

Technologies – Digital Technologies

Reception to year 10

Version 1.0



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Terminology

The South Australian Department for Education uses the term ‘Aboriginal’ to refer to people who identify as Aboriginal, Torres Strait Islander, or both Aboriginal and Torres Strait Islander. This term is preferred by Aboriginal South Australians and the department.

SA Curriculum Framework: Essential Learning summary – Digital Technologies

Why Technologies

Technologies learning cultivates curiosity, creativity and resilience by equipping us to think, make and innovate. Through applying design, systems and computational thinking, we learn how people, technologies and environments shape one another. In Technologies we solve problems with empathy and imagination, acting ethically and collaboratively to create sustainable, preferred futures.

Dispositions

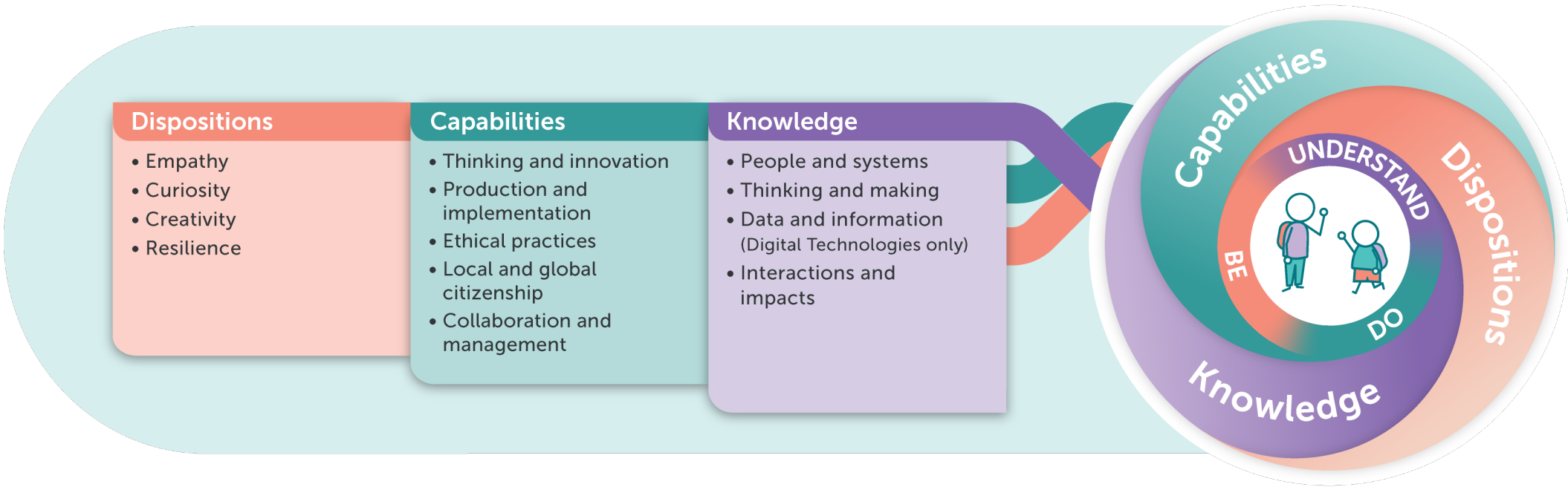
Empathy	Curiosity	Creativity	Resilience
What it is: Relating to and seeking to understand the feelings, experiences and perspectives of others. Why it matters: Being empathetic supports inclusive design and genuine collaboration. Understanding others’ needs and perspectives helps us create solutions that are responsive, sustainable and ethical.	What it is: Being eager to explore, ask questions and understand the things you wonder about. Why it matters: Being curious fosters a fearless desire to find answers and to break things apart to see what makes them work. Experimenting with ideas and technologies is an essential part of seeking to understand the worlds in which we interact and connect.	What it is: Imagining and exploring ideas, experimenting with new possibilities, playing with alternatives and developing original expressions or solutions. Why it matters: Being creative is essential to becoming innovators, dreaming up possibilities and identifying workable solutions.	What it is: Persevering and adapting in the face of challenges. Why it matters: Being resilient matters because productive failure is part of the problem-solving process and enables prototyping, reiteration and evaluation so that all attempts, even mistakes, lead to an improved outcome.

Capabilities

Thinking and innovation	Production and implementation	Ethical practices	Local and global citizenship	Collaboration and management
What it is: Thinking flexibly and creatively through design, systems and computational thinking to explore possibilities, frame problems and test solution ideas. Why it matters: Being innovative helps learners turn curiosity into purposeful ideas that improve how people live and work. It builds confidence to question, experiment, and refine thinking through iteration.	What it is: Transforming ideas into tangible solutions by planning, creating and refining with precision, using tools, resources and digital systems. Why it matters: Being capable of producing and implementing solutions empowers learners to move from imagination to impact. It develops technical skill, safe work practices, resourcefulness and the confidence to bring ideas to life.	What it is: Examining our biases and recognising how decisions affect others; acting with care, fairness and responsibility. Why it matters: Ethical practices foster trust and ensure technologies contribute positively to people and environments. They build awareness of how design decisions influence wellbeing, safety and sustainability.	What it is: Embracing our role in interconnected local and global communities. Engaging with diverse communities to understand how technologies shape – and are shaped by – cultures, values and environments. Why it matters: Intercultural responsiveness helps learners design solutions that are inclusive, respectful and sustainable. Understanding different perspectives strengthens collaboration and shared responsibility.	What it is: Working with others to plan, organise and deliver projects by managing time, roles and resources effectively. Why it matters: Collaboration builds communication, empathy and accountability. Managing projects together enables learners to lead, adapt and achieve shared goals with confidence.

