains or elements to show increasingly sophisticated experiences with the technology. For example, the ICT curriculum for England presents ‘lines of progression’ in strands and sub-strands. The National Education Technology Standards (NETS) provided by the International Society for Technology in Education (ISTE) represent capability with six sets of standards. In Australia, the Statements of Learning for ICT were presented as five broadly defined conceptual organisers, representing key aspects of ICT that apply across
the curriculum. The Australian Council for Educational Research (ACER) has also identified a progression in research associated with the National Assessment Program – ICT Literacy.

Early researchers into ICT in education, such as Papert (1980) and Turkle (1984), considered that students constructed reality from experience and prior knowledge. The student interacts with the environment and, to cope with this environment, develops a conceptual framework to explain the interaction.

More recent theorists, such as Dede (2009), echo these earlier propositions even as technologies evolve, giving rise to the set of constructs upon which the ICT capability is based. In particular, the overarching element Applying social and ethical protocols and practices when using ICT addresses the personal, social and cultural contexts introduced by theorists such as Papert and Turkle.

ICT capability is based on the assumption that technologies are digital tools that enable the student to solve problems and carry out tasks. That is, the ICT system needs to suit the student and the task, while the student needs to develop an understanding of what the machine can do and an appreciation of the limitations under which it operates. In this way, students come to perceive ICT systems as useful tools rather than feeling that they themselves are the tools of the machine (Maas 1983). The latter often occurs when users have little information about how ICT systems operate and simply follow set, standard procedures, determined for them by the system.

Therefore, the ICT capability needs to take account of the types of tasks that provide authentic contexts for learning. The range of tasks is categorised into three sets: Investigating with ICT, Communicating with ICT and Creating with ICT. Students also need the knowledge and skills to use ICT based on an understanding of the ‘nature of the machine’. This is encompassed in the Managing and operating ICT element of the continuum.
References


Organising elements

The ICT capability learning continuum is organised into five interrelated elements:

- Applying social and ethical protocols and practices when using ICT
- Investigating with ICT
- Creating with ICT
- Communicating with ICT
- Managing and operating ICT

The diagram below sets out these elements.

**Organising elements for ICT capability**

**Applying social and ethical protocols and practices when using ICT**

This element involves students in developing an understanding of intellectual property for digital information, and applying appropriate practices to recognise the intellectual property of themselves and others. Students use appropriate practices for the physical and logical storage and security of digital information, and apply appropriate protocols when using ICT to safely create, communicate or share information. They gain an understanding of the benefits and consequences of the use of ICT by individuals, groups and communities and the impact of the use of ICT on the fabric of society. In developing and acting with information and communication technology capability, students:

- recognise intellectual property
- apply digital information security practices
- apply personal security protocols
- identify the impacts of ICT in society.

**Investigating with ICT**

This element involves students in using ICT to define and plan information searches of a range of primary and secondary sources when investigating questions, topics or problems. Students use ICT to locate, access, generate, organise and/or analyse data and information
and apply criteria to verify the integrity and value of the digital data, information and sources. In developing and acting with information and communication technology capability, students:

- define and plan information searches
- locate, generate and access data and information
- select and evaluate data and information.

**Creating with ICT**

This element involves students in using ICT to generate ideas, plans and processes that clarify a task or steps in order to respond to questions, realise creative intentions and create solutions to challenges and tasks. Students use ICT to generate and manage digital solutions to challenges arising from learning activities or responding to a need or creative intention. In developing and acting with information and communication technology capability, students:

- generate ideas, plans and processes
- generate solutions to challenges and learning area tasks.

**Communicating with ICT**

This element involves students in using ICT to communicate and share ideas and information to collaboratively construct knowledge and digital solutions. Students develop an understanding of the context when communicating using ICT, including a sense of the audience, the form of communication, the techniques used and the characteristics of the users and the technologies. In developing and acting with information and communication technology capability, students:

- collaborate, share and exchange
- understand computer mediated communications.

