Design Thinking Learning Continuum 5-10
DESIGN AND TECHNOLOGIES ACHIEVEMENT STANDARDS

"Achievement standards indicate the quality of learning that students should typically demonstrate by a particular point in their schooling."
TECHNOLOGIES: DESIGN & TECHNOLOGIES CURRICULUM, ACARA

Students will create designed solutions by:	Years 5 - 6 Typically by the end of Year 6 a student can:	Years 7 - 8 Typically by the end of Year 8 a student can:	Years 9 - 10 Typically by the end of Year 10 a student can:
FACT-FINDING *Explore and investigate technologies and materials* *Collect and interpret data* *Identify design needs and opportunities*	▶ Collect and validate data from a range of sources to assist in making judgements. ▶ Describe a range of needs, opportunities or problems and define them in terms of functional requirements. ▶ Describe how design and technologies contribute to meeting present and future needs.	▶ Collect, authenticate and interpret data from a range of sources to assist in making informed judgements. ▶ Explain a range of needs, opportunities or problems and define them in terms of functional requirements and constraints. ▶ Explain the contribution of design and technology innovations and enterprise to society. ▶ Explain factors that influence the design of products, services and environments to meet present and future needs. ▶ Explain how social, ethical, technical and sustainability considerations influence the design of innovative and enterprising solutions to meet a range of present and future needs.	▶ Explain how people working in design and technologies occupations consider factors that impact on design decisions and the technologies used to produce products, services and environments. ▶ Define and decompose complex problems in terms of functional and non-functional requirements.
GENERATING IDEAS *Imagine, communicate and record design ideas*	▶ Create designed solutions suitable for identified needs or opportunities. ▶ Generate design ideas for specified audiences using graphical and non-graphical representation techniques. ▶ Design digital solutions that meet intended purposes including user interfaces and a visual program.	▶ Create and adapt designed solutions based on an evaluation of needs or opportunities. ▶ Generate and document (in digital and non-digital form) design ideas for different audiences using appropriate technical terms, and graphical representation techniques including algorithms.	▶ Create designed solutions based on a critical evaluation of needs or opportunities. ▶ Create and connect design ideas of increasing complexity and justify their decisions. ▶ Generate original ideas in two-dimensional representations using a range of technical drawings.
JUDGING IDEAS *Analyse and evaluate design ideas*	▶ Suggest criteria for success, including sustainability considerations, and use these to evaluate their ideas. ▶ Combine design ideas and communicate these to audiences using graphical representation techniques and technical terms. ▶ Describe competing considerations in the design of products, services and environments, taking into account sustainability.	▶ Develop criteria for success, including sustainability considerations, and use these to judge the suitability of their ideas. ▶ Make considered decisions and communicate to different audiences using appropriate technical terms and a range of technologies and graphical representation techniques. ▶ Explain how the features of technologies impact on designed solutions and influence design decisions.	▶ Establish detailed criteria for success, including sustainability considerations, and use these to evaluate their ideas. ▶ Evaluate the features of technologies and their appropriateness for purpose when considering designed solutions for identified needs or opportunities. ▶ Evaluate their solutions in terms of risk, sustainability and potential for innovation and enterprise.
PLANNING *Design courses of action* *Document project plans* *Monitor projects*	▶ Record and document project plans including production processes and resources. ▶ Record design ideas using appropriate technical terms, and graphical and non-graphical representation techniques. ▶ Select appropriate technologies and techniques to produce designed solutions. ▶ Use ethical, social and technical protocols when collaborating, and creating and communicating ideas, information and solutions face-to-face and online.	▶ Plan processes and resources to produce designed solutions for each of the prescribed technologies contexts. ▶ Apply project management skills to document and use project plans to manage production processes. ▶ Independently and safely plan and design a range of digital solutions that meet intended purposes including user interfaces and the use of a programming language. ▶ Use appropriate protocols when collaborating, and creating and communicating ideas, information and solutions face-to-face and online.	▶ Develop detailed project management plans incorporating elements such as sequenced time, cost and action plans to manage a range of design tasks safely. ▶ Identify the steps involved in planning the production of designed solutions. ▶ Represent production plans in two and three-dimensional representations using a range of technical drawings including perspective, scale, orthogonal and production drawings with sectional and exploded views. ▶ Communicate and document projects, including marketing for a range of audiences.
PRODUCING *Test and implement designed solutions*	▶ Use appropriate technologies and techniques correctly and safely to produce designed solutions. ▶ Test and modify digital solutions that meet intended purposes. ▶ Explain how the features of technologies impact on designed solutions.	▶ Independently and safely produce effective designed solutions for the intended purpose. ▶ Independently and safely test and modify a range of digital solutions that meet intended purposes including user interfaces and the use of a programming language. ▶ Effectively manage processes and resources to produce designed solutions for each of the prescribed technologies contexts. ▶ Apply knowledge gained from one context to another unrelated context and identify new meaning.	▶ Apply management plans, changing direction when necessary, to successfully complete design tasks. ▶ Independently and collaboratively apply sequenced production and management plans when producing designed solutions, making adjustments to plans when necessary. ▶ Identify the changes necessary to designed solutions to realise preferred futures they have described. ▶ Use graphic visualisation software to produce dynamic views of virtual products. ▶ Select and use appropriate technologies skilfully and safely to produce high-quality designed solutions suitable for the intended purpose. ▶ Establish safety procedures that minimise risk and manage projects with safety and efficiency in mind, maintaining safety standards and management procedures to ensure success. ▶ Produce rendered, illustrated views for marketing.
REFLECTING *Reflect on design processes* *Evaluate designed solutions*	▶ Suggest criteria for success, including sustainability considerations, and use these to evaluate their designed solutions. ▶ Negotiate criteria for success, including sustainability considerations, and use these to judge the suitability of their solutions and processes.	▶ Develop criteria for success, including sustainability considerations, and use these to judge the suitability of their designed solutions and processes.	▶ Evaluates their design processes and solutions using detailed criteria for success, including sustainability considerations.

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