Knowledge

People and systems	Data and information	Thinking and making	Interactions and impacts
What it is: Interconnected people, components and processes that work together within designed and natural systems to achieve a shared purpose or function. Why it matters: People can create, use, maintain and influence how systems operate and evolve. When we understand how people and systems interconnect, we can anticipate change and design more sustainable solutions.	What it is: Data is raw unprocessed facts, figures or observations that can be processed and organised into meaningful information. Why it matters: When we can acquire, manage and analyse data, we can make informed decisions through identification of patterns or inherent biases.	What it is: Computational, design and systems thinking strategies support the generation of dynamic and inclusive solutions in response to needs or opportunities. Why it matters: When we see ourselves as skilled and organised problem solvers, we can approach any problem with optimism and confidence to enact solutions.	What it is: The intended and unintended consequences of designed solutions. Why it matters: Understanding the impacts of technologies supports us to see ourselves as having agency to influence preferred futures by persistently improving the ways people interact with each other and the planet.



The dispositions, capabilities and knowledge embedded in the SA Curriculum: Technologies

Digital Technologies – Reception

Essential Learning

Dispositions

Empathy	Curiosity	Creativity	Resilience
This disposition may be evident when learners, for example: • consider that another person may prefer to use a digital tool differently and make choices that take this into account • listen to a peer's viewpoint and adjust their feedback or decision in a collaborative design task • notice what might help someone else and make a choice that supports them when using a digital tool collaboratively.	This disposition may be evident when learners, for example: • explore why and how a user interacts with a digital tool • identify a component part of a digital system and ask what it does • notice something unexpected when trying a code and explore what might have caused it.	This disposition may be evident when learners, for example: • experiment with patterns in repeated steps to create different outcomes in a sequence of code • play with code, data or media to explore different possibilities when creating a digital product • explore different ways to represent data using a 3D object, sketch or picture.	This disposition may be evident when learners, for example: • continue developing a feature of a digital tool by seeking help when unsure how to proceed • troubleshoot a problem when a digital tool doesn't work as expected • self-correct mistakes when developing or following an algorithm.

Capabilities

Thinking and innovation	Production and implementation	Ethical practices	Local and global citizenship	Collaboration and management
Learners develop this capability by, for example: - investigating how and why people use digital systems in their lives and work - identifying common hardware components such as a screen, mouse or keyboard - imagining how the internal parts of a digital system might work - recognising that the same data can be represented with different objects, symbols, images or words.	Learners develop this capability by, for example: - identifying when specific instructions are important to remain unchanged - making models by following step by step instructions - representing data from familiar environments - noticing icons for applications they use and naming them as software.	Learners develop this capability by, for example: - recognising public and private information and why it is important to know which data they own and is personal to them - identifying safe and fair behaviours when interacting with digital systems - obtaining permission before taking and using images of people.	Learners develop this capability by, for example: - exploring how diverse cultures represent data and patterns symbolically, including in Aboriginal contexts - investigating how familiar digital systems are used by diverse people to solve problems - recognising how past and present devices have evolved over time to support more people.	Learners develop this capability by, for example: - identifying how to use digital systems fairly and safely with others to achieve shared tasks - sharing ideas about digital wellbeing strategies including time offline and using digital devices - reporting any behaviour which makes them feel uncomfortable to trusted adults when using digital systems.

Knowledge

People and systems	Interactions and impacts
Conceptual understandings and supporting content descriptions	
Digital systems are hardware and software that work together so that people can communicate and create. Learners: - recognise and explore digital systems (hardware and software) for a purpose. AC9TDIFK01 Data can be represented as objects, pictures and symbols. Learners: - represent data as objects, pictures and symbols. AC9TDIFK02	Digital systems store information, and it is important to use them safely to protect self and others. Learners: identify some data that is personal and owned by them. AC9TDIFP01

Digital Technologies – Years 1 to 2

Essential Learning

Dispositions

Empathy	Curiosity	Creativity	Resilience
This disposition may be evident when learners, for example: - consider that another person may prefer to use a digital tool differently and make choices that take this into account - listen to a peer's viewpoint and adjust their feedback or decision in a collaborative design task - notice what might help someone else and make a choice that supports them when using a digital tool collaboratively.	This disposition may be evident when learners, for example: - explore why and how a user interacts with a digital tool - identify a component part of a digital system and ask what it does - notice something unexpected when trying a code and explore what might have caused it.	This disposition may be evident when learners, for example: - experiment with patterns in repeated steps to create different outcomes in a sequence of code - play with code, data or media to explore different possibilities when creating a digital product - explore different ways to represent data using a 3D object, sketch or picture.	This disposition may be evident when learners, for example: - continue developing a feature of a digital tool by seeking help when unsure how to proceed - troubleshoot a problem when a digital tool doesn't work as expected - self-correct mistakes when developing or following an algorithm.

