Advice for developing and sequencing units of work

To support the development of complexity and independence of student learning, when planning units of work for a course of study, teachers should consider a range of designing opportunities together with the sequencing, content and interrelatedness of teaching strategies and learning experiences.

This resource illustrates one way that units of work can be developed and sequenced.

Assessment instruments are not described for the units of work. Schools make decisions about assessment. Assessment should fit structurally within the organisation of the unit of work and reflect the developmental nature of the four-semester course of study.

The following units of work highlight opportunities students have to apply and reinforce core subject matter, including the design factors and design process. The units and learning experiences build on students’ prior learning and provide the basis for further development.

This resource encourages teachers to consider a range of teaching strategies and learning experiences to build to assessment opportunities.

The syllabus requires six to eight units of work across the course of study. Units of work should include:

- opportunities for teaching, learning and assessment of the objectives for **Analysing design problems**, **Applying design factors and communicating** and **Synthesising and evaluating designs**
- a variety of learning experiences that include the explicit teaching of a design process and design factors (see the resource Learning experiences and sample resources at www.qsa.qld.edu.au/20323.html#teaching)
- a focus on design problems. Across a course of study design problems should include opportunities for students to meet the needs of individuals and communities in a range of contexts. In Year 12 there should be at least one design problem that identifies a human need or an opportunity for the community (see the resource Identifying design problems at www.qsa.qld.edu.au/20323.html#teaching)
- opportunities to interpret, analyse and apply the design factors and key ideas relevant to design problems. Not all design factors and key ideas need be in a single unit, however learning experiences about each design factor and key idea should be included in Year 11 and further developed in Year 12 (see syllabus section 3.2.2)
- a design process. In Year 11, students may focus on a subset of a design process. By the end of Year 11 students should engage in the complete design process at least once (see syllabus section 3.2.1).

The table on the following pages shows a sample course organisation.
Table 1: Sample course organisation

In the design process diagrams, shading indicates the stages of the design process emphasised in the unit of work.

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<tr>
<th>Year</th>
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| 11   | 1        | 8     | **Unit 1: Thinking outside the square**  
Students explore a range of strategies used by designers to support creativity and innovation when solving design problems.  
They investigate and use a range of design strategies to develop and evaluate ideas. Design strategies may include design heuristics, sketching and graphic organisers and processes used by expert designers. The link *Young blood: Designers market*, www.powerhousemuseum.com/youngblood showcases young designers and their designs.  
Students consider a range of ways to communicate their ideas including visual communication, e.g. sketching, drawings and animations, and written communication, e.g. annotations. | Dimension 2: Applying design factors and communicating  
Objectives:  
• apply design factors to develop ideas  
• use communication suited to modes and audiences | • design strategies  
• communication |
| 11   | 1        | 12    | **Unit 2: Foundation to design**  
Students develop the underpinning knowledge required to consider the impact of sustainable design when developing innovative ideas to solve design problems.  
They understand and consider the impacts of social, economic and environmental sustainability on all stages of the design process.  
They explore user-centred design by identifying the human need when developing solutions that function and satisfy the user. They consider a range of aspects that may include emotional and sensory responses, cultural beliefs and points of view, ergonomics and anthropometric data, safety, social and physical needs.  
They explore the elements and principles of design and revisit communication strategies when developing ideas to design problems. | Dimension 1: Analysing design problems  
All objectives | • user-centred design  
• sustainable design  
• elements and principles of design  
• communication |
### Unit 3: Designing for the real world

Students explore design problems and develop ideas for possible solutions and produce products to a provided real-world problem. There is opportunity to design and produce products appropriate to the cultural needs, values and requirements of Aboriginal and Torres Strait Islander peoples and other cultures. They will revisit design factors of user-centred design, design elements and principles of design, design strategies and communication.

They will explore and consider impacts of sustainable design by researching the cultural needs, values and requirements of Aboriginal and Torres Strait Islander peoples and other cultures. Students will investigate and develop underpinning knowledge of a range of manufacturing technologies and materials. They will explore project management skills to develop knowledge and skills in planning for and implementing projects. They will use all stages of the design process to design and produce products that resolve the design problem.

- **All dimensions and objectives**
  - user-centred design
  - sustainable design
  - elements and principles of design
  - design strategies
  - communication
  - manufacturing technologies
  - materials
  - project management skills

### Unit 4: Developing my own design style

Students investigate, synthesise and evaluate information about designers, historical influences and trends to develop their own design style. The Bauhaus style exemplifies the works of key designers, design history and trends. Read more at [www.bauhaus-dessau.de/index.php?en](http://www.bauhaus-dessau.de/index.php?en).

They will research and explore ways that user-centred design, design strategies and the elements and principles of design have been used by designers in both historical and contemporary contexts. They will also explore how trends in design have evolved over time.

They will use their understandings of and skills in both visual and written communication to present research work. Students are given opportunities to apply design factors to develop and create their own “design style”.

- **Dimension 2: Applying design factors and communicating**
  - apply design factors to develop ideas
  - use communication suited to modes and audiences

- **Dimension 3: Synthesising and evaluating designs**
  - All objectives
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| 11   | 2        | 37    | **Unit 5: Designing for me**  
Students identify a real-world problem that requires a solution. They will identify individual or community need in fields of personal, domestic, commercial, agriculture, environment, transport, communication, health or recreation. They will use all stages of the design process to design and produce products that resolve the design problem. | ![Diagram](Image) | All dimensions and objectives | • user-centred design  
• sustainable design  
• elements and principles of design  
• design strategies  
• communication  
• manufacturing technologies  
• materials  
• project management skills |
| 11   | 2        | 10    | **Unit 6: Impact of technology on society**  
Students explore the relationship between technology and society to be informed users and creators of technology. They will develop an understanding of the interrelationship between technology and society by exploring a range of products, both current and historical, e.g. mobile phones, global positioning systems (GPS), vacuum cleaners, to investigate their impacts on society. They will record research using written communication, such as annotations, paragraphs and extended writing. | ![Diagram](Image) | Dimension 1: Analysing design problems  
All objectives | • user-centred design  
• legal responsibilities  
• sustainable design  
• communication  
• materials |
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<td>Unit 7: Using design to make our local community better; analysis to solution</td>
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Students explore the relationship between technology and society by analysing the impact of user-centred design decisions in product design. They will identify and respond to a real-world problem by using a design process to develop a product that solves the design problem.

They will identify a human need for a community in a field such as personal, domestic, commercial, agriculture, environment, transport, communication, health or recreation.

Examples of design problems could be investigating local transport and its effect on the community and designing a solution to the identified problem; considering how the community recycle computers and could a product be designed to maximise effectiveness?

They will record their research and ideas using written communication, such as annotations, paragraphs and extended writing.

They will use all stages of the design process to design and produce products that resolve the design problem.

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Students investigate the issues that are impacting on others from a global perspective and, using a design process, consider how the issues can be solved? Are there workable solutions to the problem? For example, can poverty be reduced through technology? Support on this topic is available at: practicalaction.org/home.

They will identify a human need for either an individual or a community in a field such as personal, domestic, commercial, agriculture, environment, transport, communication, health or recreation.

They will use all stages of the design process to design and produce products that resolve the design problem.