CAMBRIDGE
International Education

Cambridge International AS & A Level

DESIGN & TECHNOLOGY **9705/33**

Paper 3 **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.

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.

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(s) 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
L4	Marking level achieved
L5	Marking level achieved
SEEN	Page or response seen by examiner

Question	Answer	Marks	Guidance
1(a)	**State a suitable material for the money box lid shown in Fig. 1.1.** **Give <u>two</u> reasons to justify your choice.** Award up to **one** mark for an appropriate material. Award up to **one** mark for **each** appropriate reason up to a maximum of **two** marks. The reasons must be relevant to the chosen material. Material: ABS Reasons: • It is tough and durable • It is available in a range of colours • It is easy to shape into the required lid shape. Material: Copper Reasons: • It can be easily shaped into the form of the lid • It has an attractive finish, can be polished • It does not require an additional finish. Material: Beech, maple, sycamore. Reasons: • They have good aesthetic qualities – attractive grain • They can be easily turned to shape • They have a choice of finishes such as varnish or paint.	**3**	Accept all valid responses. Do not accept single word responses.

Question	Answer	Marks	Guidance
1(b)	**Use sketches and notes to show how you would make <u>one</u> money box lid as shown in Fig. 1.1 in a school workshop.** **In your response, you should give details of any tools and equipment you would use.** This question has a total of 9 marks. Instructions on how to mark this question follow on further pages. Knowledge and Understanding = **3** marks Application = **4** marks Communication = **2** marks To award full marks, answers must: • include the manufacturing method for all parts of the holder • identify the correct tools and equipment. Full details of CAD drawing and set up are required for 3D printing answers. Responses may include some of the following ideas, but all valid material must be credited. Methods of making the lid could be: • Prepare plug and yoke former to thermoform the lid • Heat sheet of ABS in oven • Place in former, press and hold until cool • Remove ABS and trim to shape • Mark out slot • Drill ∅5 at each end of slot • Use piercing or coping saw to cut slot • Finish all edges with appropriate abrasive paper. • Cut circular shape ∅121 copper and copper strip 377 × 10 • Slot drilled ∅5 at each end and cut with piercing saw on circular shape	**9**	Accept all valid responses.

Question	Answer	Marks	Guidance
1(b)	• Roll strip to form ∅120 ring • Apply borax flux to edges of ring, use binding wire to keep joint together • Place in hearth, position fire bricks • Heat joint area with torch, apply hard / silver solder when sufficient heat applied. • Remove torch when solder flows, allow ring to cool • Clean up the ring, apply flux to top edge, place copper circle on top, replace in hearth • Heat joint area with torch, apply hard / silver solder when sufficient heat applied • Remove torch when solder flows, allow to cool • Finish, file with appropriate abrasive paper then polish. • Turn beech to ∅120, part off to 30 mm length • Reverse jaws hold beech in 3 jaw chuck, protecting the beech from damage by pressure of jaws • Cut recess from tailstock end and finish to depth and diameter • Remove from chuck • Drill ∅5 at each end of slot • Use piercing or coping saw to cut slot • Finish all edges with appropriate abrasive paper, apply appropriate surface finish. **To mark this question:** **First**, award up to a maximum of **three** marks using the marking grid for AO1a Knowledge and understanding.		

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>1(b)</td><td>

Marking grid for AO1a Knowledge and understanding

Candidates should be able to:
- Demonstrate knowledge and understanding of a range of materials, tools, equipment and components used in design and technological activity. (AO1a)

<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>Level 2</td><td>Clear and detailed knowledge and understanding of an appropriate range of tools and equipment. (AO1a)</td><td>2–3</td></tr>
<tr><td>Level 1</td><td>Partial knowledge and understanding of an appropriate range of tools and equipment. (AO1a)</td><td>1</td></tr>
<tr><td>Level 0</td><td>No creditable response.</td><td>0</td></tr>
</table>

Second, award up to a maximum of **four** marks using the marking grid for AO2a Application of knowledge and understanding.