**Managing and operating ICT**

This element involves students applying technical knowledge and skills to select, use and troubleshoot appropriate digital technologies when investigating, creating and communicating. Students develop an understanding of hardware and software components, and operations of appropriate ICT systems, including their functions, processes, procedures and devices. They apply technical knowledge and skills to efficiently and securely manage and maintain digital data. In developing and acting with information and communication technology capability, students:

- select and use hardware and software
- understand ICT systems
- manage digital data.
### Information and Communication Technology Capability Learning Continuum

#### Applying social and ethical protocols and practices when using ICT

**Level 1**

- Recognise intellectual property
- Recognise ownership over their own digital work
- Recognise ownership of digital products that others produce and that what they create or provide can be used or misused by others

**Examples**

- Recognising that they own text, photos and videos they produce
- Understanding that they should not copy someone else's work without getting permission

**Level 2**

- Acknowledge when they use digital products created by someone else, and start to indicate the source
- Identify the legal obligations regarding the ownership and use of digital products and apply some referencing conventions

**Examples**

- Naming sources, avoiding plagiarism, knowing what may or may not be copied, checking for permissions and legal obligations before publishing of work

**Level 3**

- Apply digital information security practices
- Follow class rules about using digital information

**Examples**

- Participating in a class discussion about why personal information should not be used
- Recognising that when logging onto the network they are only able to access their own folder or device

**Level 4**

- Apply standard guidelines and techniques to secure digital information
- Independently apply standard guidelines and techniques for particular digital systems to secure digital information

**Examples**

- Checking whether a friend can access the information, checking whether someone else can access the information, taking into account the location of storage and adequate security

**Level 5**

- Independently apply strategies for determining and protecting the security of digital information and assess the risks associated with online environments
- Independently apply strategies for determining the appropriate type of digital information suited to the location of storage and adequate security for online environments

**Examples**

- Using complex security settings for online sites; varying password structures

**Level 6**

- Use a range of strategies for securing and protecting information, assess the risks associated with online environments and establish appropriate security strategies and codes of conduct
- Apply digital information security practices
- Follow class rules about using digital information

**Examples**

- Setting user access and avoiding storing private information on public online sites, setting user access and avoiding storing private information on public online sites
- Recognising that there is no one way of securing information, using different methods for different environments and complying with online guidelines

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**Level 2**

- Typically by the end of Year 2, students:
- Recognising that they own text, photos and videos they produce
- Understanding that they should not copy someone else's work without getting permission

**Examples**

- Checking whether a friend can access the information, checking whether someone else can access the information, taking into account the location of storage and adequate security

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**Level 3**

- Typically by the end of Year 4, students:
- Independently apply standard guidelines and techniques to secure digital information
- Independently apply standard guidelines and techniques for particular digital systems to secure digital information

**Examples**

- Checking whether a friend can access the information, checking whether someone else can access the information, taking into account the location of storage and adequate security

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**Level 4**

- Typically by the end of Year 6, students:
- Independently apply strategies for determining and protecting the security of digital information and assess the risks associated with online environments
- Independently apply strategies for determining the appropriate type of digital information suited to the location of storage and adequate security for online environments

**Examples**

- Using complex security settings for online sites; varying password structures
## Examples

**Communications with family and friends:**
- Making a digital recording about their family that does not offend or upset the viewer.

**Messaging only to people they know, only allowing certain people to access their online space; keeping passwords secret; addressing recipients appropriately in emails, videos or posts.**

**Sharing personal photographs only in appropriate environments; using polite but impersonal language in posted messages; recognising forms of cyber bullying;**

**Forwarding personal communications from friends only with permission; being aware of time zones and differences in meaning of terms and concepts due to location and culture; using the bcc email field; recognising when others are being cyber bullied.**

**Analysing possible consequences of posting personal information on social networking sites; taking responsibility for the effect of their communications on other people; using appropriate salutations; adjusting length and formality of message to suit form of communication; independently employing anti-cyber bullying strategies.**

