

Cambridge International AS & A Level

DESIGN & TECHNOLOGY**9705/12**

Paper 1

October/November 2025

MARK SCHEME

Maximum Mark: 100

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2025 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

This document consists of **19** printed pages.

PUBLISHED**Generic Marking Principles**

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptions for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

PUBLISHED**GENERIC MARKING PRINCIPLE 5:**

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Annotations guidance for centres

Examiners use a system of annotations as a shorthand for communicating their marking decisions to one another. Examiners are trained during the standardisation process on how and when to use annotations. The purpose of annotations is to inform the standardisation and monitoring processes and guide the supervising examiners when they are checking the work of examiners within their team. The meaning of annotations and how they are used is specific to each component and is understood by all examiners who mark the component.

We publish annotations in our mark schemes to help centres understand the annotations they may see on copies of scripts. Note that there may not be a direct correlation between the number of annotations on a script and the mark awarded. Similarly, the use of an annotation may not be an indication of the quality of the response.

The annotations listed below were available to examiners marking this component in this series.

Annotations

Annotation	Meaning
	Correct point – mark awarded
	Incorrect point – no mark awarded
BOD	Benefit of doubt given – mark(s) awarded
Highlighter	Creditworthy response – highlight key points
REP	Repetition
L0	Marking level achieved
L1	Marking level achieved
L2	Marking level achieved
L3	Marking level achieved
SEEN	Page or response seen by examiner

Generic level descriptions mark schemes

Use **Tables A1** and **A2** to give marks for each candidate response for **Question 6**.

Table A1 AO2 Application and communication

Candidates should be able to:

- Apply knowledge, understanding and skills in a variety of contexts (AO2a)
- Communicate knowledge and understanding using sketches, notes and a range of graphical techniques, including conventions and specialist vocabulary (AO2b).

Level	Description	Marks
Level 3	<ul style="list-style-type: none"> • The modification shows application of accurate relevant knowledge. (AO2a) • The modification shows a clear application of the given context. (AO2a) • The modification is communicated with precision and clarity. (AO2b) • Sketches have detailed correct annotations, including appropriate conventions and specialist vocabulary. (AO2b) 	5 - 6
Level 2	<ul style="list-style-type: none"> • The modification shows application of some relevant knowledge. (AO2a) • The modification may not be wholly relevant to the context. (AO2a) • The modification is communicated. (AO2b) • Sketches have appropriate annotations, with some conventions and specialist vocabulary. (AO2b) 	3–4
Level 1	<ul style="list-style-type: none"> • The modification shows application of limited relevant knowledge. (AO2a) • The modification shows a basic understanding of the given context. (AO2a) • The modification is partially communicated. (AO2b) • The sketches have some annotations, with limited specialist vocabulary and conventions. (AO2b) 	1–2
Level 0	<ul style="list-style-type: none"> • No creditable response. 	0

PUBLISHED**Table A2 AO4 Analysis and evaluation**

Candidates should be able to:

- Analyse, evaluate and compare products (AO4a)
- Identify and/or propose how to improve and/or modify products (AO4b)
- Analyse wider issues in design and technology (including cultural, economic, environmental and social factors) (AO4d).

Level	Description	Marks
Level 3	<ul style="list-style-type: none"> • The modification is based on thorough and detailed analysis, evaluation and/or comprehensive comparison of products. (AO4a) • The modification is appropriate and fully functions as intended. (AO4b) • The modification shows a thorough analysis of a broad range of wider issues in design and technology. (AO4d) • The modification successfully meets the needs of the user(s)/context. (AO4d) 	5–6
Level 2	<ul style="list-style-type: none"> • The modification is based on an analysis, evaluation and/or comparison of products. (AO4a) • The modification is appropriate and mostly functions as intended. (AO4b) • The modification shows some evidence of analysis of a few wider issues in design and technology. (AO4d) • The modification mostly meets the needs of the user(s)/context. (AO4d) 	3–4
Level 1	<ul style="list-style-type: none"> • The modification shows little or incomplete analysis, evaluation and/or comparison of products. (AO4a) • The modification is mostly appropriate and partially functions as intended. (AO4b) • The modification shows little or incomplete analysis of any wider issues in design and technology. (AO4d) • The modification meets the needs of the user(s)/context in a limited way. (AO4d) 	1–2
Level 0	<ul style="list-style-type: none"> • No creditable response. 	0

Use **Tables B1** and **B2** to give marks for each candidate response for **Question 7**.

