

## 2026 Queensland Quantum Challenge - Curriculum Alignment to Australian Curriculum V9 – Design (for Year 11)

The Design Rationale is bolded where there is alignment to the 2026 Queensland Quantum Challenge. The Unit/Syllabus Objectives included provide connections to domains where applications of quantum and advanced technologies are being harnessed to solve problems.

### Design Syllabus Rationale

**The Design subject focuses on the application of design thinking to envisage creative products, services and environments. Designing is a complex and sophisticated form of problem-solving that uses divergent and convergent thinking approaches that can be practised and improved. Designers are separated from the constraints of production processes to allow them to appreciate and exploit innovative ideas.**

**In Unit 1, students will learn about and experience designing in the context of stakeholder-centred design. They will be introduced to the range and importance of stakeholders and how the design process is used to respond to their needs and wants. In Unit 2, students will learn about and experience designing in the context of commercial design, considering the role of the client and the influence of economic, social and cultural issues. They will use a collaborative design approach. In Unit 3, students will learn about and experience designing in the context of human-centred design. They will use designing with empathy as an approach as they respond to the needs and wants of a particular person. In Unit 4, students will learn about and experience designing in the context of sustainable design. They will explore design opportunities and design to improve economic, social and ecological sustainability.**

**The teaching and learning approach uses a design process grounded in the problem-based learning framework. This approach enables students to learn about and experience design through exploring needs, wants and opportunities; developing ideas and design concepts; using sketching and low-fidelity prototyping skills; and evaluating ideas. Students communicate design proposals to suit different audiences.**

Students will learn how design has influenced the economic, social and cultural environment in which they live. **They will understand the agency of humans in conceiving and imagining possible futures through design. Students will develop valuable 21st century skills in critical thinking, creative thinking, communication, collaboration and teamwork, personal and social skills, and information &**

**communication technologies (ICT) skills. Collaboration, teamwork and communication are crucial skills needed to work in design teams and liaise with stakeholders. The design thinking students learn is broadly applicable to a range of professions and supports the development of critical and creative thinking.**

Students will develop an appreciation of designers and their role in society. **They will learn the value of creativity and build resilience as they experience iterative design processes, where the best ideas may be the result of trial and error and a willingness to take risks and experiment with alternatives.** Design equips students with highly transferrable, future-focused thinking skills relevant to a global context.

### **Design Syllabus objectives**

The following Design syllabus objectives align to the 2026 Queensland Quantum Challenge.

#### **3. Analyse needs, wants and opportunities using data.**

**When students analyse, they examine design opportunities and stakeholders' needs and wants. They use primary and secondary data to identify aesthetic, cultural, economic, social and technical features, the relationships between them and the reasonableness of information.**

#### **4. Devise ideas in response to design problems.**

**When students devise, they think out and create ideas using divergent thinking to demonstrate fluency, flexibility, originality and elaboration of ideas in the develop phase of the design process. Ideas are student's own visual mental images of possible ways of responding to a design problem, brought into existence as a sketch or low-fidelity prototype.**

#### **5. Evaluate ideas to make refinements.**

**When students evaluate, they critique and refine ideas using convergent thinking in the develop phase of the design process. They judge the extent to which ideas meet design criteria. They make judgments about strengths, limitations and implications. When students make refinements, they modify and improve ideas based on the criteria.**

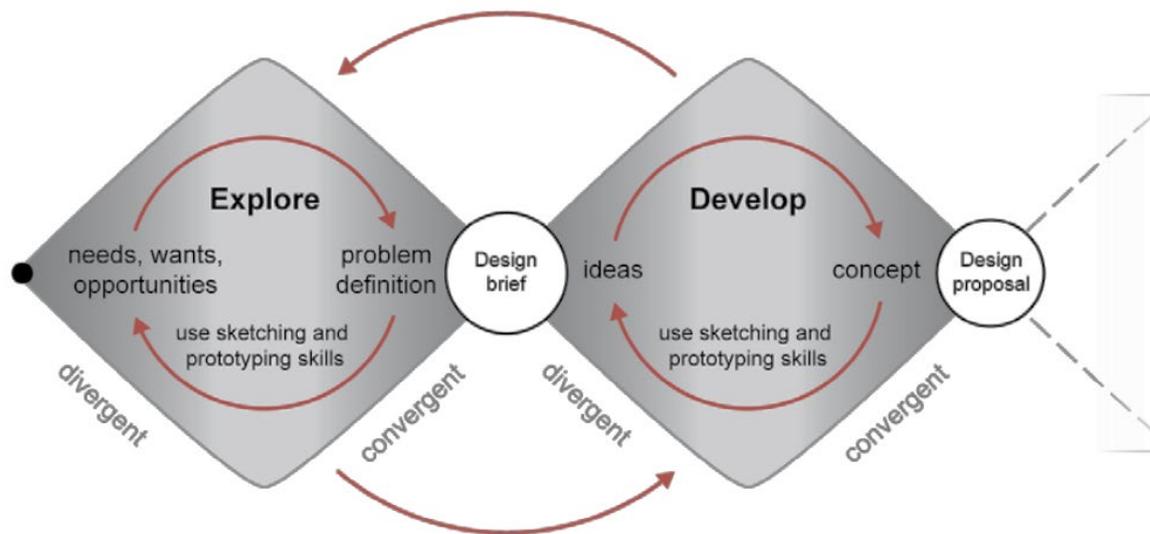
#### **6. Propose design concepts in response to design problems.**

**When students propose design concepts they synthesise, the attributes of multiple ideas and design information to put forward a preferred designed solution to a design problem.**

## Design Procedural knowledge

The 2026 Queensland Quantum Challenge aligns with “The design process in Design” (Figure 1). This iterative model shows two phases that are critical to the design process — each with an initial phase of divergent thinking where a broad insight is sought, followed by a phase of convergent thinking where that insight is narrowed and brought into something usable. The first point of convergence defines the problem and the second delivers a design proposal.

**Figure 1: The design process in Design**



Design	
Unit / Syllabus Objectives	Subject Matter
Unit 1: Stakeholder-centred design	<ul style="list-style-type: none"> <li>Topic 1: Designing for others</li> </ul>
Unit 2: Commercial design influences	<ul style="list-style-type: none"> <li>Topic 1: Responding to needs and wants</li> </ul>
Unit 3: Human-centred design	<ul style="list-style-type: none"> <li>Topic 1: Designing with empathy</li> </ul>
Unit 4: Sustainable design influences	<ul style="list-style-type: none"> <li>Topic 1: Responding to opportunities</li> </ul>