Marking grid for AO2a Application of knowledge and understanding

Candidates should be able to:
- Apply knowledge, understanding and skills in a variety of contexts. (AO2a)

<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>Level 2</td><td>Clear and detailed application of knowledge and understanding of an appropriate range of tools and equipment for the product. (AO2a)</td><td>3–4</td></tr>
<tr><td>Level 1</td><td>Partial application of knowledge and understanding of an appropriate range of tools and equipment for the product. (AO2a)</td><td>1–2</td></tr>
<tr><td>Level 0</td><td>No creditable response.</td><td>0</td></tr>
</table>

</td><td></td><td></td></tr>
</table>

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>1(b)</td><td>
Third, award up to a maximum of two marks using the marking grid for AO2b Communication using sketches and notes.

Marking grid for AO2b Communication using sketches and notes

Candidates should be able to:
• Communicate knowledge and understanding using sketches, notes and a range of graphical techniques, including conventions and specialist vocabulary. (AO2b)

<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>Level 2</td><td>Clear and easily understood. (AO2b)</td><td>2</td></tr>
<tr><td>Level 1</td><td>Partial communication. (AO2b)</td><td>1</td></tr>
<tr><td>Level 0</td><td>No creditable response.</td><td>0</td></tr>
</table>
</td><td></td><td></td></tr>
</table>

Question	Answer	Marks	Guidance
1(c)	**Use sketches and notes to describe the changes which may be necessary to the design, the manufacturing method and the material selected, to produce 500 identical money box lids.** This question has a total of 8 marks. Instructions on how to mark this question follow on further pages. Materials / design and manufacturing = (2+2) = **4** marks Communication = **4** marks **To mark this question:** Give a total of up to **four** marks by: **First**, awarding up to a maximum of **two** marks for the materials and appropriate changes to the design. Answers could include: <u>Materials/design</u> • Acrylic • Aluminium • Mild steel **Second**, awarding up to a maximum of **two** marks for the manufacturing method. Answers could include: <u>Manufacturing method</u> • Injection moulding • Pressing • Vacuum forming **Third**, award up to a maximum of **four** marks using the marking grid for AO2b Communication using sketches and notes.	**8**	Accept all valid responses.

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>1(c)</td><td>
Marking grid for AO2b Communication using sketches and notes

Candidates should be able to:
• Communicate knowledge and understanding using sketches, notes and a range of graphical techniques, including conventions and specialist vocabulary. (AO2b)

<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>Level 2</td><td>• The sketches are detailed and are successfully communicated with precision and clarity. (AO2b)
• The sketches have detailed and correct annotations, including where relevant appropriate conventions and specialist vocabulary. (AO2b)</td><td>3–4</td></tr>
<tr><td>Level 1</td><td>• Partial communication through simple sketches. (AO2b)
• The sketches have limited annotations, with limited conventions and specialist vocabulary. (AO2b)</td><td>1–2</td></tr>
<tr><td>Level 0</td><td>No creditable response.</td><td>0</td></tr>
</table>
</td><td></td><td></td></tr>
</table>

Question	Answer	Marks	Guidance
2(a)	**Explain what is meant by the term work hardening.** Award up to **one** mark for the correct understanding of work hardening. Award up to **one** mark for an appropriate explanation. Answers could include: • work hardening is the increase in hardness of a metal [1] induced by hammering, rolling, drawing, or other physical processes [1] • work hardening is the hardening of a metal [1] by plastic deformation. [1]	**2**	Accept all valid responses.
2(b)	**Describe how additives are used to enhance the properties of polymers. Give <u>two</u> different examples.** Award up to **one** mark for **each** appropriate additive. Award up to **one** additional mark for **each** appropriate description. Any **two** examples described from: • pigment [1] give colour to polymers and help the polymer withstand UV radiation / sunlight without damage / fading [1] • plasticisers [1] are used to reduce the stiffness and increase formability of a polymer [1] • fillers are natural substances such as chalk or clay [1] used to improve strength, lower the cost of the polymer and increase the overall bulk of the plastic. [1]	**4**	Accept all valid responses.

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>2(c)</td><td>
Use sketches and notes to show how a knock down (KD) fitting can be used on an item of furniture.

This question has a total of 4 marks. Instructions on how to mark this question follow below.

Process = 2 marks
Communication = 2 marks

To mark this question:

First, award up to one mark for the KD fitting described.

Second, award up to one mark for the correct application.

Answers could include:
• KD fitting clearly shown joining furniture parts
• Method of fitting and operating KD fitting shown.

Third, award up to two marks for the quality of the communication using the marking grid for AO2b Communication using sketches and notes.