Table B1 AO1 Knowledge and understanding

Candidates should be able to:

- Demonstrate knowledge and understanding of the impact of design and technology on society (including cultural, economic, environmental and social factors) (AO1c).

Level	Description	Marks
Level 3	<ul style="list-style-type: none"> • The response thoroughly demonstrates accurate and relevant knowledge of the topic. (AO1c) • The response shows thorough understanding of the impact on society and uses relevant examples and supporting evidence. (AO1c) 	5–6
Level 2	<ul style="list-style-type: none"> • The response includes some accurate and relevant knowledge of the topic. (AO1c) • The response shows some understanding of the impact on society and includes examples and supporting evidence some of which may be relevant to the topic. (AO1c) 	3–4
Level 1	<ul style="list-style-type: none"> • The response shows limited knowledge of the topic and some points may not be relevant. (AO1c) • The response shows limited understanding of the impact on society. There may be limited use of examples and supporting evidence may be of limited relevance. (AO1c) 	1–2
Level 0	<ul style="list-style-type: none"> • No creditable response. 	0

Table B2 AO4 Analysis and evaluation

Candidates should be able to:

- Analyse, evaluate and compare products (AO4a)
- Analyse wider issues in design and technology (including cultural, economic, environmental and social factors) (AO4d).

Level	Description	Marks
Level 3	<ul style="list-style-type: none"> • The response thoroughly analyses, evaluates and/or compares products with relevant and detailed supporting evidence. (AO4a) • Detailed discussion of more than two wider issues in design and technology. The analysis is well supported with relevant and detailed information. (AO4d) 	5–6
Level 2	<ul style="list-style-type: none"> • The response analyses, evaluates and/or compares products with supporting evidence which is not always relevant. (AO4a) • Discussion of at least two wider issues in design and technology. The analysis is supported with relevant information. (AO4d) 	3–4
Level 1	<ul style="list-style-type: none"> • The response shows little or incomplete analysis, evaluation and/or comparison of products. (AO4a) • Description of at least one wider issue in design and technology. The description is supported with limited relevant information. (AO4d) 	1–2
Level 0	<ul style="list-style-type: none"> • No creditable response. 	0

Question	Answer	Marks	Guidance
1(a)(i)	Exemplar answers: Polypropylene [1], (PP) [1], Polythene [1] Accept any named thermoplastic (acrylic, nylon...) or acronym (PP, PC, PVC...).	1	AOVR Do not award the mark if a thermosetting polymer is named.
1(a)(ii)	Exemplar answers: Mild steel [1], steel [1], iron, [1] cast iron [1] Accept other ferrous metals such as stainless steel.	1	AOVR Do not award the mark if a non-ferrous metal is named.
1(a)(iii)	Exemplar answers: To make the handle more comfortable [1] by adding a grip / softer surface to hold / more ergonomic shape. [1] To improve [1] the grip (stop slipping). [1] Makes the handle [1] more ergonomic. [1] Makes the handle [1] more comfortable to hold. [1] Makes the metal frame [1] less cold to the touch. [1] To prevent injuries [1] from the sharpness of the frame edges. [1] To prevent the end of the ferrous metal frame [1] from rusting. [1] The metal will get hot in the sun [1] and the silicon will be more comfortable to grip. [1] The metal frame will feel cold in cold weather [1] and the silicon grip will be more comfortable. [1]	2	AOVR
1(b)(i)	Exemplar answer: A threaded bolt will pass through the wheel and frame [1] and a nut tightened on the end. [1] Any other threaded fastener or fastener that holds the wheel in place.	2	AOVR

