



SAMPLE ASSESSMENT TASKS

MATERIALS DESIGN AND TECHNOLOGY

GENERAL YEAR 12

Acknowledgement of Country

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Sample assessment task

Materials Design and Technology – General Year 12

Task 1 – Unit 3

Context	☐ Metal ☐ Textiles ☐ Wood
Assessment type	Response
Conditions	Period allowed for completion of the task: one week in class
Task weighting	5% of the school mark for this pair of units

Materials properties and characteristics

(19 marks)

Students complete short answer responses on:

- nature and properties of materials
- materials in context.

What you need to do

Metal	Textiles	Wood
• the uses and classification of the major metal types for: ▪ furniture products ▪ building and construction materials ▪ consumer products	• specific textiles and their uses ▪ apparel ▪ textile arts ▪ furnishings ▪ non-apparel items ▪ costumes	• the uses and classification of the major timber types for: ▪ furniture products ▪ building and construction materials ▪ consumer products

1. Identify and describe two material types for your context. For each material, provide the relevant classification. (6 marks)
2. Your teacher has provided you with an image based on the chosen context. Explain why two properties of the materials, such as aesthetic, physical and/or chemical, have been used in the chosen product or item. (6 marks)
3. Explain the environmental impact of materials production/industry. (3 marks)
4. Discuss how the product in the image addresses end-of-life environmental impacts. (4 marks)

What needs to be submitted for assessment	Due date
☐ Short answer responses	

Marking key for sample assessment task 1

Note: modify the marking key for the defined context.

1. Identify and correctly describe two material types and classifications for your context.

Description	Marks
For each description (2 x 3 marks)	
Identifies and describes a material type and classification for a selected context	3
Identifies and states a material type and classification for a selected context	2
States or identifies a fact about material type and classification	1
Subtotal	/6

2. Based on an example image/s: Explain why the properties of the materials, such as aesthetic, physical and/or chemical properties, have been used in the chosen product or item.

Description	Marks
For each description (2 x 3 marks)	
Explains the suitability of the materials used in relation to the product or item	3
Outlines the suitability of the materials used in relation to the product or item	2
Makes a general comment about the suitability of the materials used in relation to the product or item	1
Subtotal	/6

3. Explain the environmental impact of materials production/industry.

Description	Marks
Explains the environmental impact of materials production/industry	3
Outlines the environmental impact of materials production/industry	2
Makes a general comment about the environmental impact for materials production/industry	1
Subtotal	/3
Example response: Metals production, such as creating aluminium, can have a significant negative impact on the environment. The process of mining ore such as bauxite, which is required to create aluminium, destroys habitats and vegetation and can impact water sources. This has a negative impact for the company financially, and future generations and the environment. Creating aluminium from bauxite releases pollutants into the atmosphere and requires significant energy, such as that obtained from fossil fuels, to create. While products made with aluminium are recyclable, to be sustainable, these products need to be recycled correctly rather than disposed of in landfill. This demonstrates the need to choose materials and manufacturing methods that are sustainable and understand the full life cycle and production process, not simply focus on the product.	

4. Discuss how the selected product addresses end-of-life environmental impacts.

Description	Marks
Discusses how the selected product addresses end-of-life environmental impacts.	4
Explains how the selected product addresses end-of-life environmental impacts.	3
Outlines how the selected product addresses end-of-life environmental impacts.	2
Makes a general comment about how the selected product addresses end-of-life environmental impacts.	1
Subtotal	/4
Total	/19

Sample assessment task

Materials Design and Technology – General Year 12

Task 2 – Unit 3

Context	Metal
Assessment type	Production
Conditions	Period allowed for completion of the task: four weeks
Task weighting	15% of the school mark for this pair of units

Pre-production skills development (Metal context) (25 marks)

Students follow instructions from a given design brief and plans, follow safety requirements and use tools, equipment and machinery to complete a skills development project production.

