NCEA Review and Maintenance Programme – 2026 updates

Review and maintenance work has been undertaken for all three levels of NZC NCEA for 2026. This pdf document contains the Course Outlines for **Digital Technologies Level 1**. In January 2026 the NCEA website will be updated with these changes for Level 1, and the pdf version will be removed as it will no longer be necessary. For Levels 2 and 3, assessment materials will be updated on TKI in January. For external assessment specifications, refer to the NZQA website.

Subject: Digital Technologies
Level 1

Product	What's changed?
Course Outline 1	Updated for clarification and to align with 1.4 Achievement Standard revisions.
Course Outline 2	Updated for clarification and to align with 1.4 Achievement Standard revisions.
Course Outline 3	Updated for clarification and to align with 1.4 Achievement Standard revisions.

Digital Technologies NCEA NZC Level 1 Course Outline 1

Purpose: This example Course Outline (CO) has been provided to support teachers to understand how the new subject Learning Matrix and NCEA Achievement Standards might be used to create a year-long programme of learning.

Significant Learning	Learning Activities and Assessment Opportunities
	## Introduction to digital technologies Duration — 2 weeks Overview of digital technologies and introduction to the idea of their impact. Review examples of technology and how it impacts humans and the world around us. Relevant context examples:
• Evaluate the fitness for purpose of digital technologies outcomes by considering manaakitanga, kaitiakitanga, and the outcomes' social and physical environments • Understand that digital technologies and the concepts that underpin them are influenced by the people that create them and the contexts in which they are developed • Be aware of relevant occupational safety and health practices	• Impacts of social media — positives and negatives. What makes different ones better or worse to use? • Video games — different perspectives. What makes games fun? What makes them frustrating? • Filmmaking and animation as modes of communication. Storytelling and the ways that can be used for education, entertainment, passing on knowledge, connecting, and giving people a voice.
• Follow a technological process to design, develop, and document digital outcomes • Use appropriate standards and conventions for digital technologies domains • Apply appropriate tools and use information from testing to improve the quality of digital technologies outcomes • Understand how compression enables widely used technologies to function	## Introduction to animation Duration — 5 weeks Learners will learn basic techniques in animation, such as: • drawing and text tools • keyframes, motion, easing, etc • basic image compression for importing images, and video compression for exporting animations • basic video editing: cutting, transitions, adding audio tracks. Class activities around planning: • Identifying an audience, communication purpose, and key messages. • Storytelling — how to plan a good story, characters, etc. • Storyboarding.
• Understand that digital technologies and the concepts that underpin them are	## Introduction to web design Duration — 5 weeks Overview and history of the internet and web design.

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Significant Learning	Learning Activities and Assessment Opportunities
influenced by the people that create them and the contexts in which they are developed • Understand that digital technologies and the concepts that underpin them have an impact on people, societies, and cultures • Follow a technological process to design, develop, and document digital outcomes • Use appropriate standards and conventions for digital technologies domains • Apply appropriate tools and use information from testing to improve the quality of digital technologies outcomes • Understand that digital devices can collect, store, and share data, and consider the related ethical issues	Review examples of web development and the purposes and audiences of different types of websites. Relevant context examples: • What types of websites are there? • Basic information websites — what do we use them for? • Social media websites. • Club/organisation websites. • Interactive websites, for example, the one that lets you zoom in and out from microscopic levels to the galaxy/wider universe. Class activities to teach basic techniques in HTML/CSS: • Structure tags such as doctype, title. • Headings, paragraphs, and lists. • Images. • Anchor tags with links to other pages and external websites. • Semantic tags like header, section, footer. • CSS for styling. Class activities around planning: • Identifying an audience, communication purpose, and key messages. • Layout design and hierarchy of information. • Wireframing for prototyping.
• Understand that digital technologies and the concepts that underpin them are influenced by the people that create them and the contexts in which they are developed • Understand that digital technologies and the concepts that underpin them have an impact on people, societies, and cultures • Prioritise user experience in design — practise manaakitanga by applying relevant design principles, mātāpono Māori, and usability principles • Recognise that new and innovative solutions to existing problems are developed through kotahitanga, and creative and critical thinking	**Introduction to human-computer interface usability** Duration — 2 weeks Learn about user human-computer interfaces and explore examples of good and bad ones and what makes them that way. • Explore mātāpono Māori as a lens that can be used when thinking about creating something for people to use. • Learn about usability heuristics and principles and explore examples of them in a range of different user interfaces. • Practise evaluating interfaces in terms of usability principles and mātāpono Māori and suggest improvements. Learning covered supports development of skills and knowledge toward AS 92006 (1.3) Demonstrate understanding of usability in human-computer interfaces.

