



# Syllabus and curriculum comparison

## Early stage 1

NSW Science and Technology Syllabus	Australian Curriculum
Early stage 1	Foundation
STE-DDT-01 identifies and uses technologies to make products to address user needs or opportunities	AC9TDIFK01 recognise and explore digital systems (hardware and software) for a purpose
<b>Content</b>	AC9TDIFK02 represent data as objects, pictures and symbols
<p><b>Observations and questions initiate design and digital solutions</b>  <b>Understanding user needs inspires design and digital solutions</b></p> <ul style="list-style-type: none"> <li>• Distinguish between user needs and wants and describe how they can lead to design opportunities</li> <li>• Identify designed products and how they meet user needs</li> <li>• Design and build a simple product that addresses a user need or opportunity</li> <li>• Pose questions to identify the parts of plants and animals used for food and fibre and create a data display</li> <li>• Examine designed structures that animals build to help them survive in their environment</li> <li>• Identify and safely use digital devices and apps for a purpose</li> <li>• Follow a series of steps to record, save and retrieve data</li> </ul>	<p>AC9TDIFP01 identify some data that is personal and owned by them</p> <hr/> <p><b>Achievement Standards</b></p> <p><b>Learning area achievement standard</b>            By the end of Foundation students identify familiar products, services and environments and develop familiarity with digital systems, using them for a purpose. They create, communicate and choose design ideas. Students follow steps and use materials and equipment to safely make a designed solution for a school-selected context. They show how to represent data using objects, pictures and symbols and identify examples of data that is owned by them.</p> <p><b>Subject achievement standard</b>            By the end of Foundation students show familiarity with digital systems and use them for a purpose. They represent data using objects, pictures and symbols and identify examples of data that is owned by them.</p>



# Syllabus and curriculum comparison

## Stage 1

NSW Science and Technology Syllabus	Australian Curriculum
Stage 1	Years 1 and 2
ST1-DDT-01 uses technologies and materials to design and make products to address user needs or opportunities	AC9TDI2K01 identify and explore digital systems and their components for a purpose
Content	AC9TDI2K02 represent data as pictures, symbols, numbers and words
<p><b>Design and digital solutions are created through knowledge and understanding</b>  <b>A design process is used to define user needs and create solutions</b></p> <ul style="list-style-type: none"> <li>Recognise that a design process breaks large projects into manageable, logical steps</li> <li>Pose questions and test how materials with different properties contribute to the effectiveness of a product</li> <li>Apply one or more steps of a design process to make a product</li> <li>Describe how food and fibre can be designed and produced to address user needs</li> <li>Describe the ways in which Aboriginal and/or Torres Strait Islander Peoples design using natural materials for specific purposes</li> <li>Describe how products, including digital systems, can affect people's lives</li> </ul>	<p>AC9TDI2P01 investigate simple problems for known users that can be solved with digital systems</p> <p>AC9TDI2P02 follow and describe algorithms involving a sequence of steps, branching (decisions) and iteration (repetition)</p> <p>AC9TDI2P03 discuss how existing digital systems satisfy identified needs for known users</p> <p>AC9TDI2P04 use the basic features of common digital tools to create, locate and communicate content</p> <p>AC9TDI2P05 use the basic features of common digital tools to share content and collaborate demonstrating agreed behaviours, guided by trusted adults</p>
<p><b>Digital systems use inputs and algorithms to produce an output</b></p> <ul style="list-style-type: none"> <li>Describe how digital systems are used in everyday life and for learning</li> <li>Identify digital systems that can be used to collect personal data and how to protect personal information</li> <li>Create a sequential algorithm that controls a digital device</li> <li>Use the basic features of common digital tools to capture, save and retrieve data to communicate and collaborate following agreed rules</li> </ul>	Achievement Standards
	<p><b>Learning area achievement standard</b>            By the end of Foundation students identify familiar products, services and environments and develop familiarity with digital systems, using them for a purpose. They create, communicate and choose design ideas. Students follow steps and use materials and equipment to safely make a designed solution for a school-selected context. They show how to represent data using objects, pictures and symbols and identify examples of data that is owned by them.</p> <p><b>Subject achievement standard</b>            By the end of Foundation students show familiarity with digital systems and use them for a purpose. They represent data using objects, pictures and symbols and identify examples of data that is owned by them.</p>



