



Government of **Western Australia**
School Curriculum and Standards Authority

SAMPLE ASSESSMENT TASKS

MATERIALS DESIGN AND TECHNOLOGY
ATAR YEAR 11

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Sample assessment task

Materials Design and Technology – ATAR Year 11

Task 1 – Unit 1

Assessment type: Design (written)

Design fundamentals and skills – investigate

(25 marks)

Students investigate the needs, values and beliefs of designers/developers, different sources of inspiration, and products with specific performance criteria, and then use a design process to design and make a product based on their design research.

Conditions

Period allowed for completion of the task: 3 weeks

Task weighting

5% of the school mark for this pair of units

What you need to do

Develop the first part of a design folio; include the following:

- Investigate, develop ideas and include in your design portfolio:
 - needs, values and beliefs of a selection of designers/developers
 - sources of design inspiration
 - existing ideas and products
 - performance criteria for products
 - include supporting images
 - limitations
 - list available materials and equipment
- Statement of problem and intent
 - outline: function, aesthetics, safety, cost considerations and limitations
- Develop ideas and concepts through collected and annotated images, incorporating comments about design fundamentals and factors affecting design, with references back to the statement of intent
- Include references and your sources of information.

What needs to be submitted for assessment	Due dates
<input type="checkbox"/> Research on designers/developers, inspirations, existing ideas/products/concepts	
<input type="checkbox"/> Listing of materials	
<input type="checkbox"/> Statement of problem and intent	
<input type="checkbox"/> Annotated design concept images showing concept development	

Marking key for sample assessment task 1 – Unit 1

Design folio – Investigation, statement of intent and concept development	Maximum possible mark	Allocated mark
Provides information on designers/developers and sources of inspiration <ul style="list-style-type: none"> detailed comparisons, using design considerations, between a number of designers/developers and sources of inspiration, supported by suitable images a number of different examples with notes describing the differences a selection of ideas from a single designer/developer/inspiration with some notation about likes/dislikes collection of ideas, dissimilar images and few notes 	7–8 5–6 3–4 1–2	/8
Provides information about existing products <ul style="list-style-type: none"> detailed information about a number of existing similar products, with source referencing, using the design considerations to make detailed comparisons comparisons between a number of images against the design considerations a number of different products with notes describing the differences a selection of ideas of a single product with limited annotation about likes and dislikes collection of dissimilar images and few notes 	5 4 3 2 1	/5
Provides an outline of a situation defining a need or purpose for the product <ul style="list-style-type: none"> includes clear statements about function, aesthetics, safety, cost considerations and limitations includes general statements about the likes and dislikes covers broad areas of the design problem in limited general terms only 	5–6 3–4 1–2	/6
Provides ideas and concepts through collected and annotated images <ul style="list-style-type: none"> clear development of ideas and concepts showing concept development with annotations on images referring to design fundamentals, factors affecting design and statement of intent concept development in the annotated images, reference design factors and statement of intent concept development is limited by few images and simple annotations, little or some reference to ideas in the statement of intent 	5–6 3–4 1–2	/6
Total		/25

Sample assessment task

Materials Design and Technology – ATAR Year 11

Task 2 – Unit 1

Assessment type: Response (written)

Nature and properties of materials

(30 marks)

This assignment requires students to gather and synthesise information.

Research and present information on the nature and properties of materials suitable for use in the development of a design solution.

Conditions

Period allowed for completion of the task: 2 weeks

Task weighting

5% of the school mark for this pair of units

What you need to do

Use the internet and library resources to research relevant materials. Present findings in report style, including images or graphics where appropriate.

- Find and research information within your context, and present a report about:
 - types of materials
 - classifications of materials
 - origins and processes of manufacture of materials
 - properties of materials that influence design choices.

Draft notes from research should be shown to, and discussed with, your teacher.

- Identify up to **six** examples of distinguishing physical differences between different materials
- Select and identify characteristics of materials that influence design choices
 - relevant graphics and charts/table should be examined and included to better communicate concepts and arguments
- Include your reference list.

The final report should be between 1,000–1500 words and submitted as a Word document.

The font used must be easy to read and text must be double spaced.

