2026 Queensland Quantum Challenge - Curriculum Alignment to Australian Curriculum V9 – Design and Technologies (Years 9 and 10)

The Rationale and Aims for the Design and Technologies curriculum have been provided, with bolded text signifying alignment to the 2026 Queensland Quantum Challenge.

https://www.australiancurriculum.edu.au/curriculum-information/understand-this-learning-area/technologies#design-and-technologies

Rationale

In an increasingly technological and complex world, we need citizens with the knowledge and confidence to analyse and creatively respond to design opportunities and challenges including for a circular economy. Knowledge, understanding and skills involved in the design, development and use of technologies are influenced by and can play a role in enriching and transforming societies and our natural, managed and constructed environments.

Design and Technologies enables students to become creative and responsive designers. **When students consider ethical, legal, aesthetic and functional factors and the economic, environmental and social impacts of technological change, and how the choice and use of technologies contributes to a sustainable future, they are developing the knowledge, understanding and skills to become discerning decision-makers.**

Design and Technologies engages students in creating quality designed solutions for identified needs and opportunities across a range of technologies contexts. Students manage projects independently and collaboratively from conception to realisation. **They apply design and systems thinking and design processes to investigate, generate, evaluate, iterate and improve design ideas, processes and solutions.** They plan and produce (make) designed solutions. They develop a sense of pride, satisfaction and enjoyment from their ability to design and produce innovative designed products, services and environments.

Design and Technologies gives students authentic learning challenges that foster curiosity, confidence, persistence, innovation, creativity, respect and cooperation. It motivates young people and engages them in learning experiences that are transferable to family and home, constructive leisure activities, community contribution and the world of work.

Aims

Design and Technologies aims to develop the knowledge, understanding and skills to ensure that, individually and collaboratively, students:

- develop confidence as critical users of technologies and designers and producers of designed solutions
- **investigate, generate, iterate and analyse ethical and innovative designed solutions for sustainable futures**
- **use design and systems thinking to generate design ideas and communicate these to a range of audiences**
- produce designed solutions suitable for a range of technologies contexts by selecting and manipulating a range of tools, equipment, materials, systems and components creatively, competently and safely; and managing processes
- **evaluate processes and designed solutions and transfer knowledge and skills to new situations**
- **understand the roles and responsibilities of people in design and technologies occupations and how they contribute to society.**

Achievement Standard Aspects and Content Descriptions

The Achievement Standard Aspects and Content Descriptions included provide connections to domains where applications of quantum and advanced technologies are being harnessed to solve problems.

Years 9 and 10 Design and Technologies	
Achievement Standard Aspect	**Content Descriptions**
Knowledge and Understanding	
explain how people consider factors that impact on design decisions and the technologies used to design and produce products, services and environments for sustainable living.	analyse how people in design and technologies occupations consider ethical, security and sustainability factors to innovate and improve products, services and environments (AC9TDE10K01)
explain the contribution of innovation, enterprise skills and emerging	analyse the impact of innovation, enterprise and emerging technologies on

technologies to global preferred futures.	designed solutions for global preferred futures (AC9TDE10K02)
explain the features of technologies and their appropriateness for purpose, and create designed solutions based on an analysis of needs or opportunities.	analyse and make judgements on how the characteristics and properties of materials are combined with force, motion and energy to control engineered systems (AC9TDE10K03)
Processes and Production Skills	
create, adapt and refine design ideas, processes and solutions and justify their decisions against developed design criteria that include sustainability.	apply innovation and enterprise skills to generate, test, iterate and communicate design ideas, processes and solutions, including using digital tools (AC9TDE10P02) develop design criteria independently including sustainability to evaluate design ideas, processes and solutions (AC9TDE10P04)