Question	Answer	Marks	Guidance
1(b)(ii)	<p>Exemplar answers:</p> <p>An elastomer has been chosen for the wheel because it is a flexible material that can be inflated [1] to smooth out the bumps when using the wheelbarrow. [1]</p> <p>An elastomer has been chosen for the wheel because it can be inflated to spread the load [1] and not make ruts in the ground. [1]</p> <p>The elastomer is stretchy [1] so the tyre will not burst if it hits a sharp object. [1]</p> <p>The elastomer is flexible [1] because it will deform and not break when the tyre hits irregular shaped objects. [1]</p> <p>Elastic [1] to help absorb forces. [1]</p> <p>Material will flex [1] and not puncture if the wheelbarrow goes over sharp objects. [1]</p>	2	AOVR

Question	Answer	Marks	Guidance
2(a)(i)	Two-point perspective [1]	1	
2(a)(ii)	<p>Exemplar answers:</p> <p>Isometric drawing [1]</p> <p>Shows a three-dimensional view [1] of the product which is a realistic view. [1]</p>	3	AOVR
2(b)	<p>Exemplar answers:</p> <p>Can realistically show the materials that the product will be made from [1] so the client can easily understand the product and is more likely to purchase / invest. [1]</p> <p>Can show colour options [1] so the client can select the best option for their branding / range. [1]</p> <p>Colour enhances [1] the clients experience when they are viewing a design. [1]</p> <p>Shows the material [1] which makes the design more realistic. [1]</p> <p>Gives more details of the design [1] so the client can make decisions. [1]</p>	4	AOVR

Question	Answer	Marks	Guidance
3(a)	<p>Exemplar answers: Softwood is produced from a sustainable resource source [1] and because it grows quickly it can be easier to replenish. [1] Softwood is recyclable/biodegradable [1] so when disposed of it will naturally decompose, leaving less waste in landfill or needing to be recycled. [1] Softwood can be re-used for a different purpose [1] which means the material can be used for a longer time. [1]</p>	4	AOVR
3(b)(i)	<p>Exemplar answers: Suitable method for folding acrylic sheet [1] e.g. line bender, heat gun. Do not award for just stating heat. Use of a jig, former, method of folding or edge of bench... to ensure the right angle. [1] Quality of sketches and notes. [0–2]</p>	4	<p>AOVR</p> <p>Quality of sketches and notes: Simple sketches with some notes / labels = 1 High quality sketches with detailed annotations = 2</p>
3(b)(ii)	<p>Exemplar answers: Wood screws, nuts and bolts, pegs (without adhesive on both parts), double-side tape, glue pads... Any method of attaching the top to the base (could be permanent) [1] or suitable temporary joining method. [2] Quality of sketches and notes. [0–2]</p>	4	<p>AOVR</p> <p>Quality of sketches: Simple sketches with some notes / labels = 1 High quality sketches with detailed annotations = 2</p>

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Question	Answer	Marks	Guidance
3(c)	<p>Exemplar answers:</p> <p>Make sure the crown guard is in place when cutting the material to size on a circular saw [1] so that the person's hand cannot come in to contact with the blade / fragments of wood are not thrown towards the user's face. [1]</p> <p>Wear a face mask when sanding the oak [1] so that dust is not inhaled. [1]</p> <p>Wear eye protection [1] when cutting to prevent dust going in your eyes. [1]</p> <p>Work in a well-ventilated area [1] when applying finishes that give off toxic fumes. [1]</p> <p>Before operating machines such as a circular saw [1] operatives must have appropriate training / certificates. [1]</p> <p>Securely clamp work [1] when cutting with a saw to prevent it moving. [1]</p> <p>Check circular saw blade is correctly installed [1] before cutting the wood. [1]</p>	4	AOVR
3(d)	<p>Exemplar answers:</p> <p>Varnish [1], oil [1], veneer [1], laminate [1], paint [1]</p> <p>Varnish can easily be applied with a brush [1] and provides a hygienic finish that can easily be wiped clean [1] but allows the aesthetic qualities of the grain to be seen. [1]</p>	4	<p>Award one mark for an appropriate named finish and a maximum of three further marks for the justification of the finish:</p> <ul style="list-style-type: none"> • Award one mark for at least one valid point • Award two marks for some explanation of at least one reason • Award three marks for a fully developed response with at least two reasons fully justified.