What you need to do

Read the instructions for the design brief and implement the plans for the manufacture of a product, demonstrating the following:

- an accurate assessment of the condition of two tools/items of machinery (4 marks)
- application of appropriate and accurate measuring and marking out techniques (3 marks)
- demonstration of efficient project management of the working environment, including correct operational procedures, risk management strategies, tools and equipment use, correct use of personal protective equipment and following work health and safety practices throughout the production (4 marks)
- appropriate application of technical skills when using tools and machinery (6 marks)
- appropriate finishing techniques and correct clean-up procedure, as applicable to the production (4 marks)
- an accurate evaluation and discussion of the production processes, challenges and reflections with regards to the project management and production based on the given design brief and plans. (4 marks)

What needs to be submitted for assessment	Due date
☐ Finished product	
☐ Demonstration of skills throughout the production (teacher observation)	

Marking key for sample assessment task 2 (Metal context)

Note: modify the marking key for the defined context.

Description	Marks
Assess the condition of tools and machinery: for each description (2 x 2 marks)	
Demonstrates an accurate assessment, describing the condition of a tool and/or machinery based on a provided example	2
Demonstrates an accurate assessment, identifying the condition of a tool and/or machinery based on a provided example, with teacher guidance	1
Subtotal	/4
Measuring and marking out	
Demonstrates accurate measuring and marking out, adhering to given plan	3
Demonstrates measuring and marking out with teacher guidance	2
Demonstrates measuring and marking out with teacher guidance and correction	1
Subtotal	/3
Project management, safety, procedures and organisation	
Demonstrates efficient management of working environment including correct operational procedures for all tools/equipment/machines as applicable to the production and in line with the given plans, applying proactive risk management strategies, consistent and correct use of personal protective equipment and following work health and safety practices	4
Demonstrates management of working environment with consideration of correct operational procedures for all tools/equipment/machines as applicable to the production and in line with the given plans, risk management strategies, use of personal protective equipment and/or following work health and safety practices. Minimal teacher guidance required	3
Demonstrates satisfactory management of working environment with consideration of correct operational procedures for all tools/equipment/machines, correct use of personal protective equipment and/or following work health and safety practices. Teacher guidance required	2
Demonstrates operation of machines, with supervision, as applicable to the production and in line with the given plans, with significant guidance and correction involved within the working environment, correct operational procedures for all tools/equipment/machines	1
Subtotal	/4

Description	Marks
Technical skills	
Demonstrates increasing independence and excellent understanding, confidence and competence when using technical skills in manufacturing processes	6
Demonstrates excellent understanding, confidence and competence when using technical skills in manufacturing processes	5
Demonstrates a high level of understanding, confidence and competence when using technical skills in manufacturing processes	4
Demonstrates a satisfactory level of understanding, confidence and competence when using technical skills in manufacturing processes	3
Demonstrates a limited level of technical skills in manufacturing processes	2
Demonstrates a minimal level of technical skills in manufacturing processes	1
Subtotal	/6
Finishing techniques and clean up procedure	
Demonstrates the skills and techniques required to achieve an excellent standard of finish and follows correct clean-up procedures	4
Demonstrates the skills and techniques required to achieve a high standard of finish and follows clean-up procedures	3
Demonstrates the skills and techniques required to achieve a satisfactory standard of finish and follows clean-up procedures with support	2
Achieves a minimal standard of finish and adherence to clean-up procedures	1
Subtotal	/4
Evaluation	
Provides an accurate evaluation, discussing the production processes, observations, challenges and reflections with regards to the project management and production based on the given design brief and given plans	4
Provides an accurate evaluation, explaining the production processes, observations, challenges and reflections with regards to the project management and production based on the given design brief and given plans	3
Provides an evaluation with minor inaccuracies, describing the production processes, observations, challenges and reflections with regards to the project management and production based on the given design brief and given plans	2
Provides a limited verbal evaluation of personal performance or final product	1
Subtotal	/4
Total	/25

Sample assessment task

Materials Design and Technology – General Year 12

Task 4 – Unit 3

Context	☐ Metal ☐ Textiles ☐ Wood
Assessment type	Design
Conditions	Period allowed for completion of the task: recommend ten weeks from introduction to completion of this task
Task weighting	5% of the school mark for this pair of units

Design portfolio (Part 1) – Research and design brief creation (37 marks)

Within a selected context, use ICT, portfolio development and communication skills to apply a design process and create a design portfolio. Research and investigate existing products, materials, joining techniques and finishes that could be used to support your design decisions.

(Note: it is suggested that teachers create a template or scaffolding to guide students with the creation of their design portfolio, if required.)