Capabilities

Thinking and innovation	Production and implementation	Ethical practices	Local and global citizenship	Collaboration and management
Learners develop this capability by, for example: - investigating how digital systems are designed to support users - exploring simple external components (hardware) and identifying whether they input or output data - identifying software as step-by-step instructions given to digital systems - recognising data stored on digital systems that belong to them	Learners develop this capability by, for example: - experimenting with algorithms by creating and following step-by-step processes to complete a task - recognising how steps in algorithms need to be very specific and followed in an ordered sequence - describing and following algorithms that include iteration and loops	Learners develop this capability by, for example: - co-developing and following safety and security guidelines for using digital tools when identifying and storing data within digital systems - exploring data sets to identify biases that may influence choices, and make fair decisions when designing digital solutions	Learners develop this capability by, for example: - exploring and honouring Aboriginal knowledge and practices when demonstrating how data can be represented symbolically - considering data representation through Aboriginal seasonal calendars where images represent and communicate changes, and how the appearance of a flower can signify a connected event or a resource availability	Learners develop this capability by, for example: - using common digital tools to allow secure content sharing and collaborate by setting agreed behaviours - practising ways to monitor device use and becoming aware of the need for being offline and digital devices

Thinking and innovation	Production and implementation	Ethical practices	Local and global citizenship	Collaboration and management
designing simple prototypes of a digital idea or solution using tactile materials and explaining how they would work.	experimenting with algorithms that demonstrate branching using trial and error strategies to test an algorithm and using the results to make improvements.	- protecting data security by using and remembering unique usernames and passwords, while knowing that these should not be shared, except with trusted adults - recognising that personal information should remain private.	- demonstrating how access to digital systems varies and can have positive and negative impacts on the ways people connect and communicate - investigating how people create and use digital systems in diverse ways to help their community.	- being kind to others when communicating or collaborating face-to-face, or in the connected environment, and when identifying and reporting inappropriate behaviour to a trusted adult - troubleshooting for themselves and others when faced with difficulty using digital tools.

Knowledge

People and systems	Thinking and making	Interactions and impacts
Conceptual understandings and supporting content descriptions		
Digital systems have hardware and software components that work together to meet the needs of users. Learners: - identify and explore digital systems and their components for a purpose. AC9TDI2K01 Data in digital systems can be stored and represented in different ways. Learners: - represent data as pictures, symbols, numbers and words. AC9TDI2K02	Digital systems use software, which are very specific step-by-step processes (algorithms). Learners: - use the basic features of common digital tools to create, locate and communicate content. AC9TDI2P04 Algorithms use branching and iterations to show decisions and repeated instructions. Learners: - follow and describe algorithms involving a sequence of steps, branching (decisions) and iteration (repetition). AC9TDI2P02	Digital solutions can be co-designed and improved based on user needs and feedback. Learners: - investigate simple problems for known users that can be solved with digital systems AC9TDI2P01 - discuss how existing digital systems satisfy identified needs for known users. AC9TDI2P03 Ensuring people use digital tools safely and collaboratively contributes to digital wellbeing and data security. Learners: - use the basic features of common digital tools to share content and collaborate demonstrating agreed behaviours, guided by trusted adults AC9TDI2P05 - access their school account with a recorded username and password AC9TDI2P06 - discuss that some websites and apps store their personal data online. AC9TDI2P07

Digital Technologies – Years 3 to 4

Essential Learning

Dispositions

Empathy	Curiosity	Creativity	Resilience
This disposition may be evident when learners, for example: - listen to an end user’s needs to shape a design decision - consider how a peer might experience feedback to provide helpful and specific suggestions for a digital solution - identify the needs of end users from diverse cultural contexts and iterate digital solutions in response to those needs.	This disposition may be evident when learners, for example: - wonder about an unexpected or interesting effect of a digital system on people or the environment and explore what might be causing it - question what is happening to data when noticing that information changes or moves through a system - experiment with encrypting and decrypting messages, pursuing questions about what changes and what this reveals about how information can be protected.	This disposition may be evident when learners, for example: - experiment with tactile materials to explore different ways of visually representing a digital system - generate a broad range of ideas for a digital solution when applying design or computational thinking strategies - imagine different ways an algorithm could achieve a digital outcome and build one using multiple control structures.	This disposition may be evident when learners, for example: - return to a digital solution after an unexpected problem disrupts their work and rebuild or revise what is needed to continue - adjust their approach when a technical or design challenge interrupts progress - continue refining an algorithm when initial attempts do not work as intended, using what they have learned to make further changes.