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Question	Answer	Marks	Guidance
4(a)	<p>Exemplar answers:</p> <p>Provides a surface that is resistant to scratches. [1]</p> <p>Melamine is available in a wide range of different colours and patterns. [1]</p> <p>No need to apply a finish. [1]</p> <p>Protective finish. [1]</p> <p>Melamine is durable. [1]</p> <p>Melamine is waterproof. [1]</p> <p>Chipboard is cheaper than hardwood. [1]</p> <p>Aesthetically pleasing. [1]</p> <p>Dimensional stability. [1]</p>	2	AOVR
4(b)	<p>Exemplar answers:</p> <p>Can provide information in different languages [1] so the product can be sold worldwide, thus increasing the potential market. [1]</p> <p>Provides assembly instructions (diagrams) [1] to ensure the customer can easily assemble the product correctly and attach to a wall. [1]</p> <p>Assists in meeting legal requirements, [1] such as stating standards, guarantee, manufacturer contact details ... [1]</p> <p>Allows the user to correctly attach the shelf to the wall [1] reducing the risk of it falling and injuring someone. [1]</p>	2	AOVR

Question	Answer	Marks	Guidance																					
4(c)(i)	<p>This question has a total of 8 marks. Instructions on how to mark this question follow on below.</p> <p>Process = 6 marks HandS = 2 marks Mark the response using the two grids below.</p> <p>Process</p> <table border="1"> <tbody> <tr> <td>L3</td> <td>Sketches and notes fully describe all the stages in an appropriate making process. All the stages in the making process are in the correct order and all the tools and equipment required are correctly named.</td> <td>5–6</td> </tr> <tr> <td>L2</td> <td>Sketches and notes describe most of the stages in an appropriate making process. Some stages in the making process may be in the incorrect order and some tools and equipment may be missing.</td> <td>3–4</td> </tr> <tr> <td>L1</td> <td>Sketches and notes mention some stages in a making process and some tools or equipment. The making process may not be entirely appropriate to the task.</td> <td>1–2</td> </tr> <tr> <td>L0</td> <td>No creditable response.</td> <td>0</td> </tr> </tbody> </table> <p>HandS</p> <table border="1"> <tbody> <tr> <td>L2</td> <td>Consideration of health and safety precautions specific to the task.</td> <td>2</td> </tr> <tr> <td>L1</td> <td>Some generic consideration of health and safety.</td> <td>1</td> </tr> <tr> <td>L0</td> <td>No consideration of health and safety.</td> <td>0</td> </tr> </tbody> </table> <p>Methods that could be used for making the wall bracket from mild steel include brazing or welding.</p>	L3	Sketches and notes fully describe all the stages in an appropriate making process. All the stages in the making process are in the correct order and all the tools and equipment required are correctly named.	5–6	L2	Sketches and notes describe most of the stages in an appropriate making process. Some stages in the making process may be in the incorrect order and some tools and equipment may be missing.	3–4	L1	Sketches and notes mention some stages in a making process and some tools or equipment. The making process may not be entirely appropriate to the task.	1–2	L0	No creditable response.	0	L2	Consideration of health and safety precautions specific to the task.	2	L1	Some generic consideration of health and safety.	1	L0	No consideration of health and safety.	0	8	
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Question	Answer	Marks	Guidance
5(a)(i)	<p>Exemplar answers:</p> <p>Photographs are used as customers like to see exactly what their food will look like [1] before they order. [1]</p> <p>A photograph of the food [1] will encourage customers to buy. [1]</p> <p>Showcases the food [1] and suggests quick and easy to pay. [1]</p> <p>Easy to use [1] as can choose by clicking on the images. [1]</p>	2	AOVR
5(a)(ii)	<p>Exemplar answers:</p> <p>May require less workers [1] as a person to take the customer's order will not be needed. [1]</p> <p>May require more skilled workers [1] as the workers will need to be trained to use the technology. [1]</p> <p>Employees will have less interaction with customers [1] as the customers will just use the terminal. [1]</p> <p>Workers will have less work [1] to do as they only need to serve food, not take orders. [1]</p>	2	AOVR
5(a)(iii)	<p>Exemplar answers:</p> <p>The food ordering terminal records the number of each food item [1] that is sold in a day / week. [1]</p> <p>The food ordering terminal can analyse the food sold during a particular day / week [1] and order food / use for stock control. [1]</p> <p>Keeps a track of customer's orders [1] and can be used for targeted promotions. [1]</p>	2	AOVR
5(b)(i)	<p>Exemplar answers:</p> <p>Symbols are easy to understand [1] whereas some people may not understand a particular language. [1]</p> <p>No need to read [1] can concentrate on the prompts. [1]</p>	2	AOVR
5(b)(ii)	<p>Exemplar answers:</p> <p>Card payments mean that less money [1] is kept on the premises and reduces the risk of theft / need to take to the bank. [1]</p> <p>Reduces the need to give change to customers [1] who do not have the exact amount in notes or coins. [1].</p> <p>Cash needs checking and totalling up [1] before taking to the bank. [1]</p>	2	AOVR

