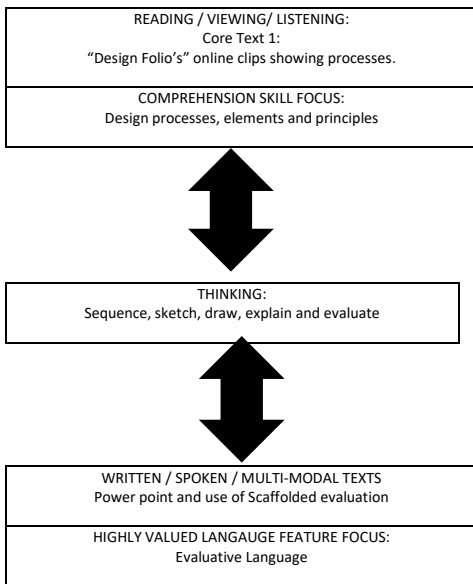# GRD09: Innovative Design

Achievement Standard: By the end of Year 9, students explain how people working in design and technologies occupations consider factors that impact on design decisions and the technologies used to produce products, services and environments. They identify the changes necessary to designed solutions to realise preferred futures they have described. When producing designed solutions for identified needs or opportunities, students evaluate the features of technologies and their appropriateness for purpose for one or more of the technologies contexts.

Students create designed solutions for one or more of the technologies contexts based on a critical evaluation of needs or opportunities. They establish detailed criteria for success, including sustainability considerations, and use these to evaluate their ideas and designed solutions and processes. They create and connect design ideas and processes of increasing complexity and justify decisions. Students communicate and document projects, including marketing for a range of audiences. They independently and collaboratively apply sequenced production and management plans when producing designed solutions, making adjustments to plans when necessary. They select and use appropriate technologies skilfully and safely to produce high-quality designed solutions suitable for the intended purpose.

 In Year 9 students use design and technologies knowledge and understanding, processes and production skills and design thinking to produce designed solutions to identified needs or opportunities of relevance to individuals and regional and global communities. Students work independently and collaboratively. Problem-solving activities acknowledge the complexities of contemporary life and make connections to related specialised occupations and further study. Increasingly, study has a global perspective, with opportunities to understand the complex interdependencies involved in the development of technologies and enterprises. Students specifically focus on preferred futures, taking into account ethics; legal issues; social values; economic, environmental and social sustainability factors and using strategies such as life cycle thinking. Students use creativity, innovation and enterprise skills with increasing confidence, independence and collaboration. Using a range of technologies including a variety of graphical representation techniques to communicate, students generate and represent original ideas and production plans in two and three-dimensional representations using a range of technical drawings including perspective, scale, orthogonal and production drawings with sectional and exploded views. They produce rendered, illustrated views for marketing and use graphic visualisation software to produce dynamic views of virtual products.

Assessment:

- 8 weeks learning and independent student time
- *Design Brief* – 300 words (including *Design Criteria*)
- *Evaluation/Appraisal* - 200 words
- **Annotated preliminary sketches and drawings**

READING / VIEWING/ LISTENING:
Core Text 1:
"Design Folio's" online clips showing processes.

COMPREHENSION SKILL FOCUS:
Design processes, elements and principles

THINKING:
Sequence, sketch, draw, explain and evaluate

WRITTEN / SPOKEN / MULTI-MODAL TEXTS
Power point and use of Scaffolded evaluation

HIGHLY VALUED LANGAUGE FEATURE FOCUS:
Evaluative Language

Design Folio includes:
Investigation: Examine existing products similar to the requirements for this design problem. Consider the specific requirements of the brief in terms of the user requirements. Consider visual components in elements of design relating to infographics such as colour, form, shape, line, space, texture, tone, etc.
Consider application, arrangement and manipulation of principles of design relating to infographics such as alignment, balance, contrast, harmony, hierarchy, proximity, repetition, scale, etc.
Research and evaluate existing designs of logos. Produce sketches/pictures supported by notes describing the products tools in terms of their meeting/ not meeting the user requirements
Design Brief (100 words): An explanation of the design problem. The should include-
The identified needs of the particular audience
The design criteria upon which the design will be judged.
Note: the criteria should be used to justify and evaluate your final design.
Development of original concepts and designs. Present at least 3 possible sketches of your own design solution. Support these sketches by notes that describe and evaluate your design ideas and decisions. Justify your design decisions with annotations
Present final concept and design. Present final sketch/sketches of your chosen design showing evidence of refinement from task 3 above. Justify your decisions. Produce graphical products.
Manage the production of the graphical representations. Use project/time management (write a checklist of what you have to achieve each week to meet your deadlines) to complete all tasks
Produce a series of design proposals
Evaluation (300 words). Evaluate your final designs. Justify your design ideas. Highlight strengths of your design and suggest changes that would address any perceived weaknesses of the design.