Capabilities

Thinking and innovation	Production and implementation	Ethical practices	Local and global citizenship	Collaboration and management
Learners develop this capability by, for example: - investigating components of digital systems and how users access and use them for a purpose - exploring the use of peripheral devices to identify their roles when applying input, storage and output processes	Learners develop this capability by, for example: - incorporating algorithms into a visual programming environment - utilising iteration and loops to improve efficiency - identify precise sequencing when describing an algorithm - practising comparison operators to show branching	Learners develop this capability by, for example: - following existing or co-designing user agreements to operate respectfully and fairly in connected environments - using privacy strategies to create positive digital identities and protect personal information - considering and using security features to protect privacy and data	Learners develop this capability by, for example: - collecting and organising information in ways that consider diverse perspectives, including identifying and honouring local Aboriginal knowledge and ways of classifying - exploring how Aboriginal rangers use digital systems to monitor animal populations, including local marine turtles, by using global positioning systems (GPS)	Learners develop this capability by, for example: - contributing respectfully and working with others on shared tasks in addition to using digital tools that allow secure collaboration - monitoring device use and becoming aware of time online and off screens to make time for physical activity

Thinking and innovation	Production and implementation	Ethical practices	Local and global citizenship	Collaboration and management
- identifying how the same data can be represented differently when using images, sound or text - defining needs and opportunities by interviewing users and co-developing user stories.	evaluating solutions for identified users against success criteria and improving solutions based on respectful user feedback.	acknowledging intellectual property by labelling sources and obtaining permission to use creative works of others.	- exploring how diverse people use digital systems for sustainability - profiling diverse inventors in technologies sectors, including pioneering women.	- treating people with the same respect shown in face-to-face interactions when in connected environments and reporting inappropriate behaviour to a trusted adult or authority - giving and receiving respectful feedback - troubleshooting and organising digital files or content for themselves and others to support shared work.

Knowledge

People and systems	Thinking and making	Interactions and impacts
Conceptual understandings and supporting content descriptions		
Digital systems have hardware and software components that are continuously improving to meet the needs of diverse users. Learners: - explore and describe a range of digital systems and their peripherals for a variety of purposes AC9TDI4K01 - explore transmitting different types of data between digital systems. AC9TDI4K02 The same data can be represented in different ways and transmitted between digital systems. Learners: - recognise different types of data and explore how the same data can be represented differently depending on the purpose. AC9TDI4K03	User stories are a way of identifying needs and opportunities for digital solutions. Learners: - define problems with given design criteria and by co-creating user stories AC9TDI4P01 - generate, communicate and compare designs. AC9TDI4P03 Digital solutions use efficient algorithms that represent a sequence of steps that include branching and iteration. Learners: - follow and describe algorithms involving sequencing, comparison operators (branching) and iteration. AC9TDI4P02 Algorithms can be implemented into visual programming tools to create a digital solution that meets user needs. Learners: - implement simple algorithms as visual programs involving control structures and input. AC9TDI4P04	Digital solutions can be improved to meet the changing needs of diverse users. Learners: - discuss how existing and student solutions satisfy the design criteria and user stories. AC9TDI4P05 Creating and collaborating on digital projects relies on following agreed behaviours and conventions to ensure fairness, data security and privacy. Learners: - use the core features of common digital tools to create, locate and communicate content, following agreed conventions AC9TDI4P06 - use the core features of common digital tools to share content, plan tasks, and collaborate, following agreed behaviours, supported by trusted adults. AC9TDI4P07

People and systems	Thinking and making	Interactions and impacts
		Digital wellbeing involves managing risks and using safe practices to interact respectfully in connected environments. Learners: • access their school account using a memorised password and explain why it should be easy to remember, but hard for others to guess AC9TDI4P08 • identify what personal data is stored and shared in their online accounts and discuss any associated risks. AC9TDI4P09

Digital Technologies – Years 5 to 6

Essential Learning

Dispositions

Empathy	Curiosity	Creativity	Resilience
This disposition may be evident when learners, for example: - notice a stakeholder's specific need and use this understanding to shape a digital solution - consider how a user may experience a connected environment and use this understanding to design a feature that supports their wellbeing or safety - consider an end user's needs when providing feedback to a peer about how a design could be more inclusive or accessible.	This disposition may be evident when learners, for example: - notice something intriguing about a digital technology and pursue questions about how it works, what it enables and what risks it might bring - notice changes between connected parts of a digital system and pursue questions about how or why one part affects another - pursue questions about how or why a digital system seems to influence what people see or choose.	This disposition may be evident when learners, for example: - generate different ideas for a new digital system to explore possible ways of solving a problem - innovate multiple ideas that apply a digital tool or data to solve an authentic challenge - experiment with changes to a digital product's code, interface or data visualisation to explore different ways of influencing an outcome.	This disposition may be evident when learners, for example: - try an alternative digital modelling strategy when an initial approach does not work as intended - reconsider a strategy that isn't working when designing a digital solution, and change it in response to feedback or new information - persist when tracing through an algorithm step by step, checking their own reasoning at each step, to find an error.