### Apply personal security protocols

<table>
<thead>
<tr>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Privacy parameters</strong></td>
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<tr>
<td>To encrypt: 1.眯願意 for each year of Year 1;</td>
</tr>
<tr>
<td>2.加密 for each year of Year 2;</td>
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<tr>
<td>3.加密 for each year of Year 3;</td>
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<tr>
<td>4.加密 for each year of Year 4;</td>
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<tr>
<td>5.加密 for each year of Year 5;</td>
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<tr>
<td>6.加密 for each year of Year 6;</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Example</th>
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<tbody>
<tr>
<td><strong>Personal password</strong></td>
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<tr>
<td>Can change the password to personal password</td>
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<thead>
<tr>
<th>Example</th>
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<tbody>
<tr>
<td><strong>Password use on computer</strong></td>
</tr>
<tr>
<td>only logging on to class computer with their own username and password</td>
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</table>

<table>
<thead>
<tr>
<th>Example</th>
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</thead>
<tbody>
<tr>
<td><strong>Password for accounts</strong></td>
</tr>
<tr>
<td>can only log in to accounts of accounts of other students</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Example</th>
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</thead>
<tbody>
<tr>
<td><strong>Security strategy</strong></td>
</tr>
<tr>
<td>Keep an order of accounts of accounts of other students</td>
</tr>
</tbody>
</table>
Investigating with ICT

Mathematics

ACMSP148

English

ACELA1528

Science

ACSHE158

Typically by the end of Foundation Year, students: Define and plan information searches.

Level 1

To identify where information is located.

Examples:
- Defining how ICT is used at school.
- Identifying how ICT is used at home.
- Tackling a photo or playing a digital game.

Level 2

To use ICT to identify where information is located.

Examples:
- Defining how ICT is used at school or work.
- Tackling a photo or playing a digital game.
- Tackling a photo or playing a digital game.

Level 3

To use ICT to identify where information is located.

Examples:
- Defining how ICT is used at school or work.
- Tackling a photo or playing a digital game.
- Tackling a photo or playing a digital game.

Level 4

To use ICT to identify where information is located.

Examples:
- Defining how ICT is used at school or work.
- Tackling a photo or playing a digital game.
- Tackling a photo or playing a digital game.

Level 5

To use ICT to identify where information is located.

Examples:
- Defining how ICT is used at school or work.
- Tackling a photo or playing a digital game.
- Tackling a photo or playing a digital game.

Level 6

To use ICT to identify where information is located.

Examples:
- Defining how ICT is used at school or work.
- Tackling a photo or playing a digital game.
- Tackling a photo or playing a digital game.
<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
<th>Level 6</th>
<th>Level 7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Typically by the end of Foundation Year, students:</strong></td>
<td><strong>Typically by the end of Year 2, students:</strong></td>
<td><strong>Typically by the end of Year 4, students:</strong></td>
<td><strong>Typically by the end of Year 6, students:</strong></td>
<td><strong>Typically by the end of Year 8, students:</strong></td>
<td><strong>Typically by the end of Year 10, students:</strong></td>
<td></td>
</tr>
<tr>
<td>Use icons to locate or generate information.</td>
<td>Use colour coding and drawing software to show steps in a sequence.</td>
<td>List what information is required and suggest where it may be located.</td>
<td>Create methods of recording data from experiments using tables, charts and graphic organisers.</td>
<td>Use advanced search tools and techniques or simulations and digital models to locate or generate precise data and information that supports the development of new understandings.</td>
<td>Use logical statements such as true/false; searching within fields or for data type; using data logger equipment, digital microscope; using digital models to test and adjust hypotheses.</td>
<td></td>
</tr>
</tbody>
</table>

**Examples:**
- Making choices from icon-based menus.
- Searching within documents—find/search/buttons/tables; using search strings; accessing primary data through online or local equipment; using simulation tools to test hypotheses to support the development of new understandings.