Note: Plagiarism will result in marks being reduced. Clearly reference your sources of information.

What needs to be submitted for assessment	Due dates
<input type="checkbox"/> Draft notes	
<input type="checkbox"/> Report	

Marking key for sample assessment task 2 – Unit 1

Report on the nature and properties of materials	Maximum possible mark	Allocated mark
Collected research data and draft notes presented <ul style="list-style-type: none"> • logical arrangement and setting out of researched data—types, classifications, features, origins and processes clearly researched, with references to specific industries • relevant collection of data—material types, classifications, features, origins and processes • collection of mostly relevant notes on material types, classifications, features, origins and processes clearly researched, with references to specific industries (some referencing) • collection of notes referring to types and characteristics of materials, with brief reference to manufacturing processes (some referencing) • notes on a limited number of examples of materials (little or no referencing) 	5 4 3 2 1	/5
Presentation of examples of distinguishing physical differences between different materials <ul style="list-style-type: none"> • logical arrangement, prioritised, detailed, and specific points of the distinguishing physical differences • clear arrangement of specific points of at least five examples of distinguishing physical differences • collection of relevant statements of points of more than three examples of distinguishing physical differences • statements refer to more than three examples of different physical appearance • notes referring to at least three examples of the main differences in appearance • notes some main points of difference 	11–12 9–10 7–8 5–6 3–4 1–2	/12
Selection and description of characteristics of materials that influence design choices <ul style="list-style-type: none"> • logical selection of materials, detailed arrangement and setting out of the main characteristics, identifying many of the characteristics, properties and factors affecting design choices • clear arrangement identifying the main materials' characteristics and factors affecting design choices • collection of notes identifying chosen materials' characteristics affecting design choices • notes on a chosen material, listing the material's characteristics affecting design choices • limited description of a material, with little or no comments on characteristics affecting design choices 	9–10 7–8 5–6 3–4 1–2	/10
Relevant list of references	1–3	/3
	Total	/30

Sample assessment task

Materials Design and Technology – ATAR Year 11

Task 3 – Unit 1

Assessment type: Design (practical)

Design fundamentals and skills – devise

(35 marks)

Students use a design process to prepare drawings, patterns or templates, and develop a production plan to manufacture the product.

Conditions

Period allowed for completion of the task: 4 weeks

Task weighting

8% of the school mark for this pair of units

What you need to do

Develop the first part of a design folio including the following:

- Devise and develop concept design sketches incorporating the elements of design
 - adapt design ideas using annotated graphics and sketches
- Present a rendered sketch of final solution, including any likely applied finish.

Develop the second part of a design folio including the following:

- Create simple working drawing/s or develop a template or select pattern
 - use conventions suitable to context
 - select and show methods of joining
- Select and list materials
- Calculate simple cutting/costing list/s
- Produce a basic plan and timeline for production.

What needs to be submitted for assessment	Due dates
<input type="checkbox"/> Final sketch of proposed solution	
<input type="checkbox"/> Working drawings or template or pattern for product	
<input type="checkbox"/> Materials/parts list, costing and order form	
<input type="checkbox"/> Work schedule/production plan	