The design portfolio should:

- investigate issues, values, needs and opportunities
- acknowledge sources of information, as required, using either in-text referencing or an appropriately set out reference list.

Note: images are a point of reference only; no marks are assigned for the images researched.

What you need to do

Investigate

1. Research and select 4 images of material types for the relevant context. Describe the 4 material types that could be used to construct your product. (8 marks)
2. Research and select 3 images of finishes for the relevant context. Describe the 3 finishes that could be used to construct your product. (6 marks)
3. Research and select 3 images of construction/joining techniques for the relevant context. Describe the 3 construction/joining techniques for manufacturing that could be used to construct your product. (6 marks)
4. Research and select 5 images of existing designs for inspiration, identifying the needs, values and beliefs of the designer. (15 marks)
5. Acknowledge sources of information. (2 marks)

What needs to be submitted for assessment	Due date
☐ Investigation of existing materials, products, finishes and construction techniques	
☐ Evidence of design fundamentals and factors affecting design	
☐ Acknowledgement of sources of information, as required, using either in-text referencing or an appropriately set out reference list	

Marking key for sample assessment task 4

Note: modify the marking key for the defined context.

Design portfolio (Part 1)	Marks
Materials investigation: for each description (4 x 2 marks)	
Describes a materials type for a selected context	2
States a fact about materials type	1
Subtotal	/8
Finishes investigation: for each description (3 x 2 marks)	
Describes a finish for a selected context	2
States a fact about materials finish	1
Subtotal	/6
Construction/joining techniques Investigation: for each description (3 x 2 marks)	
Note: images are a point of reference only; no marks are assigned for the images	-
Describes a construction / joining technique for manufacturing for a selected context	2
States a fact about construction / joining techniques	1
Subtotal	/6
Investigating existing products: for each description (3 x 5 marks)	
Describes the needs, values and beliefs of the designer of specific products Describes the application of design fundamentals and factors affecting design	3
States the needs, values or beliefs of the designer or developer of specific products States the application of design fundamentals or factors affecting design	2
Demonstrates limited investigation into existing products	1
Subtotal	/15
Acknowledgement of sources	
Appropriately acknowledges sources of information throughout task	2
Acknowledges some sources of information	1
Subtotal	/2
Total	/37

Sample assessment task

Materials Design and Technology – General Year 12

Task 5 – Unit 4

Context	☐ Metal ☐ Textiles ☐ Wood
Assessment type	Design
Conditions	Period allowed for completion of the task: recommend ten weeks from introduction to completion of this task
Task weighting	20% of the school mark for this pair of units

Design portfolio (Part 2) – Devising solutions and planning stages

(35 marks)

Within a selected context, use ICT, portfolio development and communication skills to apply a design process and create a design portfolio. Devise and plan the processes and create a production plan for manufacturing a product or project that will be created in Task 6.

The design portfolio should:

- create a design brief and performance criteria
- devise and generate ideas and prepare production proposal production planning.

What you need to do

Devise

- Create a design brief and performance criteria for the product you plan to create. (4 Marks)
 - Describe who/what/where/why/how (address the design brief as it relates to the needs, values and beliefs of the end user and constraints relevant to the proposed project).
 - Create performance criteria for the product you plan to create. The criteria identified will be used in portfolio part 4, Task 7 for evaluation.
- Develop a page of rapid concept sketches with annotation based on product research (one page, 12 rapid sketches). (10 Marks)
- Devise product ideas based on the rapid concepts, producing sketches/drawings with rendering and annotations to communicate the development of alternate product ideas. (6 Marks)
- Create fully developed dimensioned working drawings. (4 Marks)
- Create fully developed rendered presentational drawings using 2D or 3D illustrations. (4 Marks)
- Develop a production plan including:
 - an outline of the stages of production with deadlines (4 Marks)
 - a materials and costing list. (3 Marks)

What needs to be submitted for assessment	Due date
☐ Design brief and performance criteria	
☐ Rapid concepts and development sketches	
☐ Evidence of design fundamentals and factors affecting design	
☐ Evidence of design progression and annotated sketches of several product ideas	
☐ Final three-dimensional sketch of proposed solution with recorded evidence of relevant elements and principles of design	
☐ Working drawings or template or pattern for product	
☐ Production plan with materials list, costing, stages of production and deadlines	

Marking key for sample assessment task 5

Note: modify the marking key for the defined context.