Capabilities

Thinking and innovation	Production and implementation	Ethical practices	Local and global citizenship	Collaboration and management
Learners develop this capability by, for example: - investigating the accessibility of digital systems for different users - recognising the components of digital systems and explaining how they represent and transmit different types of data, including input, output, stored and processed data - exploring how data can be represented by on and off states using a binary number system of ones and zeroes - collecting and visualising data to identify patterns or opportunities to solve problems - designing thoughtful user interfaces by listening to potential users and co-developing user stories.	Learners develop this capability by, for example: - implementing algorithms into a visual program that keeps track of variables in response to user actions - refining a visual program to be more responsive to user input by using control structures including iterations and loops, conditional statements and comparison operators - creating and refining a functional digital user interface that is inclusive of diverse user needs - providing and receiving respectful feedback to support improvement of digital user interfaces.	Learners develop this capability by, for example: - practising behaviours that are acceptable for supportive, responsible and safe device use or online interactions - evaluating data sets for representation and bias when making inclusive and informed design decisions - using security settings to protect privacy, reporting risky or inappropriate behaviour or content to trusted adults or relevant authorities, while recognising that digital data can leave a permanent trace - considering the ongoing impact of cybercrime, phishing, and financial or data scams and reporting the incidents to trusted adults or authorities - requesting permission before using or posting other people's content and acknowledging intellectual property rights - recognising encryption methods and why they may be important to people's privacy and data security.	Learners develop this capability by, for example: - considering how Aboriginal rangers use digital systems to support sustainability, including structured procedures (algorithms) to respond to live tracking data that indicates feral buffalo are approaching an environmentally or culturally significant site - recognising how people use digital tools to enhance their cultural knowledge and practices - using inclusive digital features, including translation tools, in a user interface to be more responsive to diverse users - following cultural protocols, including using relevant permissions and attributions.	Learners develop this capability by, for example: - contributing to teamwork by negotiating roles, resolving conflict and taking shared responsibility to complete tasks in online or face-to-face environments - developing strategies for improved digital wellbeing including self-regulating using digital devices and actively planning time for breaks or physical activity - independently troubleshooting for themselves or others when using digital systems and seeking support when needed - critiquing the validity of digital content and how potential bias can impact people's decision making or wellbeing.

Knowledge

People and systems	Thinking and making	Interactions and impacts
Conceptual understandings and supporting content descriptions		
Digital systems combine hardware, software and network components that work together to process and transmit data, enabling people to solve problems efficiently in connected environments. Learners: - investigate the main internal components of common digital systems and their function AC9TDI6K01 - examine how digital systems form networks to transmit data. AC9TDI6K02 Data in digital systems is based on binary (on/off) states represented by numbers. Learners: - explain how digital systems represent all data using numbers AC9TDI6K03 - explore how data can be represented by off and on states (zeros and ones in binary). AC9TDI6K04	User stories are a way to define problems and set success criteria for effective digital solutions. Learners: - define problems with given or co-developed design criteria and by creating user stories. AC9TDI6P01 Digital solutions are developed by crafting efficient algorithms that can then be implemented into programming tools. Learners: - design algorithms involving multiple alternatives (branching) and iteration. AC9TDI6P02 Complex programming structures support intuitive digital user interface design. Learners: - design a user interface for a digital system AC9TDI6P03 - implement algorithms as visual programs involving control structures, variables and input. AC9TDI6P05	Digital solutions are evaluated against success criteria and their intended or unintended outcomes. Learners: - generate, modify, communicate and evaluate designs AC9TDI6P04 - evaluate existing and student solutions against the design criteria and user stories and their broader community impact. AC9TDI6P06 Creating and collaboratively managing digital projects relies on following agreed, ethical behaviours and conventions to ensure data privacy and security. Learners: - select and use appropriate digital tools effectively to create, locate and communicate content, applying common conventions AC9TDI6P07 - select and use appropriate digital tools effectively to share content online, plan tasks and collaborate on projects, demonstrating agreed behaviours. AC9TDI6P08 Digital wellbeing involves regulating the use of digital systems in balanced ways and developing respectful relationships in connected environments. Learners: - access multiple personal accounts using unique passphrases and explain the risks of password re-use AC9TDI6P09 - explain the creation and permanence of their digital footprint and consider privacy when collecting user data. AC9TDI6P10

Digital Technologies – Years 7 to 8

Essential Learning

Dispositions

Empathy	Curiosity	Creativity	Resilience
This disposition may be evident when learners, for example: • pay attention to peers' perspectives about a digital tool and what these reveal about their needs or preferences to inform a design decision • show appreciation for the needs or experiences of a peer or client and adjust a design to be more inclusive or accessible • adjust how feedback might be best communicated, considering how a creator might feel when receiving it.	This disposition may be evident when learners, for example: • notice data moving between digital systems and pursue questions about how or why the systems connect and share information • wonder about how a digital device may have shaped their own behaviour or a community interaction and pursue questions about its influence • pursue questions about how an algorithm might influence what a person sees, shares or decides online after noticing variation in what different people are shown.	This disposition may be evident when learners, for example: • generate different digital solution ideas by combining user needs and perspectives in new ways • ideate different possibilities for digital solutions in response to a design brief's criteria or constraints • experiment with code, data or media to explore alternative possibilities when developing a digital product.	This disposition may be evident when learners, for example: • continue debugging and testing a solution until technical challenges are resolved and understood • try more than one solution to an unexpected problem when working with spreadsheets or databases until they identify a workable way forward • continue making changes to a digital system when technical difficulties or delays disrupt progress, adjusting their approach as needed.