Marking grid for AO2b Communication using sketches and notes

Candidates should be able to:
• Communicate knowledge and understanding using sketches, notes and a range of graphical techniques, including conventions and specialist vocabulary. (AO2b)

<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>Level 2</td><td>Clear and easily understood, showing force applied and indentation shape. (AO2b)</td><td>2</td></tr>
<tr><td>Level 1</td><td>Partial communication. (AO2b)</td><td>1</td></tr>
<tr><td>Level 0</td><td>No creditable response.</td><td>0</td></tr>
</table>
</td><td>4</td><td></td></tr>
</table>

Question	Answer	Marks	Guidance
3(a)	**Explain why injection moulding is unsuitable for producing a one-off component or product** Award up to **one** mark for the identification of an appropriate issue. Award up to a maximum of **two** additional marks for an appropriate explanation. Exemplar answers: • Knowledge of the requirement of a die [1] which could be very expensive to manufacture. [1] • Procedure set-up is time consuming, material and energy required unsuitable for single component / product. [1] • Would not be economic for a one-off component or product [1] and would also create lots of waste. [1]	**3**	Accept all valid responses.
3(b)	**Explain <u>one</u> benefit for workers of a cell production manufacturing system.** Award up to **one** mark for the identification of an appropriate benefit. Award up to a maximum of **two** additional marks for an appropriate and specific explanation. Answers could include: • One benefit would be that workers become multi-skilled [1] and more adaptable to the future needs of a business. [1] • Greater worker motivation [1], arising from variety of work, team working and more responsibility. [1] • Quality improvements [1] as each cell has ownership for quality on its area. [1]	**3**	Accept all valid responses.

Question	Answer	Marks	Guidance
3(c)	**Explain <u>two</u> ways in which the consumer can influence the design of products.** Award up to **one** mark for **each** relevant way. Award up to **one** additional mark for an appropriate explanation of **each** way. Any **two** ways from: • Consumers may be involved in focus groups [1] to discuss likes and dislikes / provide feedback on a product that could directly influence the design. [1] • Consumers may take part in customer observation events [1], designers pick up needs and wants of consumers. [1] • Consumer feedback and reviews / user-centred design [1] will influence future improvements or new products. [1] • Consumer preferences [1] such as desire for more sustainable / environmentally product design. [1] • Consumer lifestyle /trends [1] – consumers align with brands / brand identity. [1]	**4**	Accept all valid responses.

Question	Answer	Marks	Guidance
4(a)	**Explain the term 'maturity' with reference to a product's life cycle.** Award up to **one** mark for partial understanding and explanation of term maturity when referring to the product life cycle. Award up to **two** marks for full and clear understanding and explanation of term maturity when referring to the product life cycle. Answers could include: • maturity is the stage in a product cycle where sales are steady [1] and the product has been established [1] • it is when growth levels out [1] because the product has saturated its market [1] • it is the most profitable stage of product sales [1], when the costs of producing and marketing decline [1] • competition for customers is at the highest [1] because rivals have had time to introduce alternative competing and improved products. [1]	**2**	Accept all valid responses.
4(b)	**Explain <u>one</u> benefit of using questionnaires to carry out market research.** Award one mark for an appropriate benefit. Award one mark for a relevant explanation of the benefit. Answers could include: • cost effective – questionnaires are relatively cheap to produce [1] compared to other methods such as focus groups [1] • scalable – reach a wide audience – they can be printed and posted [1] or posted on the internet for wide coverage [1] • easy analysis – information required can be ascertained very quicky [1] particularly if the questionnaire is carefully presented and focused. [1]	**2**	Accept all valid responses.

Question	Answer	Marks	Guidance
4(c)	**Discuss the importance of place when marketing products.** Use the marking grid for AO4d Analysis of the wider issues in design and technology to mark candidates' responses to this question. Award up to **one** mark for understanding of place in relation to marketing. Award up to **one** mark for a relevant explanation of the strategy. Responses may include some of the following ideas, but all valid material must be credited. • Convenience to customer [1] help the customers access product and purchase the product. [1] • Consider target market demographics [1] – different distribution channels can have varying costs and so impact the price of the product for the consumer. [1] • Benefits of retail outlets [1] increased exposure for the brand /product potentially leading to higher sales. [1] • Online placement can lead to operational cost savings [1] / access to much wider audience of customers / global / 24–7. [1] • product promotion / brand image [1] – certain products being placed on specific channels to enhance brand image. [1] • competitive advantage [1] – strategic placement of the product such as retail outlets or online can provide company with a competitive edge. [1]	**6**	Accept all valid responses.