**Mathematics**
- ACMMG045
- ACMSP069
- ACMNA174
- ACMSP119
- ACMNA174
- ACMNA174

**Science**
- ACSIS039
- ACSIS054
- ACSIS086
- ACSIS125
- ACSIS125
- ACSIS125

**History**
- ACHHK044
- ACHHS068
- ACHHS120
- ACHHS168
- ACHHS208
- ACHHS208

**English**
- ACELY17
- ACMSP119
- ACSIS086
- ACSIS125
- ACSIS125
- ACSIS125
<table>
<thead>
<tr>
<th>Year</th>
<th>Subject</th>
<th>Achievements</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>English ACELY1649/Maths ACMMG045/Science ACSIS026/History ACHHK044</td>
<td>Apply basic skills to understand and explain the usefulness of located data or information.</td>
</tr>
<tr>
<td>4</td>
<td>English ACELY1793/Maths ACMNA057/Science ACSIS066/History ACHHS068</td>
<td>Apply basic skills to assess the suitability of data or information using a range of criteria.</td>
</tr>
<tr>
<td>6</td>
<td>English ACELY1704/Maths ACMNA128/Science ACSIS087/History ACHHS116</td>
<td>Develop and use criteria systematically to evaluate the quality, suitability and credibility of located data or information and sources.</td>
</tr>
<tr>
<td>8</td>
<td>English ACELY1734/Science ACSIS129/History ACHHS186</td>
<td>Formulate criteria to systematically compare and evaluate objective data from multiple digital sources.</td>
</tr>
<tr>
<td>10</td>
<td>Maths ACMSP227/Science ACSIS199/History ACHHS187</td>
<td>Formulate criteria to systematically evaluate the credibility of information provided.</td>
</tr>
</tbody>
</table>

Select and evaluate data and information

<table>
<thead>
<tr>
<th>Year</th>
<th>Subject</th>
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</thead>
<tbody>
<tr>
<td>2</td>
<td>English ACELY1649/Maths ACMMG045/Science ACSIS026/History ACHHK044</td>
<td>Explain how located data or information was used to develop and use criteria.</td>
</tr>
<tr>
<td>4</td>
<td>English ACELY1793/Maths ACMNA057/Science ACSIS066/History ACHHS068</td>
<td>Explain how located data or information was used to develop and use criteria.</td>
</tr>
<tr>
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<td>Explain how located data or information was used to develop and use criteria.</td>
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<tr>
<td>Level</td>
<td>Purpose in ICT</td>
<td>Examples</td>
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<tr>
<td>-------</td>
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</tr>
<tr>
<td>Level 1</td>
<td>Typically by the end of Year 1, students:</td>
<td>Generate ideas, plans and processes for personal and school purposes.</td>
</tr>
<tr>
<td>Level 2</td>
<td>Typically by the end of Year 2, students:</td>
<td>Use ICT to follow, or contribute to, a simple plan for a solution.</td>
</tr>
<tr>
<td>Level 3</td>
<td>Typically by the end of Year 3, students:</td>
<td>Use ICT to generate ideas and plan solutions.</td>
</tr>
<tr>
<td>Level 4</td>
<td>Typically by the end of Year 4, students:</td>
<td>Use ICT effectively to record ideas, represent thinking and plan solutions.</td>
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<tr>
<td>Level 5</td>
<td>Typically by the end of Year 5, students:</td>
<td>Use appropriate ICT to collaborative generate ideas and develop plans.</td>
</tr>
<tr>
<td>Level 6</td>
<td>Typically by the end of Year 6, students:</td>
<td>Use ICT to prepare simple plans to find solutions or answers to questions.</td>
</tr>
</tbody>
</table>

**Examples**

- Using online and multimedia resources to create and modify digital solutions, creative outputs or data representations for particular purposes.
- Designing simple mind maps using software and planning using timelines using software to record ideas.

