Information Communication Technologies and History

The purpose of this document is to assist teachers to understand how Information Communication Technologies (ICT) can be incorporated into teaching and learning programs based on History. It includes information about:

- the four elements of ICT
- ICT across the stages of schooling.

The four elements of ICT

ICT offers powerful tools that can transform student learning. Students can develop and demonstrate their understanding of concepts and content in all learning areas through using ICT. It is also important that students know how to use ICT efficiently and responsibly, as well as learning how to protect themselves and secure their data. ICT has four elements:

Creating

The creating element involves students using ICT to create digital solutions and respond to challenges and tasks. ICT can be used to record ideas, plans and processes that clarify a task or steps; generate and manage digital solutions in response to challenges arising from learning activities; or to respond to a need or creative intention. Solutions can be created by using ICT effectively and efficiently. For more details, see Appendix 1.

Inquiring

Inquiring using ICT involves students investigating questions, topics or problems and experimenting and taking risks when developing new understandings. ICT can be used to investigate systems and events, measure performance of humans, objects or systems, monitor processes and perform computations. ICT can visually represent thinking, clarify thoughts, identify patterns and form relationships between new and existing knowledge. For more details, see Appendix 2.

Communicating

ICT can be used when students communicate in online environments to share ideas and information and to construct knowledge collaboratively. Protocols and conventions that respect collaborators and audiences must be applied. For more details, see Appendix 3.

Protecting

The element of protecting involves students ensuring that personal security and the rights of others are respected when using ICT. The protocols that protect personal information and recognise the intellectual property of others, and security practices that ensure safe communication and sharing of information, are particularly important. For more details, see Appendix 4.

Across the stages of schooling

In History, ICT supports student learning across the three broad stages of schooling in the following ways:

Foundation stage (Prep–Year 2)

Students could develop ICT skills when they create and communicate personal, family and local history and digitally represent continuity and change in family life by comparing the present with the past. For example, students could use ICT as a creative tool to sequence and represent significant events on a digital timeline. They could use ICT to identify, record and classify textual and graphic information to show what is known and what needs to be investigated about a significant person, building, site or part of the natural environment in the local community and what it reveals about the past.

Students may use software and equipment to make observations or recordings of how they, their family, friends and communities commemorate important past events.

Breadth stage (Years 3–8)
Students could apply and further develop ICT skills when they communicate information about significant people, places and events and when they critically analyse evidence and historical events, developments, perspectives, trends and issues of the past, present and future. They organise, sequence, present and communicate information and findings digitally using multimodal elements, for a variety of reasons and audiences. They collaborate, discuss and debate with others to co-construct their knowledge about cause and effects and continuity and change.

For example, in Levels 3 and 4, students could use ICT tools to annotate content features of historical sources that explain the causes and effects of European settlement and exploration.

In Levels 5 and 6, students could use ICT concept mapping tools to record ideas and use digital timelines to represent thinking and interpret patterns of continuity and change in daily life for Aboriginal and Torres Strait Islander peoples, 'native born' and migrants in the Australian colonies. They could create an interactive story with user-input about a significant individual or event in Australian History.

In Levels 7 and 8, students could use ICT geospatial tools to map and analyse how physical or geographical features influenced the development of Aboriginal and Torres Strait Islander peoples' communities, foundational stories and land management practices. Students could assess the suitability of data or information using appropriate criteria to investigate the significance of an individual and/or group during the Middle Ages.

Pathways stage (Years 9–10)
Students could apply ICT skills 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.

Students could use digital simulations to analyse the causes of significant events, for example, European imperialism, Eureka Stockade or World War 1 and 2. Students could use ICT to analyse and corroborate sources and evaluate their accuracy, usefulness and reliability when investigating the historical significance of an event, idea, individual or place. Students could digitally record different migrant perspectives and experiences and analyse the patterns of change in the development of Australia.

APPENDIX 1: CREATING WITH ICT

The element 'Creating with Information Communication Technologies (ICT)' describes the range of skills and knowledge students demonstrate when using ICT. These skills and knowledge can be grouped into four steps:

Plan steps and processes

Students use ICT to document the design and development process for creating their digital solutions and creative products which may or may not be digital. They annotate their plans to explain changes made during development. They reflect on processes used and note how improvements might be made for future projects.