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>4(c)</td><td>

Marking grid for AO4d Analysis of wider issues in design and technology

Candidates should be able to:
- Analyse wider issues in design and technology (including cultural, economic, environmental and social factors). (AO4d)

<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>Level 3</td><td>Analysis of more than two wider issues with relevant and detailed information

• Detailed discussion of more than two wider issues in design and technology. (AO4d)
• The analysis is well supported with relevant and detailed information. (AO4d)</td><td>5–6</td></tr>
<tr><td>Level 2</td><td>Analysis of at least two wider issues with relevant information

• Discussion of at least two wider issues in design and technology. (AO4d)
• The analysis is supported with relevant information. (AO4d)</td><td>3–4</td></tr>
<tr><td>Level 1</td><td>Description of at least one wider issue with limited relevant information

• Description of at least one wider issue in design and technology. (AO4d)
• The description is supported with limited relevant information. (AO4d)</td><td>1–2</td></tr>
<tr><td>Level 0</td><td>• No creditable response.</td><td>0</td></tr>
</table>

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</table>

Question	Answer	Marks	Guidance
5(a)	**A car manufacturing company is looking for a site to produce its new car.** **Describe <u>one</u> factor that the company would have to consider when selecting a site.** Award up to **one** mark for an appropriate factor. Award up to **one** additional mark for an appropriate description of the named factor. Answers could include: • Access [1] to good infrastructure / logistics / transportation links [1] • Close and available workforce [1] and necessary skills [1] • Funds available [1] to locate in an area to generate employment [1] • Education / training [1], e.g. school and college provision [1] • Access to cheaper rents [1] for site due to size that would be required [1] • Near to suppliers for delivery sites [1] to cut transport costs [1] • Utilities [1] – access to power / electricity needed, water, waste management.	**2**	Accept all valid responses.

Question	Answer	Marks	Guidance
5(b)	**Explain <u>one</u> method of Computer-aided manufacture (CAM) production that would be employed in a car manufacturing site.** Award up to **one** mark for an appropriate method of CAM production. Award up to **one** mark for a relevant explanation of the method of CAM production. Answers could include: Computer-aided manufacture involves software that is used to create code for Computer Numerically Coded machining. • Positioning and securing of components and accurate welding. • Positioning sheet metal for car wings accurately in press machine and operating timings of press, release and remove function. • Accurately positioning and screwing seat belt attachments to car seat. • The manufacture of component parts such as engine blocks, camshafts and valves uses CNC lathes, drilling and milling machines. • Components are made using 3D printers (Fused Filament Fabrication).	**2**	Accept all valid responses.

Question	Answer	Marks	Guidance
5(c)	**Discuss the importance of quality systems in a car manufacturing production line.** Use the marking grid for AO4d Analysis of the wider issues in design and technology to mark candidates' responses to this question. Responses may include some of the following ideas, but all valid material must be credited. • Quality systems ensure that products are fit for purpose and safe to use. • Quality systems ensure that products are reliable, reduce defects / prevent product recalls and encourage customer confidence. • Less wastage leading to less costs, leading to efficiency / continuous improvement, address issues quickly. • Quality systems ensure that production is free flowing with minimal stoppages which can result in lack of productivity. • Quality systems throughout the whole business builds a powerful and positive reputation. • Product consistency – minimal recalls and product failure leading to customer dissatisfaction.	**6**	

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>5(c)</td><td>

Marking grid for AO4d Analysis of wider issues in design and technology

Candidates should be able to:
- Analyse wider issues in design and technology (including cultural, economic, environmental, and social factors). (AO4d)

<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>Level 3</td><td>Analysis of more than two wider issues with relevant and detailed information

• Detailed discussion of more than two wider issues in design and technology. (AO4d)
• The analysis is well supported with relevant and detailed information. (AO4d)</td><td>5–6</td></tr>
<tr><td>Level 2</td><td>Analysis of at least two wider issues with relevant information

• Discussion of at least two wider issues in design and technology. (AO4d)
• The analysis is supported with relevant information. (AO4d)</td><td>3–4</td></tr>
<tr><td>Level 1</td><td>Description of at least one wider issue with limited relevant information