**Generating Ideas, Plans and Processes**

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Purpose in ICT</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 2</td>
<td>Typically by the end of Year 2, students:</td>
<td>Use ICT to generate ideas and plan solutions.</td>
</tr>
<tr>
<td>Level 3</td>
<td>Typically by the end of Year 3, students:</td>
<td>Use ICT to record ideas, represent thinking and plan solutions.</td>
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<td>Level 4</td>
<td>Typically by the end of Year 4, students:</td>
<td>Use appropriate ICT to collaborative generate ideas and develop plans.</td>
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<tr>
<td>Level 5</td>
<td>Typically by the end of Year 5, students:</td>
<td>Use ICT to prepare simple plans to find solutions or answers to questions.</td>
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<tr>
<td>Level 6</td>
<td>Typically by the end of Year 6, students:</td>
<td>Use ICT to create a creative plan.</td>
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</tbody>
</table>

**Creating with ICT**

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Purpose in ICT</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 2</td>
<td>Typically by the end of Year 2, students:</td>
<td>Use ICT to generate ideas and plan solutions.</td>
</tr>
<tr>
<td>Level 3</td>
<td>Typically by the end of Year 3, students:</td>
<td>Use ICT to record ideas, represent thinking and plan solutions.</td>
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<td>Level 4</td>
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<td>Use appropriate ICT to collaborative generate ideas and develop plans.</td>
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<td>Level 5</td>
<td>Typically by the end of Year 5, students:</td>
<td>Use ICT to prepare simple plans to find solutions or answers to questions.</td>
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<tr>
<td>Level 6</td>
<td>Typically by the end of Year 6, students:</td>
<td>Use ICT to create a creative plan.</td>
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<tr>
<td>Level 1</td>
<td>Level 2</td>
<td>Level 3</td>
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<tr>
<td><strong>Communicating with ICT</strong></td>
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<tr>
<td>Typically by the end of Foundation Year, students:</td>
<td>Typically by the end of Year 2, students:</td>
<td>Typically by the end of Year 4, students:</td>
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<tr>
<td><strong>Knowledge and Understanding</strong></td>
<td></td>
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</tr>
<tr>
<td>Students:</td>
<td>6 students:</td>
<td>5 students:</td>
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<td>1. Students:</td>
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<td>2. Students:</td>
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<td>6. Students:</td>
<td>6 students:</td>
<td>5 students:</td>
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**Examples**

- Students use purposefully selected ICT tools safely to view information shared by trusted adults.
- Students use purposefully selected ICT tools safely to share and exchange information with appropriate local audiences.
- Students use appropriate ICT tools safely to share and exchange information with appropriate local audiences.
- Students select and use appropriate ICT tools safely to share and exchange information and to safely collaborate with others.
- Students select and use appropriate ICT tools safely to lead groups in sharing and exchanging information, and taking part in online projects or active collaborations with appropriate global audiences.
- Students select and use a range of ICT tools efficiently and safely, and collaboratively and purposefully construct knowledge.

**Content Area**

- **English** (ACELY1651, ACHHS022)
- **History** (ACHHS054)
- **English** (ACELY1664, ACHHS054)
- **Mathematics** (ACMMG042)
- **History** (ACHHS054)
- **English** (ACELY1685, ACHHS054)
- **Mathematics** (ACMMG091)
- **History** (ACHHS071)
- **English** (ACELY1685, ACHHS071)
- **Mathematics** (ACMMG091)
- **History** (ACHHS071)
- **English** (ACELY1685, ACHHS071)
- **Mathematics** (ACMMG091)
- **History** (ACHHS071)
- **English** (ACELY1685, ACHHS071)
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- **History** (ACHHS071)
- **English** (ACELY1685, ACHHS071)
- **Mathematics** (ACMMG091)
- **History** (ACHHS071)
- **English** (ACELY1685, ACHHS071)
- **Mathematics** (ACMMG091)
- **History** (ACHHS071)