Design portfolio (Part 2)	Marks
Design brief and performance criteria	
Demonstrates independent development of a design brief with identified performance criteria that explains how the product addresses the needs, values and beliefs of the end user for the final product	4
Demonstrates, with guidance, development of a design brief with identified performance criteria that explains how the product addresses the needs, values and beliefs of the end user for the final product	3
Demonstrates satisfactory development of a design brief with reference to performance criteria that explains how the product addresses the needs, values and beliefs of the end user for the final product	2
Demonstrates limited development of a brief with some reference to performance criteria	1
Subtotal	/4
Rapid sketches	
Develops 1-page identifiable rapid concept sketches linked to research	5–6
Develops 1-page rapid concept sketches linked to research	3–4
Provides limited detail and sketches	1–2
Subtotal	/6
Sketches describe the Design Elements for each design	3–4
Sketches identify the Design Elements for each design	1–2
Subtotal	/4
Devise product ideas through sketching	
Demonstrates a clear design progression, using detailed concept sketches that explain the design fundamentals and factors affecting design	5–6
Demonstrates a clear design progression, using concept sketches that identify the design fundamentals and factors affecting design	3–4
Demonstrates a satisfactory design progression annotating the design fundamentals and factors affecting design with statements	2
Demonstrates a limited design progression or limited concept sketches	1
Subtotal	/6

Design portfolio (Part 2)	Marks
Final three-dimensional sketch	
Demonstrates the preferred design concept through a fully rendered three-dimensional sketch	4
Demonstrates the preferred design concept through a rendered three-dimensional sketch	3
Produces a three-dimensional sketch that accurately represent the final design	2
Produces a limited final three-dimensional sketch	1
Subtotal	/4
Working drawings	
Demonstrates the creation of fully developed, correctly dimensioned working drawing/s	4
Demonstrates the creation of dimensioned working drawing/s	3
Demonstrates the creation of simple working drawing/s	2
Demonstrates the creation of poorly dimensioned working drawing/s	1
Subtotal	/4
Production plan	
Produces a production plan with a clear, detailed and accurate sequence for the manufacture process with consideration for equipment, tools, timings and safety	4
Produces a production plan with a sequence for the manufacture process with minor correction, with consideration for equipment, tools, timings and safety	3
Produces a simple accurate sequence for the manufacture process. Lists the equipment, tools, timings and safety	2
Produces a limited list of manufacture steps, tool and equipment	1
Subtotal	/4
Independently produces an accurate materials list for all materials required, with correct costings	3
Produces a materials list for all materials and costing required with minimal support and minor correction	2
Produces a limited materials and costing list, with significant support	1
Subtotal	/3
Total	/35

Sample assessment task

Materials Design and Technology – General Year 12

Task 6 Unit 4

Context	☐ Metal ☐ Textiles ☐ Wood
Assessment type	Production
Conditions	Period allowed for completion of the task: 12 weeks
Task weighting	35% of the school mark for this unit

Design portfolio (Part 3) – Production management and manufactured product (25 marks)

Students apply safety and risk management in their use of tools, equipment or machinery to manufacture a product. They follow the production plan they developed during the design phase and use ongoing evaluation techniques to record progress and decision changes.

Use the following procedures to complete the product:

1. Follow a production plan.
2. Use tools, equipment and machinery to complete production.
3. Adhere to sequential instructions.
4. Apply safety and risk management.
5. Record changes to materials lists or costing.
6. Use ongoing evaluation techniques and record ongoing progress/decision changes made to the project.

What needs to be submitted for assessment	Due date
☐ Investigation of existing materials, products, finishes and construction techniques	
☐ Design brief and performance criteria	
☐ Rapid concepts and development sketches	

Marking key for sample assessment task 6

Note: modify the marking key for the defined context.