Capabilities

Thinking and innovation	Production and implementation	Ethical practices	Local and global citizenship	Collaboration and management
Learners develop this capability by, for example: • applying user-centred design to define problems, gather requirements and explore alternative solution possibilities • designing and representing algorithms using flowcharts, pseudocode and structured logic to support efficient problem solving	Learners develop this capability by, for example: • designing and implementing digital solutions that meet defined user needs and system goals through collaborative development processes • applying programming constructs – sequence, selection and iteration – to create reliable, responsive programs in contemporary coding environments	Learners develop this capability by, for example: • identifying and analysing privacy risks, algorithmic bias and technology misuse as part of responsible and safe digital activity • applying fairness, respect, inclusion and accountability principles when choosing or creating digital systems and data sets	Learners develop this capability by, for example: • respectfully engaging with cultural protocols, including permission, attribution and an Acknowledgement of Country, when using or creating digital content • recognising how people and cultures use digital tools to sustain knowledge, connect communities and address shared challenges	Learners develop this capability by, for example: • collaborating respectfully with peers to plan and manage digital projects, using agreed roles, timelines and success criteria to guide shared work • communicating safely and ethically in connected environments, and resolving differences constructively to maintain trust and positive digital relationships

Thinking and innovation	Production and implementation	Ethical practices	Local and global citizenship	Collaboration and management
• using logical reasoning to question, test and refine algorithms for accuracy, efficiency and effectiveness • iterating design ideas based on feedback, balancing creativity with functionality and user needs • investigating how digital systems process and represent data in binary and other formats to inform solution design.	• debugging and testing systematically, using peer and user feedback to improve functionality, accessibility and performance • documenting and communicating designs and code using clear comments, technical language, diagrams and version-control tools to support shared understanding.	• evaluating the intended and unintended impacts of digital innovations on wellbeing, equity and sustainability, and proposing improvements • examining how AI and automated systems can embed or reduce bias, and discussing how transparency can build public trust • participating in ethical discussions and collaborative decision making to develop responsible approaches to technology design and use • considering the ethical and environmental impacts of implementation choices, including accessibility, data storage and energy use.	• applying inclusive and accessible design principles, including translation tools, adaptive interfaces or culturally responsive features to meet diverse user needs • analysing how cultural values and assumptions influence data, algorithms and digital content, including content generated by AI systems • evaluating how equitable access to digital systems can promote participation, wellbeing and sustainable development in local and global contexts.	• monitoring personal and group wellbeing by setting healthy boundaries for device use, and maintaining balance between online and offline collaboration • troubleshooting and adapting when digital tools, systems or materials change, and applying curiosity and resilience to sustain progress toward shared goals • demonstrating inclusive leadership by engaging all group members and considering user perspectives, accessibility and sustainability when making collaborative decisions.

