

Design, Creativity and Technology

Investigating and Designing – Concepts and skills chart

This chart identifies and in some cases, elaborates the key concepts and skills in the standards.

Key concepts and skills	Levels 1 and 2	Level 3	Level 4	Level 5	Level 6
Developing design briefs	Standards do not apply at Levels 1 and 2. The Level 1 learning focus - http://vels.vcaa.vic.edu.au/essential/interdisciplinary/design/level1.html		Contribute to the development of design briefs that include some limitations and specifications.	Clarify their understanding of design brief requirements and their design ideas, relevant to more sophisticated design briefs to which they have contributed.	Identify considerations and constraints within a design brief.
Responding to design briefs and conducting research	and Level 2 learning focus - http://vels.vcaa.vic.edu.au/essential/interdisciplinary/design/level2.html	Individually and in teams, generate ideas based on a design brief, demonstrating understanding that designs may need to meet a range of different requirements.	Individually and in teams, use a range of methods to research and collect data in response to design briefs. Take account of the views of users/consumers.	Use various strategies and sources of information to investigate and research a range of factors relevant to more sophisticated design briefs to which they have contributed.	Undertake research relevant to the design brief. Locate and use relevant information to help their design thinking and identify the needs of a variety of client/user groups.
Communicating design ideas	statements suggest appropriate learning experiences from which teachers can plan relevant teaching and learning activities that support students to develop the concepts and skills.	Use words, labelled sketches and models to communicate the details of their designs, and clarify ideas when asked.	Generate and communicate alternative design ideas in response to a design brief and use words, labelled sketches and models, to demonstrate that they are aware of environmental and social constraints. Describe how their intended product will function or be used, and what it will look like in the context of the requirements of the design brief.	Use a variety of drawing and modelling techniques to visualise design ideas and concepts. Clarify their understanding of design brief requirements and their design ideas by gathering, responding to and providing feedback to others. Demonstrate understanding of design elements and principles and use appropriate technical language. Record and communicate their ideas using a variety of media that includes information and communications technology equipment, techniques and procedures.	Generate a range of alternative possibilities, use appropriate technical language when designing. Justify their preferred option, explaining how it provides a solution to the problem, need or opportunity. Effectively use information and communications technology equipment, techniques and procedures to support the development of their design and planning.

<p>Planning of production and appropriate use of resources</p>		<p>Identify simple systems components and common materials/ingredients and explain the characteristics and properties that make them suitable for use in products.</p> <p>Think ahead about the order of their work and list basic steps to make the product or system they have designed.</p>	<p>Take account of the views of users/consumers.</p> <p>Produce step-by-step plans and/or modify recipes for making products and/or simple mechanical/electrical systems.</p>	<p>Understand and logically sequence major stages of production, and calculate and list materials/ingredients and quantities needed for production.</p>	<p>Make critical decisions on materials/ingredients, systems components and techniques based on their understanding of the properties and characteristics of materials/ingredients and/or of the relationship between inputs, processes and outputs.</p> <p>Plan a realistic and logical sequence of the production stages, incorporating time, cost and resources needed for production.</p> <p>Take account of function and performance, energy requirements, aesthetics, costs, and ethical and legal considerations that address the requirements of design briefs.</p>
<p>Developing evaluation criteria</p>			<p>Identify evaluation criteria from design briefs and use them to justify design choices.</p>	<p>Develop evaluation criteria from the design brief to inform their judgments during the design process.</p>	<p>Identify a range of criteria for evaluating their products and/or technological systems.</p>

Design, Creativity and Technology Producing – Concepts and skills chart

This chart identifies and in some cases, elaborates the key concepts and skills in the standards.