Portfolio (part 3)	Marks
Following production plan	
Demonstrates correct completion of marking out and cuts all parts to correct size and square Demonstrates independence and consistent adherence to sequential instructions	9–10
Demonstrates completion of marking out and cuts parts to correct size Demonstrates consistent adherence to sequential instructions	7–8
Demonstrates completion of marking out with minor corrections, parts cut to correct size Demonstrates adherence to sequential instructions	5–6
Demonstrates the ability to complete project marking out and materials cutting/resizing/adjusted of parts with assistance Demonstrates adherence to sequential instructions with assistance	3–4
Demonstrates completion of marking out with assistance and cuts replacement piece Demonstrates limited adherence to sequential instructions	1–2
Subtotal	/10
Production management and assembly of parts and joints	
Demonstrates assembly of all parts and joints with even and square fit Demonstrates independence when using tools, equipment and machinery	9–10
Demonstrates assembly of all parts and joints with minor corrected unevenness Demonstrates correct use of tools, equipment and machinery	7–8
Demonstrates assembly of all parts and joints with minor shape unevenness Demonstrates use of tools, equipment and machinery, requiring occasional guidance	5–6
Demonstrates assembly of all parts and joints, but some required second attempt and some show poor fit Demonstrates use of tools, equipment and machinery, requiring regular guidance	3–4
Demonstrates assembly of parts but joints show poor fit, and some require additional material for second attempt Demonstrates use of tools, equipment and machinery, requiring sustained guidance	1–2
Subtotal	/10
Safety and risk management	
Demonstrates independent application of safety and risk management during production, showing concern for the safety of self and others	5
Demonstrates application of safety and risk management during production, showing concern for the safety of self and others	4
Demonstrates, with assistance, the application of safety and risk management during production	3
Demonstrates, with regular assistance, the application of safety and risk management during production	2
Demonstrates limited application of safety and risk management	1
Subtotal	/5
Total	/25

Sample assessment task

Materials Design and Technology – General Year 12

Task 7 Unit 4

Context	☐ Metal ☐ Textiles ☐ Wood
Assessment type	Response
Conditions	Period allowed for completion of the task: one week
Task weighting	5% of the school mark for this unit

Design portfolio (Part 4) - Evaluation of completed product or project (13 marks)

Evaluate your finished product by responding to evaluation questions based on the design criteria created in the investigation.

What you need to do

Write clear statements and provide suitable photographs to evaluate the project:

- justify how the product meets the design requirements
 - compare the product against design ideas, brief, statement of intent and final drawings
 - comment on the design fundamentals:
 - aesthetics – shape, size and finish
 - function – safe usage and operation
 - final cost
- justify how the manufacturing processes achieve a quality product.
- comment on the success of manufacturing skills
 - correct shape and size as per design
 - proportion and fit
 - accurate joins, no gaps
 - manufacturing influences on appearance
- comment on your ability to keep to the production procedure/timeline.
- justify how the shape, size and design features of the product could be improved
 - comment on feedback from the consumer
 - comment on needs, values and beliefs of the end user.

(5 marks)

(4 marks)

(4 marks)

What needs to be submitted for assessment	Due date
☐ Completed report	
☐ Photographs of the manufactured product	

Marking key for sample assessment task 7

Note: modify the marking key for the defined context.

Portfolio (part 4)	Marks
Evaluation comments with regards to the specifications and design considerations of aesthetics, function and final cost	
Provides analysis of the design process within the evaluation, providing clear comments referring to specific design considerations combined with justification of the design's fulfilment of the design brief or statement of intent requirements	5
Provides comments discussing major uses and function, and referring to points within the design brief or statement of intent	4
Provides comments linked to the design brief or statement of intent explaining personal likes and dislikes about finished project	3
Provides comments identifying the use of product, but little reference to the design brief or statement of intent	2
Provides comments that reflect superficial evaluation	1
Subtotal	/5
Evaluation comments on the manufacturing processes	
Provides evaluation of all procedures explaining specific procedures and improvements, with little or no change of process	4
Provides appropriate reporting and/or comment identifying procedures with some logical evaluation of operations, with minor changes to process	3
Provides comments on procedures with limited evaluation of operations, after major changes to process	2
Provides brief comments with few references to processes	1
Subtotal	/4
Evaluation comments with regards to improvements to shape and size	
Provides clear comments referring to aesthetics, function and final cost influenced by shape and size, and suggested improvements	4
Provides comments suggesting improvements referring to major design considerations	3
Provides comments expressing personal likes and dislikes related to improvements	2
Provides a few comments/superficial notes on improvements	1
Subtotal	/4
Total	/13