Significant Learning	Learning Activities and Assessment Opportunities
- Investigate and consider possible digital solutions for authentic contexts or issues - Follow a technological process to design, develop, and document digital outcomes - Prioritise user experience in design — practise manaakitanga by applying relevant design principles, mātāpono Māori, and usability principles - Apply appropriate tools and use information from testing to improve the quality of digital technologies outcomes - Recognise that new and innovative solutions to existing problems are developed through kotahitanga, and creative and critical thinking - Understand how digital technologies impact on end users by considering the following mātāpono Māori: kotahitanga, whanaungatanga, manaakitanga, wairuatanga, kaitiakitanga, and tikanga - Anticipate and find solutions to problems - Evaluate the fitness for purpose of digital technologies outcomes by considering manaakitanga, kaitiakitanga, and the outcomes' social and physical environments	**Completed design** Duration — 5 weeks Reinforce the ideas around the purposes of websites and animations and the need to make them appropriate for the target audience. They can be used as tools to communicate a message, connect people, engage people, or for entertainment. **Learners choose whether they want to design a website or animation.** Exploration of mātāpono Māori and usability heuristics lenses that can be used when thinking about designing something for people to use. Exploration of design tools (wireframes, storyboards, etc). Exploration of the principles and elements of design. Overview of the technological design process (scoping a project, user requirements, designing and refining ideas, communication, and evaluation of design). Use the technological design process to design a website or animation. Identify a story to tell through either animation or a website. - Brainstorm story ideas. - Brainstorm who the audience of the completed design might be and what their needs are. - Consider how mātāpono Māori/usability heuristics/design principles can be used to ensure the completed design is fit for purpose. - Learners identify the purpose and end users of the animation, as well as basic requirements. Design ideas. - Generate a range of design ideas. - Use research into the chosen audience and story to inform design ideas. - Use feedback to refine aspects of the design. - Apply design principles to improve the design. Completed design. - Develop a completed design using the refined and improved design ideas. - Provide evidence of how the completed design addresses the need, or opportunity, and meets the requirements of the club/group/user. - To demonstrate fitness for purpose, provide evidence of how the completed design effectively addresses the need or