Marking key for sample assessment task 3 – Unit 1

Design folio; proposed solution and pre-production	Maximum possible mark	Allocated mark
Complete sketches of possible shapes, joins, specific features, likely dimensions and notes on likely finishes <ul style="list-style-type: none"> • detailed well-proportioned sketches showing progression from concept ideas to specific ideas; parts, showing relevant joining methods with appropriate specific dimensions; other materials and finishes • well shaped sketches that show concept ideas, including other materials, joining and appropriate overall dimensions • sketches that show development of mainly a single concept idea, some materials and joining, some dimensioning • collection of dissimilar sketches, limited design progression, and few notes 	10–12 7–9 4–6 1–3	/12
Final three dimensional rendered sketch of proposed solution showing any relevant likely finish <ul style="list-style-type: none"> • well-drawn, correctly proportioned three dimensional colour rendered representation of the proposed product, showing clear development from the concept stage • well-drawn representation of solution • representation of solution, but with minor errors or missing detail 	5–6 3–4 1–2	/6
Presentation of working drawing/s or template or selected pattern <ul style="list-style-type: none"> • well-drawn, correctly labelled view/s with clear accurate dimensioning • well-drawn views with correct major dimensions • views with majority of correct dimensions, but with minor errors 	5–6 3–4 1–2	/6
Completed list of materials and order form, plus any additional parts <ul style="list-style-type: none"> • logical presentation of a complete and correct naming of materials, list of all individual parts with accurate sizes, correct total cost, and completed order form • clear list of materials and parts with correct sizes, costing completed • list of materials with approximate sizes and calculated approximate cost • list of materials with approximate cost • incomplete list of parts 	5 4 3 2 1	/5
Proposed steps for manufacturing <ul style="list-style-type: none"> • logical list of methods of making and fitting the parts of the project together with correct tools and correct procedures • correct procedures listed with available tools for making the project • outline, with limited and/or partial list of procedures and tools 	5–6 3–4 1–2	/6
Total		/35

Sample assessment task

Materials Design and Technology – ATAR Year 11

Task 4 – Unit 1

Assessment type: Production (practical)

Use of technology development, as per context specific skills and techniques (20 marks)

You are to complete skills development exercises, as demonstrated by your teacher, prior to the production of the proposed product.

Keep a daily work log/time sheet to record your skills development.

Conditions

Period allowed for completion of the task 2 weeks

Task weighting

5% of the school mark for this pair of units

What you need to do

Document and include the following in your daily work log/time sheet:

- Notes on the processes involved in the skills development exercises
- List appropriate machines and tools to make the product.

Use the following procedures to complete the project

- Follow Occupational Health and Safety (OHS) practices when using appropriate tools and equipment
- Follow instructions to complete skills development in a production process:
 - mark out details of parts on materials from a plan using appropriate tools
 - select and use appropriate tool/s to accurately cut required parts
 - if required use appropriate tools to shape parts
 - select and use appropriate tools to assemble parts
 - check fit, modify if needed
 - check appearance of assembled skill exercise
 - apply a finish, if required.

What needs to be submitted for assessment	Due dates
<input type="checkbox"/> Documented daily work log/time sheet	
<input type="checkbox"/> Finished product	

Marking key for sample assessment task 4 – Unit 1

Skills development exercises	Maximum possible mark	Allocated mark
Setting out of daily work log/time sheet <ul style="list-style-type: none"> well recorded detailed and correct workshop practices main steps of procedure recorded with correct work practices inconsistent notes, partly correct work practices 	3 2 1	/3
Marking out required from plan <ul style="list-style-type: none"> marking out completed correctly marking out completed marking out completed but required correction 	3 2 1	/3
Parts cut and shaped <ul style="list-style-type: none"> all parts accurately cut, well-shaped parts cut, but some minor unevenness parts cut, but required second attempts 	5–6 3–4 1–2	/6
Final presented skill exercise <ul style="list-style-type: none"> correctly assembled/fitted, appearance shows accurate finished detail competently assembled/fitted, with an acceptable finished detail assembled/fitted, appearance shows minor detail flaws assembled, but poorly fitting parts, appearance shows detail flaws 	7–8 5–6 3–4 1–2	/8
Total		/20

Sample assessment task

Materials Design and Technology – ATAR Year 11

Task 5 – Unit 1

Assessment type: Production (practical)

Use of technology development, as per context specific skills and techniques (25 marks)

Use safe production methods to produce the product.

Document a daily work log/time sheet including record of production with photographs.

Conditions

Period allowed for completion of the task: 8 weeks

Task weighting

20% of the school mark for this pair of units

What you need to do

Document and include in your daily work log/time sheet

- Complete an ongoing record of production with photos at each stage of production.
- Take photographs of completed project.

Use the following procedures, complete the product

- Follow proposed production plan
 - maintain time management while using tools, equipment and machinery to complete production
 - follow instructions from plans
 - maintain safety requirements
 - record changes to materials lists or costing
 - record regular journal/diary entries
- use ongoing evaluation techniques: diary, journal or portfolio notes and use of photography to record ongoing progress/decision changes made to the product.