**Collaborate, Share and Exchange**

- **Collaborate, Share and Exchange**
- **Collaborate, Share and Exchange**
- **Collaborate, Share and Exchange**
Typically by the end of Foundation Year, students:

- Understand that messages are recorded, viewed or sent in computer mediated communications for others to receive.
- Understand that computer mediated communications may be received later by the receiver.
- Understand that computer mediated communications are directed to an audience for a purpose.
- Understand that particular forms of computer mediated communications and tools are suited to synchronous or asynchronous and one-to-one or group communications.
- Understand that there are various methods of collaboration through computer mediated communications that vary in form and control.
- Understand that computer mediated communications have advantages and disadvantages in supporting active participation in a community of practice and the management of collaboration on digital materials.

**Examples**

- Understanding that a response to a question on an online environment will be received later by the teacher.
- Understanding that a communication on a blog may be viewed later by other students.
- Understanding that a text message may be sent to one or more persons that may be viewed on a electronic medium.
- Understanding that particular forms of computer mediated communications and tools are suited to synchronous or asynchronous and one-to-one or group communications.
- Understanding that there are various methods of collaboration through computer mediated communications that vary in form and control.
- Understanding that computer mediated communications have advantages and disadvantages in supporting active participation in a community of practice and the management of collaboration on digital materials.

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<td>English ACELA1110</td>
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<td>English ACELA1116</td>
<td>Science ACSIS1116</td>
<td>History ACHHS1116</td>
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</table>

**Examples**

- Understanding the characteristics, features and use of electronic learning.
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Typically by the end of Foundation Year, students:

- Select and use hardware and software to complete relevant simple specified tasks and seek help when encountering a problem.

Typically by the end of Year 2, students:

- Identify and safely operate a selected range of appropriate ICT systems, and seek solutions when encountering a problem.

Typically by the end of Year 4, students:

- Independently select and operate a range of devices, software, functions and commands, taking into consideration ergonomics when operating appropriate ICT systems, and seek solutions when encountering a problem.

Typically by the end of Year 6, students:

- Justify the selection of, and optimise the operation of, a selected range of devices and software functions to complete specific tasks, for different purposes and in different social contexts.

Typically by the end of Year 8, students:

- Work as expected with the expected level of a book of clear, complete instructions, or an ICT program to solve a problem, and seek solutions when encountering a problem.

Typically by the end of Year 10, students:

- Work as expected with the expected level of a book of clear, complete instructions, or an ICT program to solve a problem, and seek solutions when encountering a problem.

Examples

- Selecting and using a camera to take a photograph or using a printer to print a picture; knowing when something has not worked as expected.

- Using page layout software for posters, using a mouse, USB flash drive, printer, digital camera, or robot supervised by the teacher; taking initial steps in coping with the unexpected and then seeking help.

- Using a camera, a microphone and slideshow software to create a presentation, adjusting the placement and orientation of the mouse, keyboard and screen to ensure ease and comfort when using.

- Selecting specific graphics software or graphic tools in word processors, using printer queues, file servers, scanners, probes, digital cameras.

- Selecting a spreadsheet to model a budget or a fast processor to edit movies, adjusting digital camera settings, creating shortcuts.

- Selecting an appropriate option for creating a website such as an online tool or an HTML editor, altering toolbars, sorting and layout functions; using duplex printing; setting proxies; using filters to divert junk email to a specific spam folder.

Example

- Selecting an appropriate option for creating a website such as an online tool or an HTML editor, altering toolbars, sorting and layout functions; using duplex printing; setting proxies; using filters to divert junk email to a specific spam folder.

Examples

- Scoring ACARA targets in Science, ACARA targets in English, ACARA targets in History.

Examples

- Science ACARA targets in Science, ACARA targets in English, ACARA targets in History.

