

In the Australian Curriculum, students develop Information and Communication Technology (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. ICT capability involves students 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.

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.

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.

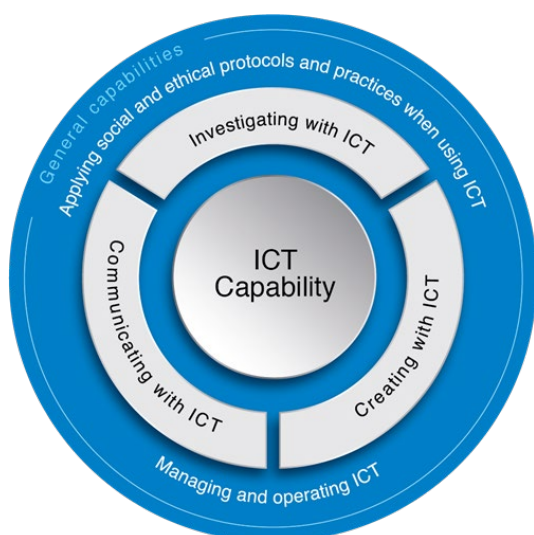
Students develop knowledge, skills and dispositions around ICT and its use, and the ability to transfer these across environments and applications. They learn to use ICT with confidence, care and consideration, understanding its possibilities, limitations and impact on individuals, groups and communities.



This icon shows where ICT Capability has been identified in learning area content descriptions and elaborations.

Key ideas

The key ideas for ICT Capability are organised into five interrelated elements in the learning continuum, as shown in the diagram below.



Applying social and ethical protocols and practices when using ICT

This element involves students developing an understanding of how social and ethical protocols and practices are applied when using ICT.

Students apply appropriate practices to recognise the intellectual property for digital information of themselves and others. They 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. Students 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 ICT 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 investigating questions, topics or problems using ICT.

Students use ICT to define and plan information searches of a range of primary and secondary sources. They 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 using ICT. In developing and acting with ICT 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 using ICT to realise creative intentions and create solutions to challenges and tasks.

Students use ICT to generate ideas, plans and processes that clarify a task or steps, and generate and manage digital solutions to challenges arising from learning activities or responding to a need or creative intention. In developing and acting with ICT capability, students:

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

Communicating with ICT

This element involves students understanding and using appropriate ICT to communicate with others.

Students use ICT to share ideas and information to collaboratively construct knowledge and digital solutions. They 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 ICT capability, students:

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

Managing and operating ICT

This element involves students managing and operating ICT to investigate, create and communicate. Students apply technical knowledge and skills to select, use and troubleshoot appropriate digital technologies. They develop an understanding of hardware and software components, and operations of appropriate ICT systems, including their functions, processes, procedures and devices. Students apply technical knowledge and skills to efficiently and securely manage and maintain digital data. In developing and acting with ICT capability, students:

- select and use hardware and software
- understand ICT systems
- manage digital data.

Information and Communication Technology (ICT) Capability in the learning areas

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. All learning areas provide the content and contexts within which students develop and apply the knowledge, skills, behaviours and dispositions that comprise ICT capability. However, it is more explicit and foregrounded in the Australian Curriculum: Digital Technologies.

The learning area or subject with the highest proportion of content descriptions tagged with ICT is placed first in the list.

Technologies

In the Australian Curriculum: Digital Technologies, students develop an understanding of the characteristics of data, digital systems, audiences, procedures and computational thinking. They apply this when they investigate, communicate and create digital solutions. Students learn to formulate problems, logically organise and analyse data and represent them in abstract forms. They automate solutions through algorithmic logic. Students decide the best combinations of data, procedures and human and physical resources to generate efficient and effective digital solutions. They create digital solutions that consider economic, environmental and social factors.

In the Australian Curriculum: Design and Technologies, key ICT concepts and skills are strengthened, complemented and extended. Students become familiar with and gain skills using a range of software applications and digital hardware that enable them to realise their design ideas. Students use ICT when they investigate and analyse information and evaluate design ideas and communicate and collaborate online. They develop design ideas; generate plans and diagrams to communicate their designs and produce solutions using digital technologies, for example, creating simulations, drawings and models and manufacturing solutions (from basic drawing programs to computer-aided design/manufacture and rapid prototyping).

The Arts

In the Australian Curriculum: The Arts, ICT capability enables students to engage with digital and virtual technologies when making and responding to artworks. Students can, for example, use interactive multimedia platforms, communication and editing software, and virtual tools and environments, to design, create and share their artworks. Students learn to apply social and ethical protocols and practices in a digital environment, particularly in relation to the appropriate acknowledgment of intellectual property and the safeguarding of personal security when using ICT. They use digital technologies to locate, access, select and evaluate information, work collaboratively, share and exchange information, and communicate with a variety of audiences.

F-6/7 Humanities and Social Sciences (HASS)

In the F–6/7 Australian Curriculum: Humanities and Social Sciences, students develop ICT capability as they learn how to build discipline-specific knowledge about history, geography, civics and citizenship, and economics and business. Students use a wide range of ICT, independently and collaboratively, to pose questions, research, analyse, evaluate and communicate information, concepts and ideas about people, places and processes of the past, present and future.

To locate, process, analyse and communicate information about people, places, events and phenomena, students use their ICT capability to access and manage a range of digital sources of information. They critically analyse evidence and historical events, developments, perspectives, trends and issues of the past, present and future. They organise, present and communicate information and findings digitally using multimodal elements, for a variety of reasons and audiences; and collaborate, discuss and debate with others to co-construct their knowledge.