What needs to be submitted for assessment	Due dates
<input type="checkbox"/> Stages of production (teacher observation)	
<input type="checkbox"/> Production photos/daily work log for making process	
<input type="checkbox"/> Completed product	

Marking key for sample assessment task 5 – Unit 1

Production of proposed product	Maximum possible mark	Allocated mark
Contents and records in daily work log/time sheet <ul style="list-style-type: none"> records ongoing correct workshop practices inconsistent records of work practices 	2 1	/2
Completed marking out of material/s as required from plan and cut parts to required shapes using appropriate tools <ul style="list-style-type: none"> marking out completed correctly, all parts correct size and square marking out completed, parts correct size marking out completed with minor corrections, parts correct size marking out required correction, adjusted parts re-sized marking out required correction, replacement piece cut 	5 4 3 2 1	/5
Completed assembly/fitting of product parts <ul style="list-style-type: none"> all parts and joints assembled, even and square fit all parts and joints assembled, minor corrected unevenness all parts and joints assembled minor shape unevenness all parts and joints assembled, but some required second attempt, some poor fit parts fitted, joints show poor fit, and some require additional material for second attempt 	9–10 7–8 5–6 3–4 1–2	/10
Completed product and ongoing record of production <ul style="list-style-type: none"> correctly assembled/fitted product, presented as per design proposal. Detailed record of production clearly showing each stage of the process correctly assembled/fitted product, easily identified from the design proposal, well explained stages of the process in the record of production completed product, appearance shows minor detail flaws, limited record of production assembled, but poorly fitting parts, appearance and production notes show a deviation from the design and production plan 	7–8 5–6 3–4 1–2	/8
	Total	/25

Sample assessment task

Materials Design and Technology – ATAR Year 11

Task 6 – Unit 1

Assessment type: Response (written)

Design fundamentals and skills – evaluation of completed product (20 marks)

Evaluate your finished product by responding to evaluation questions.

Conditions

Period allowed for completion of the task: 1 week, completed during the final week of the term.

Task weighting

2% of the school mark for this pair of units

What you need to do

Write clear statements to evaluate the project.

Comment on the following points, where relevant:

- Did the product meet the design requirements?
 - compare product against design ideas and final drawings
 - comment on aesthetics, appearance, function and safety
 - shape and size
 - finish
 - efficiency
 - safe usage
- Did the manufacturing processes achieve a quality product?
 - comment on success of manufacturing skills
 - correct shape and size as per design
 - proportion and fit
 - accurate joins, no gaps
 - manufacturing influences on appearance
 - ability to keep to the production procedure
- How could the shape, size and design features of the product be improved?
 - comment on aesthetics, function and safety
 - include feedback from the consumer.

What needs to be submitted for assessment	Due dates
<input type="checkbox"/> Completed report	

Marking key for sample assessment task 6 – Unit 1

Evaluation of completed product	Maximum possible mark	Allocated mark
Evaluation comments with regards to the specifications and design considerations of aesthetics, function and safety <ul style="list-style-type: none"> • clear comments referring to specific design considerations combined with justification of design fulfilling statement of intent requirements • comments outlining major uses and function, and referring to points within statement of intent • comments linked to statement of intent expressing personal likes and dislikes about finished project • comments outlining use of product, but little reference to statement of intent • comments reflect superficial evaluation 	9–10 7–8 5–6 3–4 1–2	/10
Comments on the manufacturing processes <ul style="list-style-type: none"> • evaluation of all procedures with reference to specific procedures, improvements with little or no change of process • appropriate reporting and/or comment on procedures with some logical evaluation of operations, with minor changes to process • comments on procedures with limited evaluation of operations, after major changes to process • brief comments with few references to processes • comments reflect superficial evaluation 	5 4 3 2 1	/5
Evaluation comments with regards to the shape and size – improvements <ul style="list-style-type: none"> • clear comments referring aesthetics, function and safety influenced by shape and size and suggested improvements • comments suggesting improvements referring to major design considerations • comments expressing personal likes and dislikes about improvements • brief reference to design changes to improve function or aesthetics • few comments/superficial notes on improvements 	5 4 3 2 1	/5
Total		/20