# Syllabus and curriculum comparison

## Stage 2

NSW Science and Technology Syllabus	Australian Curriculum
Stage 2	Years 3 and 4
ST2-DDT-01 uses a design process to create products to address user needs or opportunities	AC9TDI4K01 explore and describe a range of digital systems and their peripherals for a variety of purposes
ST2-DDT-02 designs and uses algorithms, represents data and uses digital systems for a purpose	AC9TDI4K02 explore transmitting different types of data between digital systems
<b>Content</b>	AC9TDI4K03 recognise different types of data and explore how the same data can be represented differently depending on the purpose
<p><b>Design processes and digital systems are used to create solutions</b></p> <p><b>Design is a process of creating and innovating</b></p> <ul style="list-style-type: none"> <li>• Explore the design of a structure, product or place and identify how user needs are addressed</li> <li>• Generate, develop and communicate design ideas</li> <li>• Test construction methods and materials to build a designed model</li> <li>• Build, test and evaluate a designed model</li> <li>• Research processes used to provide food and clothing</li> </ul> <p><b>Digital systems can be created and controlled</b></p> <ul style="list-style-type: none"> <li>• Use core features of common digital tools to locate, select, store and retrieve relevant information</li> <li>• Use core features of common digital tools to share content, plan tasks and collaborate safely following an agreed code of conduct</li> <li>• Design algorithms that use branching and iteration to document and program a procedure</li> <li>• Explore how data can be represented by letters, numbers, symbols, images and sounds depending on the purpose</li> <li>• Select, enter and represent different types of data using digital tools</li> </ul>	AC9TDI4P01 define problems with given design criteria and by co-creating user stories  AC9TDI4P02 follow and describe algorithms involving sequencing, comparison operators (branching) and iteration  AC9TDI4P03 generate, communicate and compare designs  AC9TDI4P04 implement simple algorithms as visual programs involving control structures and input  AC9TDI4P05 discuss how existing and student solutions satisfy the design criteria and user stories  AC9TDI4P06 use the core features of common digital tools to create, locate and communicate content, following agreed conventions  AC9TDI4P07 use the core features of common digital tools to share content, plan tasks, and collaborate, following agreed behaviours, supported by trusted adults  AC9TDI4P08 access their school account using a memorised password and explain why it should be easy to remember, but hard for others to guess
	AC9TDI4P09 identify what personal data is stored and shared in their online accounts and discuss any associated risks



# Syllabus and curriculum comparison

Stage 2

	Achievement Standards
	<p><b>Learning area achievement standard</b> By the end of Year 4 students describe how people design products, services and environments to meet the needs of people, including sustainability. They process and represent data for different purposes, follow and describe simple algorithms involving branching and iteration, and implement them as visual programs. For each of the 2 prescribed technologies contexts they describe the features and uses of technologies and create designed solutions. Students select design ideas against design criteria. Students securely access and use digital systems and their peripherals for a range of purposes, including transmitting data. They communicate design ideas using models and drawings including annotations and symbols. Students plan and sequence steps and use technologies and techniques to safely produce designed solutions. They use the core features of common digital tools to plan, create, locate and share content, and to collaborate, following agreed behaviours. Students identify their personal data stored online and its risks.</p> <p><b>Subject achievement standard</b> By the end of Year 4 students create simple digital solutions and use provided design criteria to check if solutions meet user needs. Students process and represent data for different purposes. They follow and describe simple algorithms involving branching and iteration and implement them as visual programs. Students securely access and use digital systems and their peripherals for a range of purposes, including transmitting data. They use the core features of common digital tools to plan, create, locate and share content, and to collaborate, following agreed behaviours. Students identify their personal data stored online and recognise the risks.</p>