Knowledge

People and systems	Data and information	Thinking and making	Interactions and impacts
Conceptual understandings and supporting content descriptions			
Digital systems rely on people selecting hardware with specifications that match task requirements because processing power, memory and other components directly influence system performance and user experience. Learners: - explain how hardware specifications affect performance and select appropriate hardware for particular tasks and workloads. AC9TDI8K01 Networked systems depend on people understanding how data is transmitted and protected across wired and wireless connections, so communication protocols and security measures can be applied to maintain reliable and secure information flow. Learners: - investigate how data is transmitted and secured in wired and wireless networks including the internet. AC9TDI8K02 Digital systems represent all data – including integers, text, images and audio – as numerical patterns such as binary, enabling information to be processed, stored and transmitted efficiently across interconnected systems. Learners: - investigate how digital systems represent text, image and audio data using integers AC9TDI8K03 - explain how and why digital systems represent integers in binary. AC9TDI8K04 System interfaces mediate interactions between people and digital systems, shaping accessibility, usability and user experience by responding to user needs and behaviours.	Data is acquired, stored, structured and validated so digital systems can work with information that is accurate, relevant and reliable. Learners: - acquire, store and validate data from a range of sources using software, including spreadsheets and databases AC9TDI8P01 - model and query the attributes of objects and events using structured data. AC9TDI8P03 Analysing and visualising data using digital tools helps identify patterns and trends that inform decisions, predictions and actions. Learners: - analyse and visualise data using a range of software, including spreadsheets and databases, to draw conclusions and make predictions by identifying trends. AC9TDI8P02 Digital footprints created through system use require people to judge what data is collected, stored and shared, and whether it is essential to a system's purpose. Learners: - investigate and manage the digital footprint existing systems and student solutions collect and assess if the data is essential to their purpose. AC9TDI8P14	Problem decomposition and design criteria help define and refine real-world challenges through user stories, enabling iterative development of purposeful, user-centred solutions. Learners: - define and decompose real-world problems with design criteria and by creating user stories AC9TDI8P04 - generate, modify, communicate and evaluate alternative designs. AC9TDI8P08 Algorithms model solutions using sequence, selection and iteration, and implementing and debugging them develops modular, adaptable and efficient programs. Learners: - design algorithms involving nested control structures and represent them using flowcharts and pseudocode AC9TDI8P05 - trace algorithms to predict output for a given input and to identify errors. AC9TDI8P06 Iterative design, modelling and prototyping – supported by testing, feedback and debugging – refine ideas to improve functionality, efficiency and user experience. Learners: - implement, modify and debug programs involving control structures and functions in a general-purpose programming language. AC9TDI8P09 Digital tools enable people to efficiently create, test and communicate ideas, applying features and conventions to support purposeful design and problem solving.	Evaluation of digital solutions considers functionality, sustainability and how well they meet user stories, design criteria and future impacts on people, communities and environments. Learners: - evaluate existing and student solutions against the design criteria, user stories and possible future impact. AC9TDI8P10 Ethical and responsible online participation promotes safe, inclusive and respectful interactions when people collaborate, communicate or share content online. Learners: - select and use a range of digital tools efficiently and responsibly to share content online, and plan and manage individual and collaborative agile projects. AC9TDI8P12 Effectively managing data, privacy and security – including recognising cyber threats and using protective measures – supports wellbeing, reduces risk and sustains trust in digital environments. Learners: - explain how multi-factor authentication protects an account when the password is compromised and identify phishing and other cyber security threats. AC9TDI8P13

People and systems	Data and information	Thinking and making	Interactions and impacts
Learners: design the user experience of a digital system. AC9TDI8P07		Learners: select and use a range of digital tools efficiently, including unfamiliar features, to create, locate and communicate content, consistently applying common conventions. AC9TDI8P11	

Digital Technologies – Years 9 to 10

Essential Learning

Dispositions

Empathy	Curiosity	Creativity	Resilience
This disposition may be evident when learners, for example: • seek to understand how people's needs or preferences about digital tools might differ from their own and use this understanding to inform a design response • adjust the design of a digital interface after considering how it might affect the user's emotional experience • seek to understand an end user's experience of a digital system and use this understanding to inform future iterations.	This disposition may be evident when learners, for example: • notice differences in how a digital tool is used in another community and pursue questions about why it is used in those ways • pursue their ideas about how a digital system might work and test them through exploration • pursue questions they have about the reliability of a digital innovation and explore what makes them trust or doubt it, including what its use might mean for people or the environment.	This disposition may be evident when learners, for example: • explore original or alternative ways of combining artefacts, presentations and interactive media to communicate digital solutions to authentic audiences • experiment with alternative approaches to coding, interfaces or data visualisations when refining digital products • ideate new possibilities for developing digital solutions for specific end users.	This disposition may be evident when learners, for example: • pivot from their initial thinking when designing a digital solution, identify a step that isn't working, and correct or rebuild it • change their approach when a test result, feedback or changing project need reveals a problem or constraint in a digital solution • manage arising challenges in a digital project, adjusting workflow to meet criteria and timelines.

Capabilities

Thinking and innovation	Production and implementation	Ethical practices	Local and global citizenship	Collaboration and management
Learners develop this capability by, for example: • applying user-centred and systems design approaches to frame complex problems and explore, test and refine solution possibilities for social, environmental or economic challenges • using computational thinking to optimise solutions through precise logic, pattern analysis and adaptive decision making • integrating data analysis and visualisation to inform design	Learners develop this capability by, for example: • designing, implementing, testing and refining digital solutions that address user needs and meet defined design constraints, using systematic development processes • developing modular, reusable programs using structured or object-oriented approaches, and documenting functions and modules with clear, purposeful code comments to support readability and maintenance	Learners develop this capability by, for example: • analysing and evaluating the wider implications of emerging technologies, including AI, automation and data use, to inform ethical and sustainable design decisions • applying ethical frameworks to balance competing priorities including privacy, equity, transparency and environmental responsibility	Learners develop this capability by, for example: • analysing how digital technologies and data practices are shaped by cultural values, contexts and power structures, including issues of data sovereignty • adapting communication approaches to demonstrate intercultural understanding, empathy and respect in diverse digital contexts • identifying and engaging with local and global communities to co-design	Learners develop this capability by, for example: • leading or contributing to digital projects by managing shared goals, timelines, roles and communication using appropriate project management tools and strategies • communicating respectfully and ethically across diverse digital environments, sustaining trust, collaboration and a positive digital identity • balancing wellbeing, efficiency and sustainability by self-

