



# Design Thinking Scope & Sequence 5-10

## DESIGN AND TECHNOLOGIES CURRICULUM CONTENT

"During each stage students will have the opportunity to create designed solutions at least once in three technologies contexts: engineering principles and systems, food and fibre production and food specialisations; and materials and technologies specialisations. Students will design and produce at least one product, one service and one environment during each stage."

AUSTRALIAN CURRICULUM



Students will create designed solutions by:

**Years 5 - 6**

Students will have opportunities to participate in the following:

**Years 7 - 8**

Students will have opportunities to participate in the following:

**Years 9 - 10**

Students will have opportunities to participate in the following:

### FACT-FINDING

*Explore and investigate technologies and materials*  
*Collect and interpret data*  
*Identify design needs and opportunities*

- ▶ Investigate how electrical energy can control movement, sound or light in a designed product or system (ACTDEK020)
- ▶ Investigate how and why food and fibre are produced in managed environments and prepared to enable people to grow and be healthy (ACTDEK021)
- ▶ Investigate how people in design and technologies occupations address competing considerations, including sustainability in the design of products, services, and environments for current and future use (ACTDEK019)
- ▶ Investigate characteristics and properties of a range of materials, systems, components, tools and equipment and evaluate the impact of their use (ACTDEK023)
- ▶ Critique needs or opportunities for designing, (ACTDEP024)

- ▶ Analyse how motion, force and energy are used to manipulate and control electromechanical systems when designing simple, engineered solutions (ACTDEK031)
- ▶ Analyse how food and fibre are produced when designing managed environments and how these can become more sustainable (ACTDEK032)
- ▶ Analyse how characteristics and properties of food determine preparation techniques and presentation when designing solutions for healthy eating (ACTDEK033)
- ▶ Investigate and analyse a range of materials, components, tools, equipment and processes needed to develop future design ideas (ACTDEP035)
- ▶ Critique needs or opportunities for designing (ACTDEP035)

- ▶ Investigate how the characteristics and properties of materials are combined with force, motion and energy to create engineered solutions (ACTDEK043)
- ▶ Investigate the ethical and sustainable production and marketing of food and fibre (ACTDEK044)
- ▶ Investigate and make judgments on how the principles of food safety, preservation, preparation, presentation and sensory perceptions influence the creation of food solutions for healthy eating (ACTDEK045)
- ▶ Investigate, within a range of technologies specialisations, on how technologies are combined to create designed solutions (ACTDEK047)
- ▶ Critically analyse factors of existing technologies, including social, ethical and sustainability considerations, that impact on designed solutions for global preferred futures and the complex design and production processes involved (ACTDEK040)
- ▶ Explore how existing products, services and environments have evolved with consideration of preferred futures (ACTDEK041)
- ▶ Critique needs or opportunities to develop design briefs (ACTDEP048)

### GENERATING IDEAS

*Imagine, communicate and record design ideas*

- ▶ Generate and communicate design ideas for audiences using appropriate technical terms and graphical representation techniques (ACTDEP025)

- ▶ Generate and communicate design ideas for various audiences using appropriate technical terms including graphical representation techniques (ACTDEP036)

- ▶ Develop, modify and communicate design ideas by applying design thinking, creativity, innovation and enterprise skills of increasing sophistication (ACTDEP049)
- ▶ Consider how technologies can be combined to create designed solutions (ACTDEK047)
- ▶ Consider how properties of materials, systems, components, tools and equipment can be combined to create designed solutions (ACTDEK046)

### JUDGING IDEAS

*Analyse and evaluate design ideas*

- ▶ Negotiate criteria (that includes sustainability) to evaluate design ideas (ACTDEP027)

- ▶ Independently develop criteria to evaluate design ideas and their sustainability (ACTDEP038)

- ▶ Evaluate design ideas, processes and solutions against comprehensive criteria for success recognising the need for sustainability (ACTDEP051)
- ▶ Make judgments on how technologies can be combined to create designed solutions (ACTDEK047)
- ▶ Make judgments on how the characteristics and properties of materials, systems, components, tools and equipment can be combined to create designed solutions (ACTDEK046)
- ▶ Critically analyse factors, including social, ethical and sustainability considerations, that impact on designed solutions for global preferred futures (ACTDEK040)
- ▶ Consider the impact of emerging technologies on design decisions (ACTDEK041)

### PLANNING

*Design courses of action*  
*Document project plans*  
*Monitor projects*

- ▶ Develop project plans that include consideration of resources when making designed solutions individually and collaboratively (ACTDEP028)
- ▶ Develop and communicate processes using appropriate technical terms and graphical representation techniques (ACTDEP025)
- ▶ Investigate materials, components, tools and equipment for intended designed solutions (ACTDEP024)
- ▶ Select appropriate materials, components, tools, equipment and techniques to make designed solutions (ACTDEP026)

- ▶ Use project management processes when working individually and collaboratively to coordinate production of designed solutions (ACTDEP039)
- ▶ Communicate plans and processes using appropriate technical terms and technologies including graphical representation techniques (ACTDEP036)
- ▶ Analyse ways to produce designed solutions through selecting and combining characteristics and properties of materials, systems, components, tools and equipment (ACTDEK034)
- ▶ Select and justify choices of materials, components, tools, equipment and techniques to effectively and safely make designed solutions (ACTDEP037)

- ▶ Develop project plans using digital technologies to plan and manage projects individually and collaboratively taking into consideration time, cost, risk and production processes (ACTDEP052)
- ▶ Investigate and select an increasingly sophisticated range of materials, systems, components, tools and equipment to develop design ideas (ACTDEP048)

### PRODUCING

*Test and implement designed solutions*

- ▶ Apply safe procedures to make designed solutions (ACTDEP026)
- ▶ Develop design ideas for audiences (ACTDEP025)

- ▶ Develop and test designs for various audiences using appropriate technical terms and technologies including graphical representation techniques (ACTDEP036)

- ▶ Work flexibly to effectively and safely test, select, justify and use appropriate technologies and processes to make designed solutions (ACTDEP050)

### REFLECTING

*Reflect on design processes*  
*Evaluate designed solutions*

- ▶ Negotiate criteria for success that include sustainability to evaluate design ideas, processes and solutions (ACTDEP027)

- ▶ Independently develop criteria for success to evaluate design processes and solutions and their sustainability (ACTDEP038)

- ▶ Evaluate design ideas, processes and solutions against comprehensive criteria for success recognising the need for sustainability (ACTDEP051)

Knowledge & Understanding

Processes & Production Skills