Question	Answer	Marks	Guidance
5(c)(i)	Exemplar answer: Sketches and notes, with one example, show how parts of the play area have been designed for children. E.g. width of the slide, height of steps, diameter of hand grips...	3	
5(c)(ii)	Exemplar answer: Sketches and notes, with one example, show that using standardised components means that production costs are kept to a minimum, parts are interchangeable, product can be assembled in different ways...	3	
5(d)	Exemplar answers: A polymer foam [1] has been used for the mats so that the children will not harm themselves when they jump around. [1] A polymer with a smooth surface [1] has been selected for the slide so that children will not graze their skin when they slide down it. [1]	4	AOVR

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Question	Answer	Marks	Guidance
6	<p>Use the level descriptions in Tables A1 and A2 to mark candidates' responses to this question.</p> <p>Responses may include some of the following ideas, but all valid material must be credited.</p> <ul style="list-style-type: none"> • Understanding that a more inclusive product is adapted for users with specific needs. • Examples of suitable products could be a can opener, scissors / shears, key fob, electric plug, door handle / knob, pen... • Understanding of the specific needs of a person with limited hand movement who may have reduced grip, limited finger movement, be unable to lift heavier weights, have reduced fine motor skills... • Modifications to the product to accommodate limited hand movement such as a can opener with extended handles that increase leverage, an addition to a key that make it easier to hold / turn, a modification to an electric plug to make it easier to remove from a socket, a device to help hold a pen, a device for raising heavy objects, modified kettle to make it easier for pouring... 	12	The answer can be structured as freehand sketches with annotations.

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Question	Answer	Marks	Guidance
7	<p>Use the level descriptions in Tables B1 and B2 to mark candidates' responses to this question.</p> <p>Responses may include some of the following ideas, but all valid material must be credited.</p> <ul style="list-style-type: none"> • Reference to improvements in technology, e. g. computer aided manufacture, smart materials, advanced adhesives... • Improvements in technology have made it possible to mass produce products at a lower cost. • Products, and different versions of products, are designed for a global market place. • Manufacturing tolerances have generally decreased, and products become more reliable. • The internet has given people around the world much more choice of products. • The standard of products has generally improved due to greater emphasis on Quality Assurance and adhering to Standards. • Designers and manufacturers can share information and knowledge through the internet. • Customers have a very large choice of products on the internet, but this can create the problem of people wanting products that they cannot afford. • Delivery systems are backed up with real time technology, which makes deliveries very fast and reliable. • Manufacturing technologies allow materials to be joined by adhesives rather than traditional joints or joining methods. • Improvements in material technology, such as carbon fibre, allow products to be made that are stronger and lighter, e. g. parts of a racing car. • Many manufacturing plants have become automated meaning that less labour is required. • Automated production is fast and very reliable, but it does mean that less people are employed. • Automated production requires employees that are highly trained. • The pace of change is driven by developments in technology, which can rapidly make products obsolete. 	12	The answer must be structured in paragraphs with whole sentences.