• Description of at least one wider issue in design and technology. (AO4d)
• The description is supported with limited relevant information. (AO4d)</td><td>1–2</td></tr>
<tr><td>Level 0</td><td>• No creditable response.</td><td>0</td></tr>
</table>

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</table>

Question	Answer	Marks	Guidance
6(a)	**A school for children aged 7–11 years requires a toy or puzzle for an after-school club.** **The design specification states that the toy or puzzle must:** • **be able to be used on a tabletop** • **include movement of some form** • **be manufactured as a batch of 10.** **Use sketches and notes to produce <u>two</u> different innovative ideas for the toy or puzzle.** This question has a total of 12 marks. Instructions on how to mark this question follow on further pages. Communication = **2** marks Generate = **4** marks **(i)** Idea 1 = 2+4 marks (**6** marks in total) **(ii)** Idea 2 = 2+4 marks (**6** marks in total) **To mark this question** For **each** innovative idea, part (i) and part (ii) • **First**, award up to **two** marks using the marking grid for AO2b Communication using sketches and notes. • **Second**, award up to **four** marks using the marking grid for AO3c Generate conceptual ideas. The two ideas must be **different** from each other. The design ideas may include some of the following ideas, but all valid material must be credited. • Board games • Interactive games / puzzles • Individual or numerous players • Toys requiring assembly • Packaging, storage of game / puzzle	**12**	

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>6(a)</td><td>

Marking grid for AO2b Communication using sketches and notes

Candidates should be able to:
- Communicate knowledge and understanding using sketches, notes and a range of graphical techniques, including conventions and specialist vocabulary. (AO2b)

<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>Level 2</td><td>Clear and easily understood. (AO2b)</td><td>2</td></tr>
<tr><td>Level 1</td><td>Partial communication. (AO2b)</td><td>1</td></tr>
<tr><td>Level 0</td><td>No creditable response.</td><td>0</td></tr>
</table>

Marking grid for AO3c Generate conceptual ideas

Candidates should be able to:
- Generate conceptual ideas and evaluate them, leading to the creation of a design proposal. (AO3c)

<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>Level 3</td><td>• Generates one complete valid conceptual idea. The conceptual idea is fully supported. (AO3c)
• Clear reference to design specification. (AO3c)</td><td>4</td></tr>
<tr><td>Level 2</td><td>• Generates one complete conceptual idea. The conceptual idea has some supporting information. (AO3c)
• Some reference to design specification. (AO3c)</td><td>2–3</td></tr>
<tr><td>Level 1</td><td>• Generates one partially complete conceptual idea. The conceptual idea has limited supporting information. (AO3c)
• Limited or no reference to design specification. (AO3c)</td><td>1</td></tr>
<tr><td>Level 0</td><td>• No creditable response.</td><td>0</td></tr>
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Question	Answer	Marks	Guidance
6(b)	**Evaluate your <u>two</u> ideas for the toy or puzzle to select a final proposal for development.** **Justify your selection.** Award up to **one** mark for the decision with justification. Award up to **one** mark for the comparison of the two design ideas. Award up to **one** mark for the evaluation. Accept an answer which includes sketches and annotations as necessary. • A clear justification of the choice with an explanation • Clear comparisons should be made • Evaluations should consider the specification points given in the question • Sketches and notes may be used to support evaluations Candidates can answer this question in a variety of ways.	**3**	Accept all valid responses.

Question	Answer	Marks	Guidance
6(c)	**Use sketches and notes to develop your chosen idea to show details of functions, materials, construction and finishes.** This question has a total of 10 marks. Instructions on how to mark this question follow on further pages. Functions, materials, construction and finishes = **8** marks Communication = **2** marks **To mark this question:** **First**, give a total of up to **eight** marks by using the following: <u>Functions</u> Award up to a maximum of **three** marks: • Award **one** mark for one key function described. • Award **two** marks for two key functions described. • Award **three** marks for more than two functions described. <u>Materials</u> Award up to a maximum of **two** marks: • Award **one** mark for naming one or more relevant material. • Award **one** mark for the justification of use of the material. <u>Construction</u> Award up to a maximum of **two** marks: • Award **one** mark for some detail of construction / assembly. • Award **two** marks for clear detail of construction / assembly. <u>Finishes</u> Award **one** mark for an appropriate finish. **Second**, award up to **two** marks using the marking grid for AO2b Communication using sketches and notes.	**10**	