Generate solutions

Students use ICT efficiently and effectively to design and manage digital solutions, single and multimodal creative products or data transformations for a range of purposes and audiences. Students understand the functions, capabilities and limitations of applications software used to create their solutions or products. They select and apply appropriate software and hardware effectively. Students apply the formats and conventions that are appropriate for the type of solution or product they create.

Test, evaluate and refine

Students develop criteria to test their solution or creative product during development and to evaluate the quality of their finished digital solution and make necessary changes following evaluation. They consider their intended audience/purpose and may improve their solution by receiving feedback through methods such as questionnaires, online polls, social media channels or, if appropriate, user activity.

Implement solution

Students implement their digital solution or creative product. As part of the creating process, students learn to communicate their solution with others, convincing them of the value of the solution and providing ways to assist others with potential subsequent changes.

Further resources to support the element `Creating with ICT' can be found on FUSE.

APPENDIX 2: INQUIRING WITH ICT

The element 'Inquiring with Information Communication Technologies (ICT)' describes the range of skills and knowledge students demonstrate when using ICT. These skills and knowledge can be grouped into three steps:

Investigate

Students use ICT to capture data to support their investigations. They construct online or 'for print' questionnaires to use in surveys of peers, family and community members and use ICT to sort and analyse the data obtained to build new understandings.

Students use data capture tools such as still and video cameras, audio recorders, data loggers and sensors to measure and record changes in the environment, and measure human fitness and performance and capture moments in time.

Students use ICT spatial technologies such as GPS and GIS to capture and store geographic data that enables students to develop descriptions, explanations and conclusions about natural phenomena and the natural and built environments and human interaction with them.

Visually represent thinking

Using ICT, students record their decisions and actions when solving problems and clarifying thoughts. They monitor changes in their thinking and evaluate their own and others' thinking strategies. Students review these records to assess their suitability for new situations.

Students use concept maps to show connections and relationships between ideas. Tools such as mind maps, flow charts, visual maps, and timelines enable students to quickly record, structure, edit and review ideas in both linguistic and non-linguistic visual representations of their thinking. Students construct dynamic models that demonstrate the dynamic relationships between variable and constant data to test hypotheses.

Students use spread-sheets to explore "What if…?" questions and databases to organise and analyse factual information. They search and sort databases to answer specific questions and identify relationships. They use simulations and models of system processes and interactions and ICT-controlled devices such as robots to explore hypotheses and predictions and to assist in constructing knowledge.

Students use appropriate formats and conventions to assist readability of their visual representations of their thinking.

Undertake information searches

Students develop complex, open-ended questions to frame and guide their investigation or inquiry. From these they identify keywords. They enter the keywords, or search string, into a search engine to conduct a broad search on their chosen topic for research and use modifiers to narrow their search to more accurately locate desired information.

Modifiers such as placing the search string in quotes (" ") will return only those information sources that exactly match the search string. This is useful when the title of a source is known. They use plus and minus modifiers to increase precision of a search. Entering the search string "Madame Curie" + "nuclear medicine" will return sources about that aspect of her life.

Students assess the credibility of each source. They assess whether it is a reliable and valid source of information. They consider things such as the type of publication, the type of domain for example .gov or .org, the author of the publication, and the soundness and strength of the argument. Students check the accuracy of digital content by assessing whether it is well written, free from spelling mistakes and grammatically correct. They check for a bibliography and whether acceptable citations are provided.

Students evaluate the accuracy and objectivity of the information. They consider why the resource has been posted and who published it, for example whether it is from a political, personal or corporate website. They also determine whether the information is a balanced report or if the author is presenting a biased perspective. There is nothing inherently wrong with bias but it should be recognised.

Students consider any potential bias in the way their search results are displayed by the search engine. They establish an understanding of how search results are produced and sources ranked and take this into consideration when choosing sources. They distinguish between independent results and sponsored resources and are discerning in their choice.

Students justify their source choices because of the authority of the source or because the source matches the perspective the student is taking or the purpose for their writing. Students also critically engage with the content rather than just quoting the information verbatim.

Resources to support the element 'Inquiring with ICT' can be found on FUSE.