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Significant Learning	Learning Activities and Assessment Opportunities
	opportunity and requirements of the club/group/user., • Provide evidence of how mātāpono Māori contributes to the completed design's fitness for purpose. Learning covered will provide opportunities to collect evidence towards AS 92007 (1.4) Design a digital technologies outcome.
• Follow a technological process to design, develop, and document digital outcomes • Use appropriate standards and conventions for digital technologies domains • Anticipate and find solutions to problems • Apply appropriate tools and use information from testing to improve the quality of digital technologies outcomes • Work collaboratively and engage in talanoa, wānanga, and kōrero to share perspectives and values • Use appropriate strategies to manage time and resources for completing a project • Evaluate the fitness for purpose of digital technologies outcomes by considering manaakitanga, kaitiakitanga, and the outcomes' social and physical environments	## Outcome development ### Duration — 5 weeks Building on the learning earlier in the year, learners will follow a technological process to develop their animation or website. (Note that learners may elect to develop an outcome from a different digital technologies domain. The choice of outcome should be undertaken with teacher support and guidance at the appropriate point in the learning programme). Class exercises teach learners about managing timeframes and about effective feedback and testing strategies. Based on their design, learners will now develop the animation or website they have designed. They might: • break the outcome into components • use an iterative process to develop their outcome • use a range of basic techniques in appropriate software • consider usability and design principles in their development • consider mātāpono Māori when developing their outcome • test that their outcome works as expected • trial their outcome with end users, and use feedback to improve their outcome • export their completed animation using appropriate parameters for file type, compression, etc • upload their completed website to an appropriate space to share with the teacher and/or class. Learning covered supports development of skills and knowledge toward AS 92005 (1.2) Develop a digital technologies outcome.
• Understand the nature of computation and apply appropriate reasoning about the behaviour of basic programs • Apply basic computational thinking skills (decomposition, abstraction, pattern recognition, algorithms, logic, and evaluation) to write and debug computer programs • Understand that the cost (or computational complexity) can differ between two iterative algorithms for the same problem size • Demonstrate learner agency and persevere when things fail • Anticipate and find solutions to problems	## Programming ### Duration — 8 weeks Review different programming languages/platforms to demonstrate that programming concepts are very similar across different languages. Class activities built around small challenges or programs that teach and reinforce programming concepts of: • collecting input and producing output • the importance of thoughtful commenting • storing data in variables and constants (or a range of data types) • *if/else/elseif* conditions and associated logic

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Significant Learning	Learning Activities and Assessment Opportunities
• Use appropriate strategies to manage time and resources for completing a project	• for loops and while loops • storing and accessing data stored in collections (lists, arrays, etc) • modular programming (if time allows). Class activities teach learners to design algorithms to solve problems (breaking down problems into smaller parts) and that not all algorithms have the same level of efficiency. Learners will learn strategies to find and debug common errors in programs. Learners will learn about how to check and validate user input to avoid errors. Learning covered supports development of skills and knowledge toward AS 92004 (1.1) Create a computer program.

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Digital Technologies NCEA NZC Level 1 Course Outline 2

Purpose: This example Course Outline (CO) has been provided to support teachers to understand how the new subject Learning Matrix and NCEA Achievement Standards might be used to create a year-long programme of learning.

Significant Learning	Learning Activities and Assessment Opportunities
 • Prioritise user experience in design — practise manaakitanga by applying relevant design principles, mātāpono Māori, and usability principles • Understand that digital technologies and the concepts that underpin them are influenced by the people that create them and the contexts in which they are developed • Understand that digital technologies and the concepts that underpin them have an impact on people, societies, and cultures • Be aware of relevant occupational safety and health practices	**Usability and mātāpono Māori** Duration — 3 weeks *To focus the learning, this topic will explore the user interface of some common smartphone apps.* Explore elements of usability such as consistency, human response time, short term memory, spatial memory, and patience. Explore how mātāpono Māori has been considered, if at all, in the interface design. Explore usability heuristics, using Jakob Neilsen's "10 Usability Heuristics for User Interface Design". Identify some positive and negative examples of the heuristics in selected smartphone apps. In order to evaluate usability of a human-computer interface, it is useful to identify or design tasks for a user to attempt. Explore tasks that might help to identify usability issues in selected smartphone apps. Carry out user tests using chosen tasks to identify usability issues in multiple interfaces using the think-aloud protocol. Classify usability issues against Neilsen's heuristics. Practise evaluating interfaces in terms of mātāpono Māori and suggest improvements. Use the results of the user tests to evaluate and suggest improvements to the given interface by comparing and contrasting the evaluated interfaces. Learning covered supports development of skills and knowledge towards AS 92006 (1.3) Demonstrate understanding of usability in human-computer interfaces.
 • Understand the nature of computation and apply appropriate reasoning about the behaviour of basic programs • Apply basic computational thinking skills (decomposition, abstraction, pattern recognition, algorithms, logic, and evaluation) to write and debug computer programs • Understand that the cost (or computational complexity) can differ between two iterative algorithms for the same problem size	**Game programming** Duration — 10 weeks Through a range of learning activities, learners learn about: • input and output • constants, variables, and data types • conditional statements • Boolean logic