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>6(c)</td><td>
Marking grid for AO2b Communication using sketches and notes

Candidates should be able to:
• Communicate knowledge and understanding using sketches, notes and a range of graphical techniques, including conventions and specialist vocabulary. (AO2b)

<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>Level 2</td><td>Clear and detailed sketches and notes. (AO2b)</td><td>2</td></tr>
<tr><td>Level 1</td><td>Simple sketches with some notes included. (AO2b)</td><td>1</td></tr>
<tr><td>Level 0</td><td>No creditable response.</td><td>0</td></tr>
</table>
</td><td></td><td></td></tr>
</table>

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>6(d)</td><td>
Use a method of your own choice to draw the complete design solution. Include key details and dimensions.

This question has a total of 8 marks. Instructions on how to mark this question follow on further pages.

Communication = 4 marks
Finalise = 4 marks

Candidates may use component drawings with an assembled product sketch.

Pictorial / perspective sketches should include all details and dimensions. Annotation may be used to describe key features.

Appropriate drawings could be dimensioned orthographically or isometrically.

To mark this question:

First, award up to a maximum of four marks using the marking grid for AO2b Communication using sketches and notes.

Marking grid for AO2b Communication using sketches and notes

Candidates should be able to:
• Communicate knowledge and understanding using sketches, notes and a range of graphical techniques, including conventions and specialist vocabulary. (AO2b)

<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>Level 2</td><td>Clear and detailed sketches with most key dimensions included. (AO2b)</td><td>3–4</td></tr>
<tr><td>Level 1</td><td>Simple sketches with some dimensions included. (AO2b)</td><td>1–2</td></tr>
<tr><td>Level 0</td><td>No creditable response.</td><td>0</td></tr>
</table>
</td><td>8</td><td></td></tr>
</table>

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>6(d)</td><td>
Second, award up to a maximum of four marks using the marking grid for AO3d Finalise a design proposal.

Marking grid for AO3d Finalise a design proposal

Candidates should be able to:
• Refine and develop procedures to finalise a design proposal, recognising the constraints of time, cost and resources, and plan for making. (AO3d)

<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>Level 2</td><td>The design proposal is realistic and includes most design/product details. (AO3d)</td><td>3–4</td></tr>
<tr><td>Level 1</td><td>The design proposal includes some design/product details. (AO3d)</td><td>1–2</td></tr>
<tr><td>Level 0</td><td>No creditable response.</td><td>0</td></tr>
</table>
</td><td></td><td></td></tr>
</table>

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>6(e)</td><td>
Write a detailed <u>manufacturing</u> specification for your chosen idea.

Your answer should include at least <u>four</u> different manufacturing specification points.

Award marks based on the following criteria.

<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>5</td><td>Four or more detailed manufacturing specification points covered and clearly described.</td><td>5</td></tr>
<tr><td>4</td><td>Three points covered and clearly described. Four or more detailed manufacturing specification points covered and not clearly described.</td><td>4</td></tr>
<tr><td>3</td><td>Two points covered and clearly described. Three points covered and not clearly described.</td><td>3</td></tr>
<tr><td>2</td><td>One point covered and clearly described. Two points covered not clearly described.</td><td>2</td></tr>
<tr><td>1</td><td>One point covered but not clearly described.</td><td>1</td></tr>
<tr><td>0</td><td>No creditable response.</td><td>0</td></tr>
</table>

The manufacturing specification could include the following, but all valid material must be credited:

<u>Specific materials used:</u>
• Sturdy materials used, do not break easily
• Minimum dimension of component parts to avoid swallowing

<u>Bought in components/parts:</u>
• As appropriate for toy or puzzle
</td><td>5</td><td></td></tr>
</table>

Question	Answer	Marks	Guidance
6(e)	Construction / assembly details: • As appropriate for toy or puzzle Finish to be applied: • As appropriate for toy or puzzle Allowable tolerance: • As appropriate for toy or puzzle.		
6(f)	**Describe one feature of the toy or puzzle where the safety of the children has been considered.** Award up to **one** mark for the appropriate feature. Award up to **one** mark for a relevant description. Any **one** feature from: • Rounded edges on all parts [1], reducing risk of cuts [1] • Appropriate finish [1] some are toxic and could cause harm [1] • Limit trap hazards [1] avoid damage to fingers. [1]	**2**	Accept all valid responses.