Standard Elaborations - Proficiency Scale

	Knowledge and Understanding	Process and Production Skills Evaluating
3	Evaluation of the features of technologies and their appropriateness for purpose for one or more of the technologies contexts when producing designed solutions for identified needs or opportunities	Use of detailed criteria for success to make an evaluation of: - their ideas - designed solutions - processes
2	*Recognise or recall technical vocabulary:* Cognitive Verbs Sketch – execute a drawing or painting in simple form Appraise – evaluate the worth, significance or state of something Critique – review in a detailed, analytical and critical way Create – produce or evolve from one's own thought or imagination Design – produce a plan, simulation, model or similar *Recognise or recall technical information:* You have been chosen to create a series of innovative designs in relation to given topics. Your audience is whoever you choose it to be through your design brief. In terms of your relationship with your audience: • **Distance:** Different countries with different languages and cultures. • **Power:** They have the power to accept or reject your design ideas. Make it attractive and effective. **Values:** Environmentally conscious. *Perform basic process such as:* ☐ Use a Design Folio and process	*Recognise or recall vocabulary:* Explain, evaluate, evaluative language, designed solutions, processes, judge, criteria, functionality, aesthetics, design, sustainability [add more if needed] *Perform basic process such as:* ☐ identify features of successful design which match design criteria ☐ explain the degree of success of the final product in terms of the criteria and finishing ☐ explain future improvements to your process and final product ☐ communicate ideas in complete sentences and/or appropriate graphical representations

Guaranteed Vocabulary:	Design Question Three Strategy	Design Question Four Strategy	21st Century Skill:
Technical shapes (e.g., ellipse, pentagon, etc.), Points, Attributes, Layers (paint, vector and canvas), Shade and Tint, Complimentary and analogous colours	*Practice and deepen understanding of new knowledge?* • Guided student practice (rehearsing, reviewing, contrasting) • Review and revision activities	*What will I do to help students generate and test hypotheses about new knowledge?* • Real-world problem • Individual design solution • Justification of design solution – recommendations for change	☐ collaboration ☑ knowledge construction ☐ self-regulation ☐ real-world problem-solving and innovation ☑ use of ICT for learning ☐ skilled communication
Guaranteed Skills/Language Features:	**Reading Comprehension Skill and Strategy:**	**Cognitive Verbs:**	**ICT to Enhance Learning:**
Communication skills to: • communicate ideas with peers and supervisors • read and write basic procedural instructions literacy skills to: • interpret plans and working drawings	• Discussion of new vocabulary • Recording of new vocabulary and its meaning • **Synthesis**: reading information →recording main ideas →summarise	• Evaluate: • Using correct spelling, punctuation, grammar • Judging/ evaluating • Creating/ composing/ devising	• Using shortcuts to speed up process • Understanding of GUI (Graphical User Interface)

Learning Goals:

Strands and Sub-Strands	Australian Curriculum Content Descriptors	Kirwan High Goals – Students will know and/or be able to
Knowledge and understanding	• Design concepts across a range of technologies contexts	• The meaning of appropriate technical terminology e.g. processes and shapes/forms
		• The rule of thirds
Process and production Skills	• Generating, developing and communicating design ideas	• Colour theory e.g. Complimentary and analogous colours
	• Generating, developing and communicating design ideas	• Record (written) the generation and development of design ideas for an intended audience including justification of decisions
	• Producing (making) designed solutions	• Use materials, equipment and techniques to sketch and draw
	• Planning and managing design projects	• Identify appropriate techniques and procedures when using CAD
	• Evaluating processes and designed solutions	• Evaluate production processes for accuracy, quality, safety and efficiency

Possible Habit of Mind: Managing Impulsivity				
Exploring Meaning of the HOM By the end of this unit students will be able to: • Understand the meaning of Impulsivity • Understand positive and negative results of impulsivity	**Expanding Capacity for using the HOM** By the end of this unit students will be able to: Implement simple strategies to manage impulsivity e.g. Wait time before doing. Check twice.	**Increasing Alertness for the HOM** By the end of this unit students will be able to:	**Extending Values of the HOM** By the end of this unit students will be able to:	**Building Commitment towards the HOM** By the end of this unit students will be able to: *Students will be able to discuss how knowledge obtained in Graphics and Design can be used to assist in the developments of products and technologies in the world outside of the subject.*

General Capabilities: This unit provides opportunities for students to engage in following capabilities:

Literacy
☑ Comprehending texts through listening, reading and viewing
☐ Composing texts through speaking, writing and creating
☐ Text knowledge
☐ Grammar knowledge
☑ Word knowledge
☑ Visual knowledge
Numeracy
☐ Estimating and calculating with whole numbers
☐ Recognising and using patterns and relationships

ICT
☐ Applying social and ethical protocols and practices when using ICT
☐ Investigating with ICT
☑ Creating with ICT
☐ Communicating with ICT
☐ Managing and operating ICT
Critical and creative thinking
☑ Inquiring - identifying, exploring and organising information and ideas
☑ Generating ideas, possibilities and actions
☐ Reflecting on thinking and processes

Personal and social capability
☐ Self-awareness
☑ Self-management
☐ Social awareness
☑ Social management
Ethical understanding
☐ Understanding ethical concepts and issues
☑ Reasoning in decision making and actions
☐ Exploring values, rights and responsibilities
Intercultural understanding
☐ Recognising culture and developing respect
☐ Interacting and empathising with others

☐ Using fractions, decimals, percentages, ratios and rates ☑ Using spatial reasoning ☐ Interpreting statistical information ☑ Using measurement	☐ Analysing, synthesising and evaluating reasoning and procedures	☐ Reflecting on intercultural experiences and taking responsibility

Cross Curriculum Priorities:

☐ Aboriginal and Torres Strait Islander histories and cultures	☐ Asia and Australia's engagement with Asia	☑ Sustainability

Differentiation [for small groups or individuals]:

Students with low LLN are given modified worksheets and at time specialised instruction. Top scholar students are given modified tasks to further deepen their knowledge and understanding.