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Significant Learning	Learning Activities and Assessment Opportunities
• Demonstrate learner agency and persevere when things fail • Anticipate and find solutions to problems • Be aware of relevant occupational safety and health practices	• loops • collections. Class activities help learners learn to decompose problems into discrete parts, and to design algorithms using different methods of representation such as flowcharts or pseudocode. Explore what makes a good game (rules, challenging, difficulty levels, mastery, a story). Learners design and develop a series of increasingly complex games. They document their code with comments, follow programming 'best practice' which may be specific to their chosen programming language. Learners follow an organised testing process and document that they have tested their program works on a range of inputs and conditions relevant to their program. Learning covered supports development of skills and knowledge toward AS 92004 (1.1) Create a computer program.
• Follow a technological process to design, develop, and document digital outcomes • Use appropriate standards and conventions for digital technologies domains • Apply appropriate tools and use information from testing to improve the quality of digital technologies outcomes • Understand how compression enables widely used technologies to function	**Introduction to animation** **Overview and history of animation** Duration — 3 weeks Review examples of animation in the world around us. Relevant context — comparing two types of animation with similar messages, for example, two different advertising animations using different techniques. Learners will learn basic techniques in animation: • drawing (brushes, stroke weight, smoothing, colour) • shapes • layers • text • transformation • keyframes, motion, and shape tweens. Learners will be given a series of increasingly complex animations to recreate — each one introducing a new basic technique from the list above.

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Significant Learning	Learning Activities and Assessment Opportunities
• Understand that digital technologies and the concepts that underpin them are influenced by the people that create them and the contexts in which they are developed • Follow a technological process to design, develop, and document digital outcomes • Work collaboratively and engage in talanoa, wānanga, and kōrero to share perspectives and values • Recognise that new and innovative solutions to existing problems are developed through kotahitanga, and creative and critical thinking	**Te Tukanga Hoahoa Whakaaro** **Explore Te Tukanga Hoahoa Whakaaro** Duration — 1 week Te Tukanga Hoahoa Whakaaro is a design thinking process that was introduced in the Kia Takatū ā-Matihiko | Digital Readiness programme in 2017. The resources from this three-year initiative have been taken offline now, but an Internet search can uncover video and infographics explaining the process. It is a design thinking concept that is grounded in a te ao Māori worldview and uses the creation story of Ranginui and Papatūānuku and the innovative efforts of their children in their attempts to separate their parents as an analogy for a creative process. There are six stages in the process: 1. Te Pō | Empathise and Define 2. Te Wehenga | Ideate 3. Te Ao Mārama | Prototype 4. Te Whakaata | Reflect 5. Te Ao Tangata | Test 6. Te Whakaahua | Iterate Learners compare this with the Design Thinking Bootleg from the Institute of Design at Stanford. Learners explore other design processes to find similarities and differences (cyclical vs linear, for example) to understand that there is no 'one' design thinking process.
• Follow a technological process to design, develop, and document digital outcomes • Investigate and consider possible digital solutions for authentic contexts or issues • Prioritise user experience in design — practise manaakitanga by applying relevant design principles, mātāpono Māori, and usability principles • Apply appropriate tools and use information from testing to improve the quality of digital technologies outcomes • Recognise that new and innovative solutions to existing problems are developed through kotahitanga, and creative and critical thinking • Understand how digital technologies impact on end users by considering the following mātāpono Māori: kotahitanga, whanaungatanga, manaakitanga, wairuatanga, kaitiakitanga, and tikanga • Anticipate and find solutions to problems • Evaluate the fitness for purpose of digital technologies outcomes by considering	**Animation design** Duration — 6 weeks Reinforce the idea of animation as a tool to communicate a message. Exploration of manaakitanga and kaitiakitanga as lenses that can be used when thinking about creating a completed design for people within an authentic context. Overview of the technological design process (scoping a project, relevant implications, designing and refining ideas, communication, and evaluation of completed design). Exploration of design tools (story boards, etc). **Te Pō** Identify and research a group or club within the school who could benefit from an animation, develop a short proposal: • Brainstorm groups/clubs.