Students develop ICT capability when they locate, select, evaluate, communicate and share geographical information using digital technologies and learn to use spatial technologies, exploring the effects of technologies on places, on the location of economic activities and on people's lives. They also access and use digital technologies as an investigative and creative tool to locate, evaluate, research, plan, share and display economics and business data, information and ideas. Students learn about and have opportunities to use social media to collaborate, communicate, share information and build consensus on political, legal and social issues, reflecting on safety awareness and ethical protocols for ICT use.

Through humanities and social science studies, students come to understand the geographical, environmental, social and economic changes produced by the increasing use of technology.

7-10 History

In the Australian Curriculum: History, students develop ICT capability when they locate, process, analyse and communicate historical information. They use their ICT capability to access a range of digital sources of information; critically analyse evidence and historical trends; communicate, present and represent their learning; and collaborate, discuss and debate to co-construct their knowledge.

7-10 Geography

In the Australian Curriculum: Geography, students develop ICT capability when they locate, select, evaluate, communicate and share geographical information using digital technologies and learn to use spatial technologies.

They enhance their ICT capability by exploring the effects of technologies on places, on the location of economic activities and on people's lives. They understand the geographical changes produced by the increasing use of technology.

7-10 Civics and Citizenship

In the Australian Curriculum: Civics and Citizenship, students develop the knowledge and skills to use digital technologies to research and source information on civics and citizenship, including critically analysing that information. Students learn about and have opportunities to use social media to collaborate, communicate, share information and build consensus on political, legal and social issues. Students develop and apply ICT skills through organising and presenting information digitally using multimodal elements.

7-10 Economics and Business

In the Australian Curriculum: Economics and Business, students develop ICT capability when they access and use digital technologies as an investigative and creative tool. They locate, evaluate, research, plan, share and display data and/or information. Using digital technologies, students create, communicate and present economics and business data and information for a variety of reasons and audiences.

Mathematics

In the Australian Curriculum: Mathematics, students develop ICT capability when they investigate, create and communicate mathematical ideas and concepts using fast, automated, interactive and multimodal technologies. They use their ICT capability to perform calculations; draw graphs; collect, manage, analyse and interpret data; share and exchange information and ideas; and investigate and model concepts and relationships. Digital technologies, such as spreadsheets, dynamic geometry software and computer algebra software, can engage students and promote understanding of key concepts.

English

ICT capability is an important component of the Australian Curriculum: English. Students use ICT when they interpret and create print, visual and multimodal texts. They use communication technologies when they conduct research online, and collaborate and communicate with others electronically. In particular, they use ICT to access, analyse, modify and create hybrid, digital and multimodal texts, using digital publishing.

As students interpret and create digital texts, they develop their capability in ICT including word processing programs and other software, navigating and following research trails and selecting and evaluating information found online.

Science

In the Australian Curriculum: Science, students develop ICT capability when they research science concepts and applications, investigate scientific phenomena and communicate their scientific understandings. In particular, they use their ICT capability to access information; collect, analyse and represent data; model and interpret concepts and relationships; and communicate science ideas, processes and information.

Technology can be used to access information beyond our senses capability and to represent scientific phenomena in ways that improve students' understanding of concepts, ideas and information. Digital aids such as animations and simulations provide opportunities to view phenomena and test predictions that cannot be investigated through practical experiments in the classroom and may enhance students' understanding and engagement with science.

Health and Physical Education

The Australian Curriculum: Health and Physical Education enhances ICT learning by helping students to effectively and safely access online health and physical activity information and services to manage their own health and wellbeing. Students further develop their understanding of the role ICT plays in the lives and relationships of children and young people. They explore the nature of ICT and the implications for establishing and managing relationships in the twenty-first century. Students develop an understanding of ethical online behaviour, including protocols and practices for using ICT for respectful communication. Students use ICT as key tools for communicating, collaborating, creating content, seeking help, accessing information and analysing performance in the health and physical education field. Students become confident and critical consumers of a multitude of wellbeing apps that can assist them to seek help, relax, be mindful, report bullying, and so on. They use a range of ICT to analyse, measure and enhance movement performances and to access and critically evaluate health information, products and services. They also use ICT to develop personalised plans for nutrition, physical activity participation and wellbeing.

Languages

Learning in the Australian Curriculum: Languages is enhanced through the use of multimodal resources, digital environments and technologies in the target language. Accessing live target language environments and texts via digital media contributes to the development of information and communication technology capabilities as well as linguistic and cultural knowledge. Accessing different real-time contexts extends the boundaries of the classroom.

Work Studies

ICTs are key tools for communication, collaboration, content creation, seeking help, accessing knowledge and analysing performance in work and professional fields. In the Australian Curriculum: Work Studies, Years 9–10, students have opportunities to become competent, discriminating and creative users of ICT. Students learn how to access online career, employment and work information and services effectively and safely. They can use a range of ICT tools to analyse, measure and enhance their pathways after Years 9–10. Students develop an understanding of the breadth of communication, collaboration and content creation protocols and legalities related to online and mobile technologies. They learn different workplace strategies to minimise the risk of harm through the use of ICT.

Knowledge of how ICTs impact on the individual, the workplace and society supports students to be successful lifelong learners in an environment of e-work, e-business and e-commerce.

<https://www.australiancurriculum.edu.au/f-10-curriculum/general-capabilities/information-and-communication-technology-ict-capability/>