Thinking and innovation	Production and implementation	Ethical practices	Local and global citizenship	Collaboration and management
choices, innovation opportunities and evidence-based decision making - questioning assumptions and analysing constraints to evaluate multiple pathways for innovation and problem solving - developing innovative and sustainable solution concepts that balance creativity, function and potential impact.	- applying analytical, testing and evaluative processes to ensure accuracy, reliability, performance and security of digital solutions - producing comprehensive technical documentation to support implementation, collaboration and long-term maintainability - evaluating digital solutions against success criteria, long-term impacts, ethical considerations and sustainability goals to guide improvement and future innovation.	- demonstrating leadership and initiative by using digital technologies for social good, and advocating for responsible, inclusive and secure digital practices - engaging in critical discussions and reasoned debate to consider diverse perspectives and argue ethical decisions in design and data contexts - evaluating the societal impacts of digital systems, including bias, localisation, algorithmic representation and access - proposing and refining innovative solutions that promote fairness, wellbeing and long-term sustainability for people and environments.	inclusive, ethical and sustainable digital solutions that respond to shared challenges advocating for equitable access, diversity and cultural respect in the creation, governance and use of digital systems locally and worldwide.	regulating technology use and modelling responsible digital habits within teams - adapting to emerging tools, platforms or materials by applying initiative, curiosity and continuous learning to improve team outcomes - engaging users and stakeholders inclusively, considering accessibility, cultural perspectives and ethical implications when designing and managing collaborative digital projects.

Knowledge

People and systems	Data and information	Thinking and making	Interactions and impacts
Conceptual understandings and supporting content descriptions			
Digital systems integrate hardware, software and network protocols to manage, control and secure data access within connected environments. Learners: - investigate how hardware and software manage, control and secure access to data in networked digital systems. AC9TDI10K01 Digital documents use abstracted structures that separate content, organisation and presentation so information can be created, interpreted and shared clearly and consistently across different users, tools and platforms. Learners: - represent documents online as content (text), structure (markup) and presentation (styling) and explain why such representations are important. AC9TDI10K02 Compression and optimisation techniques reduce file size to improve the efficiency, sustainability and performance of data transmission and storage in networked systems. Learners: - investigate simple data compression techniques. AC9TDI10K03 Cybersecurity resilience requires modelling threats and analysing vulnerabilities – such as user, software or supply chain weaknesses – to guide protective strategies within socio-technical systems. Learners: - develop cyber security threat models, and explore a software, user or software supply chain vulnerability. AC9TDI10P13	Data is purposefully acquired, stored and validated using digital tools to ensure accuracy, completeness and reliability for analysis and decision making. Learners: - develop techniques to acquire, store and validate data from a range of sources using software, including spreadsheets and databases. AC9TDI10P01 Interactive data analysis and visualisation reveal patterns, trends and outliers that support evidence-based reasoning, prediction and decision making. Learners: - analyse and visualise data interactively using a range of software, including spreadsheets and databases, to draw conclusions and make predictions by identifying trends and outliers. AC9TDI10P02 Data modelling and querying represent entities and their relationships, structuring information so it can be organised, retrieved and interpreted within digital systems. Learners: - model and query entities and their relationships using structured data. AC9TDI10P03 Responsible data practices apply privacy principles to evaluate and minimise the data collected by digital systems, supporting user consent, security and digital wellbeing. Learners: - apply the Australian Privacy Principles to critique and manage the digital footprint that	Problem decomposition, stakeholder engagement and design criteria guide how real-world problems are defined and refined through user stories to support purposeful, user-centred digital solutions. Learners: - define and decompose real-world problems with design criteria and by interviewing stakeholders to create user stories. AC9TDI10P04 Algorithms express computational solutions using logical operators, control structures and modular design, enabling clarity, efficiency and reuse when represented as flowcharts or pseudocode. Learners: - design algorithms involving logical operators and represent them as flowcharts and pseudocode. AC9TDI10P05 Implementation, validation and debugging ensure that modular programs and algorithms meet specifications, behave as expected across test cases and can be refined for accuracy, reliability and performance. Learners: - validate algorithms and programs by comparing their output against a range of test cases AC9TDI10P06 - implement, modify and debug modular programs, applying selected algorithms and data structures, including in an object-oriented programming language. AC9TDI10P09 Iterative design, modelling and prototyping refine user experiences and digital solutions through testing, feedback and critical evaluation against design criteria.	Evaluation of digital solutions considers functionality, usability, sustainability and enterprise potential, as well as intended and unintended impacts on people, communities and environments. Learners: - evaluate existing and student solutions against the design criteria, user stories, possible future impact and opportunities for enterprise AC9TDI10P10 - select and use emerging digital tools and advanced features to create and communicate interactive content for a diverse audience. AC9TDI10P11 Digital tools support the creation, communication and collaboration required for project management and responsible online participation. Learners: - use simple project management tools to plan and manage individual and collaborative agile projects, accounting for risks and responsibilities. AC9TDI10P12

People and systems	Data and information	Thinking and making	Interactions and impacts
	existing systems and student solutions collect. AC9TDI10P14	Learners: - design and prototype the user experience of a digital system AC9TDI10P07 - generate, modify, communicate and critically evaluate alternative designs. AC9TDI10P08	