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Significant Learning	Learning Activities and Assessment Opportunities
manaakitanga, kaitiakitanga, and the outcomes' social and physical environments	• Research the chosen club and their needs or identify opportunities for the animation. • Consider how the completed design will impact manaakitanga and kaitiakitanga. • Learners identify and describe the need or opportunity, potential users of the animation, and basic requirements of the animation. **Te Wehenga | Te Ao Mārama** Design ideas: • Generate a wide range of design ideas. These might include elements of the overall animation design such as storyboards and character sketches. • Use research into the chosen group to inform design ideas. • Use feedback to refine ideas to developing into a concept. **Te Whakaata | Te Ao Tangata | Te Whakaahua** Develop a completed design by reflecting on te ao Māori concepts and integrating evidence from testing ideas (possibly through prototyping). Design Ideas: • Describe how manaakitanga or kaitiakitanga are reflected in the design process and design ideas. • Develop the design ideas using feedback and end user perspectives. • Apply design principles to improve the design ideas. Final design: • Reflect on how the completed design addresses the need or opportunity, and meets the requirements of the club/group. • To demonstrate fitness for purpose, provide evidence of how the completed design effectively addresses the need or opportunity and requirements of the club/group/user. • Reflect on how te ao Māori concepts (manaakitanga, kaitiakitanga) contribute to the completed designs fitness for purpose. Learning covered will provide opportunities to collect evidence towards AS 92007 (1.4) Design a digital technologies outcome.
• Follow a technological process to design, develop, and document digital outcomes • Use appropriate standards and conventions for digital technologies domains • Apply appropriate tools and use information from testing to improve the quality of digital technologies outcomes	**Animation development** Duration — 7 weeks Building on the learning earlier in the year, learners will follow a technological process to develop an animation. Learners will learn about managing timeframes and about effective feedback and testing strategies. Based on their design, learners will now develop the animation they have designed. They might:

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Significant Learning	Learning Activities and Assessment Opportunities
• Understand that digital devices can collect, store, and share data, and consider the related ethical issues • Work collaboratively and engage in talanoa, korero, and wānanga to share perspectives and values • Use appropriate strategies to manage time and resources for completing a project • Evaluate the fitness for purpose of digital technologies outcomes by considering manaakitanga, kaitiakitanga, and the outcomes' social and physical environments	• describe the purpose, specifications, and user requirements for the animation • break the animation into components and use an iterative process to develop their animation • use a range of basic animation techniques in appropriate software • consider usability and design principles in their development • consider te ao Māori concepts when developing their animation • test their animation to see that it works • trial their animation with end users and use feedback to improve their animation and to ensure fitness for purpose against the original specifications and user requirements • export their completed animation using appropriate parameters for file type, compression, etc. Learning covered supports development of skills and knowledge toward AS 92005 (1.2) Develop a digital technologies outcome.
	Usability and mātāpono Māori Duration — 2 weeks
• Prioritise user experience in design — practise manaakitanga by applying relevant design principles, mātāpono Māori, and usability principles • Understand that digital technologies and the concepts that underpin them are influenced by the people that create them and the contexts in which they are developed • Understand that digital technologies and the concepts that underpin them have an impact on people, societies, and cultures • Be aware of relevant occupational safety and health practices	• Return to learning and experience from across the year in the application of usability heuristics/mātāpono Māori in preparation for the external assessment task. • Generate screenshots (as allowed) of an interface they have reviewed to take into assessment. Learning covered supports development of skills and knowledge towards AS 92006 (1.3) Demonstrate understanding of usability in human-computer interfaces.

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Digital Technologies NCEA NZC Level 1 Course Outline 3

Purpose: This example Course Outline (CO) has been provided to support teachers to understand how the new subject Learning Matrix and NCEA Achievement Standards might be used to create a year-long programme of learning.

