**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

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**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.

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| --- | --- |
| **What needs to be submitted for assessment** | **Due dates** |
| * Research on designers/developers, inspirations, existing ideas/products/concepts |  |
| * Listing of materials |  |
| * Statement of problem and intent |  |
| * 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   * 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   * 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   * 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   * 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

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**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.

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| **What needs to be submitted for assessment** | **Due dates** |
| * Draft notes |  |
| * Report |  |

# Marking key for sample assessment task 2 – Unit 1

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| --- | --- | --- |
| **Report on the nature and properties of materials** | **Maximum possible mark** | **Allocated mark** |
| Collected research data and draft notes presented   * 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   * 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   * 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

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**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.

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| **What needs to be submitted for assessment** | **Due dates** |
| * Final sketch of proposed solution |  |
| * Working drawings or template or pattern for product |  |
| * Materials/parts list, costing and order form |  |
| * Work schedule/production plan |  |

# Marking key for sample assessment task 3 – Unit 1

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| --- | --- | --- |
| **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   * 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   * 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   * 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   * 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   * 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

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**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.

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| **What needs to be submitted for assessment** | **Due dates** |
| * Documented daily work log/time sheet |  |
| * Finished product |  |

# Marking key for sample assessment task 4 – Unit 1

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| **Skills development exercises** | **Maximum possible mark** | **Allocated mark** |
| Setting out of daily work log/time sheet   * 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   * marking out completed correctly * marking out completed * marking out completed but required correction | 3  2  1 | **/3** |
| Parts cut and shaped   * 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   * 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

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**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.

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| --- | --- |
| **What needs to be submitted for assessment** | **Due dates** |
| * Stages of production (teacher observation) |  |
| * Production photos/daily work log for making process |  |
| * 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   * 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   * 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   * 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   * 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

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**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.

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| --- | --- |
| **What needs to be submitted for assessment** | **Due dates** |
| * 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   * 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   * 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   * 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** |