Examples

- Science results, Science results, Science results.
<table>
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<tr>
<th>Year</th>
<th>Activity</th>
<th>Subject</th>
<th>Code</th>
<th>Examples</th>
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<tbody>
<tr>
<td>Year 1</td>
<td>Identify and compare the concepts of local area network, server-client network, cloud systems, using basic ICT components and understanding the use of terminals and terminal software</td>
<td>English</td>
<td>ACELY1711</td>
<td>Examples include listing different ICT systems such as desktop, notebook, and mobile systems, comparing the use of a touch screen and apps on a mobile with a mouse and applications on a desktop computer.</td>
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<td>Year 2</td>
<td>Identify and compare the main components of different ICT systems, including input, output, processing, and storage components</td>
<td>English</td>
<td>ACELY1717</td>
<td>Examples include identifying and comparing the concepts of local area network, server-client network, cloud systems, using basic ICT components and understanding the use of terminals and terminal software.</td>
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<tr>
<td>Year 3</td>
<td>Understand ICT systems, including hardware, software, and data management, and describe how to use ICT systems to make decisions about ICT use</td>
<td>English</td>
<td>ACELY1738</td>
<td>Examples include using Excel or similar software to manage and maintain digital data.</td>
</tr>
<tr>
<td>Year 4</td>
<td>Understand the uses of standard input, processing, output, and storage components such as, input—keyboard, microphone; processing—central processing unit; output—monitor, speakers, projector; storage—cloud, USB, hard drive</td>
<td>Mathematics</td>
<td>ACMNA076</td>
<td>Examples include developing and problem-solving skills using ICT systems, such as spreadsheets.</td>
</tr>
<tr>
<td>Year 5</td>
<td>Manage digital data, save and retrieve digital data, and use ICT systems for data management and analysis</td>
<td>Science</td>
<td>ACSIS066</td>
<td>Examples include identifying and listing different ICT systems such as desktop, notebook, tablet, and mobile systems.</td>
</tr>
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<td>Year 6</td>
<td>Develop and maintain ICT systems, including their fundamental functions and features</td>
<td>English</td>
<td>ACELY1748</td>
<td>Examples include describing the use of ICT systems for data management and analysis.</td>
</tr>
<tr>
<td>Year 7</td>
<td>Develop and maintain ICT systems, including their fundamental functions and features</td>
<td>English</td>
<td>ACELY1738</td>
<td>Examples include using Excel or similar software to manage and maintain digital data.</td>
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<tr>
<td>Year 8</td>
<td>Develop and maintain ICT systems, including their fundamental functions and features</td>
<td>Science</td>
<td>ACSIS105</td>
<td>Examples include identifying and listing different ICT systems such as desktop, notebook, tablet, and mobile systems.</td>
</tr>
<tr>
<td>Year 9</td>
<td>Develop and maintain ICT systems, including their fundamental functions and features</td>
<td>English</td>
<td>ACELY1717</td>
<td>Examples include using Excel or similar software to manage and maintain digital data.</td>
</tr>
<tr>
<td>Year 10</td>
<td>Develop and maintain ICT systems, including their fundamental functions and features</td>
<td>Mathematics</td>
<td>ACMNA076</td>
<td>Examples include developing and problem-solving skills using ICT systems, such as spreadsheets.</td>
</tr>
</tbody>
</table>
Typically by the end of Foundation Year, students:

- Managing documents in a variety of formats and using a variety of storage mediums and systems – locally and on networks

Example:
- Saving and retrieving data; providing unique names for files; applying basic functions such as opening and dragging-and-dropping files

- Saving/exporting data in files of different formats; routinely backing up and protecting data; moving data from one location to another

Example:
- Setting up and maintaining shared folders for groups of users using a variety of methods and naming conventions; maintaining version control; managing lists, favourites, bookmarks, folders and files

Example:
- Designing and using logical and sustainable file/folder naming conventions; maintaining version control of documents; limiting access to data by location or password

Example:
- Developing procedures for controlling data, keeping track of data, processing data, and using data

Science

ACSIS039

Mathematics

ACMSP069

Science

ACSIS055

Science

ACSIS104

Science

ACSIS141

Science

ACSIS199