Key concepts and skills	Level 1 and 2	Level 3	Level 4	Level 5	Level 6
Constructing products and/or systems	<p>Standards do not apply at Levels 1 and 2.</p> <p>The Level 1 learning focus- http://vels.vcaa.vic.edu.au/essential/interdisciplinary/design/level1.html and Level 2 learning focus- http://vels.vcaa.vic.edu.au/essential/interdisciplinary/design/level2.html statements suggest appropriate learning experiences from which teachers can plan relevant</p>	<p>Use their list of steps and are able to choose appropriate tools, equipment and techniques to alter and combine materials/ingredients and assemble systems components.</p>	<p>Use their production plan and select and work safely with a variety of materials/ingredients and systems components to produce functional products and/or systems.</p>	<p>Manage materials/ingredients, components and processes to produce products and systems, taking full account of the appropriateness of their properties, characteristics or expected outputs in meeting requirements of design briefs.</p> <p>Make modifications during production, providing a sound explanation for changes that demonstrates reflection, research, responsiveness to feedback, and use of evaluation criteria.</p>	<p>Make products/systems that meet the quality, aesthetic, functionality and performance requirements outlined in the design brief.</p> <p>Produce products/systems using complex tools, equipment, machines, materials/ingredients and/or systems components with precision.</p> <p>Clearly explain decisions about the suitability of materials/ingredients, systems components, energy requirements and production techniques based on their understanding of the properties and characteristics of materials/ingredients, and the inputs, processes and outputs of systems.</p> <p>Adapt their methods of production and provide a sound explanation for deviation from the design proposal in response to changing circumstances.</p>

<p>Using effective and safe practices during production</p>	<p>teaching and learning activities that support students to develop the concepts and skills.</p>	<p>Use a variety of simple techniques/processes and a range of materials/ingredients to safely and hygienically alter and combine materials/ingredients and put together components to make products and simple systems that have moving parts.</p>	<p>Use a range of measuring, marking, joining/combining techniques to alter materials and finishing/presentation methods, and operate tools and equipment competently, showing consideration of safety and hygiene, and record their progress.</p>	<p>Work safely/hygienically with a range of tools and equipment, including some which are complex.</p>	<p>Implement a range of production processes accurately, consistently, safely/hygienically and responsibly, and select and use personal protective clothing and equipment when necessary.</p>
--	---	---	--	--	---

Design, Creativity and Technology

Analysing and evaluating – Concepts and skills chart

This chart identifies and in some cases, elaborates the key concepts and skills in the standards.

Key concepts and skills	Levels 1 and 2	Level 3	Level 4	Level 5	Level 6
Testing, analysing and evaluating designs, products and systems	Standards do not apply at Levels 1 and 2. The Level 1 learning focus- http://vels.vcaa.vic.edu.au/essential/interdisciplinary/design/level1.html and Level 2 learning focus- http://vels.vcaa.vic.edu.au/essential/interdisciplinary/design/level2.html	Test, evaluate and revise their designs, products or simple systems in light of feedback they have gained from others. Identify what has led to improvements.	Reflect on their designs as they develop them and use evaluation criteria, identified from design briefs, to justify their design choices.	Select appropriate equipment and techniques to safely test and evaluate the performance of their products/systems. Recommend improvements to the performance, function and appearance of others' product/systems.	Use evaluation criteria they have previously developed, and critically analyse processes, materials/ingredients, systems components and equipment used. Use a range of suitable safe testing methods in this analysis.
Considering modifications	statements suggest appropriate learning experiences from which teachers can plan relevant teaching and learning activities that support students to develop the concepts and skills.	Describe what they consider to be the strengths and drawbacks of their design, product or simple system. Test, evaluate and revise their designs, products or simple systems in light of feedback they have gained from others.	Modify their designs/products/systems after considered evaluation of feedback from peers and teachers, and their own reflection.	Suggest modifications to improve their products/systems in light of evaluation of their performance, function and appearance.	Make appropriate suggestions for changes to processes, materials/ingredients, systems components and equipment used that would lead to an improved outcome.
Analysing the impact and usability of products/systems		Consider how well a product or simple system functions and/or how well it meets the intended purpose.	Describe the impact products and technological systems have on people and the environment.	Describe and analyse the social and environmental impacts of their own and others' designs, products and technological systems.	Relate their findings to the purpose for which the product and/or system was designed and the appropriate and ethical use of resources. Synthesise data, analyse trends and draw conclusions about the social, cultural, legal and environmental impacts of their own and others' designs and the products/systems, and evaluate innovative new technology in the manufacturing industry.