Significant Learning	Learning Activities and Assessment Opportunities
• Prioritise user experience in design — practise manaakitanga by applying relevant design principles, mātāpono Māori, and usability principles • Understand that digital technologies and the concepts that underpin them are influenced by the people that create them and the contexts in which they are developed • Understand that digital technologies and the concepts that underpin them impact on people, societies, and cultures	### Usability principles and mātāpono Māori Duration — 3 weeks Through a range of learning activities, learners will learn about: • human-computer interaction • a specific set of usability principles and mātāpono Māori • how to apply their principles and mātāpono to existing human-computer interfaces such as websites, apps, etc. Learners will learn what their different principles and mātāpono are and how to identify them in existing outcomes. Existing outcomes may be sourced by the learners or provided by the teacher. Learners recommend improvements to existing outcomes based on their principles and mātāpono. Learning covered supports development of skills and knowledge toward AS 92006 (1.3) Demonstrate understanding of usability in human-computer interfaces.
• Follow a technological process to design, develop, and document digital outcomes • Investigate and consider possible digital solutions for authentic contexts or issues • Understand that digital technologies and the concepts that underpin them are influenced by the people that create them and the contexts in which they are developed • Understand that digital technologies and the concepts that underpin them impact on people, societies, and cultures • Evaluate the fitness for purpose of digital technologies outcomes by considering manaakitanga, kaitiakitanga, and the outcomes' social and physical environments • Prioritise user experience in design — practise manaakitanga by applying relevant design principles, mātāpono Māori, and usability principles • Use appropriate standards and conventions for digital technologies domains	### Mini project, teacher-led: design and develop an outcome Duration — 6 weeks This is a teacher-led project to help prepare learners for the main project that follows. Teachers should lead learners through the steps to design and develop a digital outcome. The context of this project could be app design, using a platform like MIT App Inventor. Teaching of relevant aspects of app design and development should happen throughout programme of learning as appropriate. Through a range of learning activities, learners will learn about: **Designing the outcome** • Describing a need or opportunity, the requirements, and potential user(s) for a teacher-provided context and brief. • Investigating and considering possible solutions and selecting an appropriate solution. • Creating a range of design ideas and improving them using research and feedback. • Demonstrating how the design could reflect or has been informed by manaakitanga or kaitiakitanga. • Producing a chosen design for the outcome.