# Syllabus and curriculum comparison

## Stage 3

NSW Science and Technology Syllabus	Australian Curriculum
Stage 3	Years 5 and 6
ST3-DDT-01 uses design processes to create, evaluate and modify designed solutions	AC9TDI6K01 investigate the main internal components of common digital systems and their function
ST3-DDT-02 creates, evaluates and modifies algorithms to code or control digital devices and systems	AC9TDI6K02 examine how digital systems form networks to transmit data
Content	AC9TDI6K03 explain how digital systems represent all data using numbers
<b>Design and digital technologies engineer sustainable solutions</b>	AC9TDI6K04 explore how data can be represented by off and on states (zeros and ones in binary)
<b>Design processes explore opportunities and develop solutions</b>	AC9TDI6P01 define problems with given or co-developed design criteria and by creating user stories
<ul style="list-style-type: none"> <li>• Research Australian technologies and inventions that meet an identified need</li> <li>• Research how contemporary spaces are co-designed using Aboriginal and/or Torres Strait Islander Knowledge systems and Cultural Practices</li> <li>• Collect data about a user need to generate design criteria for sustainable solutions</li> <li>• Develop design ideas to build a prototype using design criteria</li> <li>• Test, evaluate and modify the prototype to meet the design criteria</li> </ul>	AC9TDI6P02 design algorithms involving multiple alternatives (branching) and iteration
<b>The future can be shaped by building and connecting digital systems</b>	AC9TDI6P03 design a user interface for a digital system
<ul style="list-style-type: none"> <li>• Recognise that data are entered, processed and transmitted in digital systems</li> <li>• Explore how and why data can be represented as binary code and in other forms</li> <li>• Create, test and modify algorithms as visual programs that include branching and iteration</li> <li>• Select and use appropriate digital tools to share files online following an agreed code of conduct</li> <li>• Evaluate a digital system that accepts and displays information</li> <li>• Connect components in a digital system to collect data</li> <li>• Use collected data to create an algorithm to perform a function</li> </ul>	AC9TDI6P04 generate, modify, communicate and evaluate designs
	AC9TDI6P05 implement algorithms as visual programs involving control structures, variables and input
	AC9TDI6P06 evaluate existing and student solutions against the design criteria and user stories and their broader community impact
	AC9TDI6P07 select and use appropriate digital tools effectively to create, locate and communicate content, applying common conventions
	AC9TDI6P08 select and use appropriate digital tools effectively to share content online, plan tasks and collaborate on projects, demonstrating agreed behaviours
	AC9TDI6P09 access multiple personal accounts using unique passphrases and explain the risks of password re-use
	AC9TDI6P10 explain the creation and permanence of their digital footprint and consider privacy then collecting user data



# Syllabus and curriculum comparison

Stage 3

## Achievement Standards

### **Learning area achievement standard**

By the end of Year 6 students explain how people design products, services and environments to meet the needs of communities, including sustainability. For each of the 3 prescribed technologies contexts students explain how the features of technologies impact on design decisions and they create designed solutions. They process data and show how digital systems represent data, design algorithms involving complex branching and iteration, and implement them as visual programs including variables. They select and justify design ideas and solutions against design criteria. Students share and communicate ideas or content to an audience using technical terms, graphical representation techniques and appropriate digital tools. They develop project plans, including production processes, and select technologies and techniques to safely produce designed or digital solutions. Students securely access and use multiple digital systems and describe their components and how they interact to process and transmit data. They identify their digital footprint and recognise its permanence.

### **Subject achievement standard**

By the end of Year 6 students develop and modify digital solutions, and define problems and evaluate solutions using user stories and design criteria. They process data and show how digital systems represent data. Students design algorithms involving complex branching and iteration and implement them as visual programs including variables. They securely access and use multiple digital systems and describe their components and how they interact to process and transmit data. Students select and use appropriate digital tools effectively to plan, create, locate and share content, and to collaborate, applying agreed conventions and behaviours. They identify their digital footprint and recognise its permanence.