APPENDIX 3: COMMUNICATING WITH ICT

The element 'Communicating with Information Communication Technologies (ICT)' describes the range of skills and knowledge students demonstrate when using ICT. These skills and knowledge can be grouped into two parts:

Collaborate and share
Students collaborate with peers and teachers real time and asynchronously through the use of online collaboration tools. They utilise a range of digital resources designed for collaboration such as collaborative workspaces, blogs, social networking sites and virtual classrooms. Through collaborating online, students work together in virtual teams or in physical teams sharing ideas that are documented digitally, motivating and encouraging each other, making decisions and accepting responsibility for different sections of a project. They also negotiate a shared meaning of the task, and blend and reconfigure existing ideas to construct new knowledge and achieve goals.

Protocols and conventions
Students understand appropriate etiquette when communicating digitally. When emailing, they include a clear subject line, are respectful and appropriate in their choice of language, and use suitable case. When using social media or digital collaboration tools, students use clear and succinct language to avoid being misread and utilise features such as busy or away messages to assist with communication breaks.

Students present digital data and information effectively to a wide range of audiences for a variety of purposes. Students utilise digital tools to present critical perspectives and information in interesting and thought-provoking ways. They are aware when communicating with known and unknown audiences.

Students consider the ethical, social and cultural implications when Communicating with ICT. They consider the perspectives of other users and communicate with respect. They are responsible and ethical users of ICT. Students also apply ICT protocols including acknowledging authors of digital content they use in communications. A more detailed description of the skills required for developing ethical, social and cultural understanding can be found in 'Appendix 4: Protecting with ICT**'**.

Further resources to support the element 'Communicating with ICT' can be found on FUSE.

APPENDIX 4: PROTECTING WITH ICT

The element 'Protecting with Information Communication Technologies (ICT)' describes the range of skills and knowledge students demonstrate when using ICT. These skills and knowledge can be grouped into two parts:

Safe, responsible and ethical use
Students consider ethical, social and cultural issues when protecting with ICT. They recognise and respect the views and perspectives of other users and comply with the responsible and ethical use of ICT. Students follow or establish and implement an acceptable usage policy. They apply appropriate protocols when using ICT to safely create, communicate or share information with known and unknown audiences.

Students understand the purpose of Copyright legislation and intellectual property and understand the ways in which people can protect their work from being copied without permission. They also know the different types of Creative Commons licenses that enable users to share and reuse the content. Students discuss data collection and its use by organisations and the government, and consider the legal, ethical and social implications for the collected data.

Students identify current uses for and impacts of technology in society as well as recognising the rapidly evolving and dynamic nature of technology. They understand the ways in which technology is shaping the way society and workplaces function for example mobility, 24/7 access, global retailing and its possible implications for future use. Students understand the benefits of wearable technology including health (fitness or sleep tracking), safety (recording or fatigue monitoring) or operational (simplify logistics or increase productivity) as well as the security and privacy concerns associated with using the devices.

Protecting and managing data and information
Students create logical folder structures, with appropriate folder names and file names, and when creating drafts of documents, they use file names that ensure version control. Students understand the constraints to storing data and information including storage devices e.g. memory cards, optical discs, and portable hard drives, storage device capacity. They can explain the impact of file sizes on storing and transmitting files and can re-size and reformat files to reduce file size and maintain integrity of the file contents.

Students understand the reasons for backing up and archiving of data. They also understand some of the positive and negative implications of cloud based storage such as backup and recovery, storage capacity, cost, ownership and concerns with safety, copyright and privacy. Students understand digital personal security and the use of passwords to help stop others from accessing private information on a personal digital device, network, including cloud based storage and during email transmission. Students identify ways to create strong passwords and understand the reasons computer programs struggle to crack these complex combinations. They also understand the implications when passwords are disclosed such as data theft, data changes, data loss and confidentiality breaches. Students understand the importance of regularly changing their passwords to help improve security.

Students describe the variety of security implications when working in the digital world. They discover ways to prevent possible geographical, social, structural or economic vulnerabilities such as altering access rights, utilising passwords, antivirus software and firewalls, end-to-end encryption, and creating and adhering to acceptable usage policies. Students become aware of ways in which personal security could be threatened, for example, identity theft, location tracking, phishing and skimming and discuss strategies to protect their personal data and information.

Further resources to support the element 'Protecting with ICT' can be found on FUSE.