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Significant Learning	Learning Activities and Assessment Opportunities
• Apply appropriate tools and use information from testing to improve the quality of digital technologies outcomes • Work collaboratively and engage in talanoa, wānanga, and kōrero to share perspectives and values • Recognise that new and innovative solutions to existing problems are developed through kotahitanga, and creative and critical thinking • Understand that digital devices can collect, store, and share data, and consider the related ethical issues • Understand how compression enables widely used technologies to function	• Reflecting on the design's fitness for purpose. **Developing the outcome** • Acquiring the skills needed to create the outcome. • Describing the purpose, specifications, and user requirements of the outcome. • Using the tools or techniques of a digital technologies domain to effectively produce a fit-for-purpose outcome. • Testing the outcome to ensure basic functionality and using information from testing to improve the outcome. • Working with other people, including end user(s) to trial the outcome to improve its fitness for purpose. This mini project provides an opportunity for the teacher to review learners' understanding of the significant learning and to provide appropriate feedback on what is required for them to independently design and develop a digital outcome.
• Investigate and consider possible digital solutions for authentic contexts or issues • Understand that digital technologies and the concepts that underpin them are influenced by the people that create them and the contexts in which they are developed • Understand that digital technologies and the concepts that underpin them impact on people, societies, and cultures • Understand how digital technologies impact on end users by considering the following mātāpono Māori: kotahitanga, whanaungatanga, manaakitanga, wairuatanga, kaitiakitanga, and tikanga • Evaluate the fitness for purpose of digital technologies outcomes by considering manaakitanga, kaitiakitanga, and the outcomes' social and physical environments • Prioritise user experience in design — practise manaakitanga by applying relevant design principles, mātāpono Māori, and usability principles • Use appropriate standards and conventions for digital technologies domains • Apply appropriate tools and use information from testing to improve the quality of digital technologies outcomes • Work collaboratively and engage in talanoa, wānanga, and kōrero to share perspectives and values • Recognise that new and innovative solutions to existing problems are developed through kotahitanga, and creative and critical thinking • Use appropriate strategies to manage time and resources for completing a project • Be aware of relevant occupational safety and health practices	## Major project, learner-led: design and develop a completed design and an outcome Duration — 11 weeks This is a learner-led project. The authentic context is open, and learners may choose to work in a Digital Technologies domain of interest. Teachers should guide learners to identify an appropriate need and possible solution. Teachers could provide a brief for learners to follow before the design stage, or before the development stage. For example, the learner could provide their own authentic context for the design section of the project but the outcome they propose may be too "big" to complete in the time they have, so a modified proposal could be provided by the teacher for the development part of the project. Or the learner may struggle to think of a suitable context and solution, so the teacher may provide them with a brief at the start. Learners may need to acquire some new skills to successfully develop their completed design and authentic outcome, so time has been allocated for this. Teachers should guide learners to appropriate resources that can help them learn the skills required. **Developing the completed design** • Describing a need or opportunity, the requirements, and potential user(s) for an authentic context and brief. • Investigating and considering possible solutions for the feasible outcome and selecting an appropriate solution to develop. • Creating a range of design ideas and improving them using research, design principles, and feedback. • Demonstrating how the completed design reflects, or has been informed by, manaakitanga or kaitiakitanga. • Producing a completed design for the selected solution. • Reflecting on the completed design's fitness for purpose. **Creating an outcome** • Describing the purpose, specifications, and user requirements of the outcome within an authentic issue or context. • Using the tools or techniques of a digital technologies domain to effectively create the fit-for-purpose outcome.

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Significant Learning	Learning Activities and Assessment Opportunities
	• Testing the outcome to ensure basic functionality and using information from testing to improve the outcome. • Using feedback from trialling the outcome with potential users to improve its fitness for purpose. Learning covered supports development of skills and knowledge toward AS 92005 (1.2) Develop a digital technologies outcome AND AS 92007 (1.4) Design a digital technologies outcome.
	Programming Duration — 9 weeks (the timeframe includes assessment time of about 4 weeks)
• Understand the nature of computation and apply appropriate reasoning about the behaviour of basic programs • Apply basic computational thinking skills (decomposition, abstraction, pattern recognition, algorithms, logic, and evaluation) to write and debug computer programs • Understand that the cost (or computational complexity) can differ between two iterative algorithms for the same problem size • Demonstrate learner agency and persevere when things fail • Anticipate and find solutions to problems	Through a range of learning activities, learners will learn about: • input and output • variables and data types • conditional statements • loops • collections • modular programming (with functions, methods, etc). Learners will learn to decompose problems into discrete parts, and to design algorithms using different methods of representation such as flowcharts or pseudocode. Learners design and develop a series of increasingly complex programs to solve given scenarios. They document their programs with comments and follow programming 'best practice' which may be specific to their chosen programming language. Learners follow an organised testing process and document that they have tested their program works on a range of inputs and conditions relevant to their program. Learning covered supports development of skills and knowledge toward AS 92004 (1.1) Create a computer program.
	Usability principles and mātāpono Māori revisit Duration — 3 weeks
• Prioritise user experience in design — practise manaakitanga by applying relevant design principles, mātāpono Māori, and usability principles • Understand that digital technologies and the concepts that underpin them are influenced by the people that create them and the contexts in which they are developed • Understand that digital technologies and the concepts that underpin them impact on people, societies, and cultures	• Return to learning and experience from across the year in the application of usability heuristics/mātāpono Māori in preparation for the external assessment task. • Generate screenshots (as allowed) of an interface they have reviewed to take into assessment. Learning covered supports development of skills and knowledge towards AS 92006 (1.3) Demonstrate understanding of usability in human-computer interfaces.

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