

GCSE  
**DESIGN AND TECHNOLOGY**  
**SHORT COURSE**

45751  
Mark scheme

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Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.


It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.



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**COMPONENT NUMBER: 45751**

**COMPONENT NAME:  
GCSE Design and Technology (Short Course)**

**FOR EXAMINERS – PLEASE NOTE THAT IF YOU ARE UNSURE HOW TO AWARD A RESPONSE FROM A CANDIDATE, PLEASE SEEK CLARIFICATION OR ADVICE FROM YOUR TEAM LEADER OR THE PRINCIPAL EXAMINER.**

Question	Part	Sub Part	Marking Guidance	Marks								
1	a		<table border="1"> <tr> <td>(i)</td> <td>Environmental</td> </tr> <tr> <td>(ii)</td> <td>Safety</td> </tr> <tr> <td>(iii)</td> <td>Moral</td> </tr> <tr> <td>(iv)</td> <td>Health</td> </tr> </table> <p>Four correct answers 3 marks Three correct answers 3 marks Two correct answers 2 marks 1 correct 1 mark</p>	(i)	Environmental	(ii)	Safety	(iii)	Moral	(iv)	Health	<b>Total (3 marks)</b>
(i)	Environmental											
(ii)	Safety											
(iii)	Moral											
(iv)	Health											
1	b	i	<p>Mark positively – one mark for each valid point made up to a maximum of 2 marks. Marks can be awarded for:</p> <p>Correctly identifying what the symbol is An explanation of the issue the symbol relates to An example of a product that would have this symbol on the packaging</p>  <p>Carbon footprint Found on some products with a CO<sub>2</sub> figure (greenhouse gas) Tells consumers how much carbon has been generated in the production of the product Important for consumers who want to reduce their impact on the production of greenhouse gasses which results in global warming</p>	2 x 1 mark          <b>Total (2 marks)</b>								

1	b	ii	<p>Mark positively – one mark for each valid point made up to a maximum of 2 marks. Marks can be awarded for:</p> <p>Explaining that the symbol warns that the product it is shown on contains small parts.                  These parts are so small that they represent a choking hazard to children under 3 years of age.                  Children of this age have a tendency to put things in their mouths, and if the things are small they could choke on them,                  Found on a range of products such as toys.</p> 	<p>2 x 1 mark</p> <p><b>Total (2 marks)</b></p>
1	b	iii	<p>Mark positively – one mark for each valid point made up to a maximum of 2 marks. Marks can be awarded for:</p> <p>Correctly identifying what the symbol is                  An explanation of the issue the symbol relates                  An example of a product that would have this symbol on the packaging</p>  <p>RSPCA freedom food logo (do not award a mark for stating this as it is part of the logo)                  Relates to the welfare of animals who are being reared for food                  Found on animal products (e.g. chicken) to show that premises have been regularly inspected                  Tells customers that minimum welfare standards have been met                  This logo does not mean that animals are free range</p>	<p>2 x 1 mark</p> <p><b>Total (2 marks)</b></p>

Question	Part	Sub Part	Marking Guidance	Marks
2	a		<p>One mark for each item described in the mood board with an explanation about why it is oriental.  e.g. Stir fry is a common cooking method in Chinese cookery or  The food shown uses vegetables that originate in Asia.</p> <p>About the images:  Red colour – main colour on Chinese flag, colour is seen as lucky  Dragon – used a lot in decoration symbolises strength and power, often seen in Chinese dances  Mandarin collar on dress – style seen a lot in oriental clothing  Great wall of china – very famous landmark that is so large it can be seen from space  Pagoda – typical traditional style of building associated with temples mainly for the Buddhist faith  Stir fry – a quick style of cooking associated with oriental cuisine. Healthier method of cooking as little fat is needed and vegetables are cooked quickly to retain nutrients. Types of ingredients used originate in the region.  Map of Asia, showing China mainly.  Fortune cookies, originate from Japan, associated with China and sometimes contain a Chinese proverb in the message inside</p>	<p>2 x 1 mark</p> <p><b>Total (2 marks)</b></p>
2	b		<p>Creative idea with oriental theme, using imagery from mood board</p> <p>Idea shows some creativity and some influence from mood board.</p> <p>Simple idea drawn with an oriental theme not using imagery from mood board</p> <p>Comprehensive notes explaining the detail of the design</p> <p>Some notes explaining a few details</p> <p>Redrawn idea from the question with no changes, no labelling –  <b>award no marks</b></p>	<p>4 marks</p> <p>2 to 3 marks</p> <p>1 mark</p> <p>2 marks</p> <p>1 mark</p> <p><b>Total (6 marks)</b></p>

Question	Part	Sub Part	Marking Guidance	Marks
2	c		<p><b>Dimensions, size or weight</b></p> <p>Dimensions are stated with a metric unit of measurement e.g. mm, g, ml The dimensions stated appear reasonable for the item designed 2 marks</p> <p>Dimensions stated with a metric unit of measurement but the sizes given are inappropriate OR 1 appropriate dimension. 1 mark</p> <p>Dimensions without units of measurement 0 marks (2 marks)</p> <p><b>Materials or ingredients</b></p> <p>Specific material/ ingredient names provided, these are appropriate for the product designed 2 marks</p> <p>Generic materials, provided that they are appropriate e.g. wood, metal, plastic, fabric, thread, pastry, noodles, wrap, 1 mark</p> <p>No material or inappropriate materials 0 marks</p> <p>(2 marks)</p> <p><b>Processes for making, assembly and finishing</b></p> <p>Stages for making explained in sufficient detail for 3<sup>rd</sup> party manufacture. Appropriate processes described. 6 marks</p> <p>Description of making suggests a good understanding of the processes described. Appropriate processes described 4 – 5mks</p> <p>Processes selected are well described, but inappropriate for the product or processes are appropriate but some points missing 3 marks</p> <p>Correct processes stated and ordered, but no additional detail provided, superficial response 2 marks</p> <p>A suitable process for making part of the product identified 1 mark</p> <p>No suitable processes named or described 0 marks</p> <p>(6 marks)</p> <p><b>Names of tools and equipment used</b></p> <p>Appropriate tools/ machinery listed 3x1 mark</p> <p>(3 marks)</p> <p><b>Total (13 marks)</b></p>	<p>2 marks</p> <p>1 mark</p> <p>0 marks (2 marks)</p> <p>2 marks</p> <p>1 mark</p> <p>0 marks</p> <p>(2 marks)</p> <p>6 marks</p> <p>4 – 5mks</p> <p>3 marks</p> <p>2 marks</p> <p>1 mark</p> <p>0 marks</p> <p>(6 marks)</p> <p>3x1 mark</p> <p>(3 marks)</p> <p><b>Total (13 marks)</b></p>

Question	Part	Sub Part	Marking Guidance	Marks
3	a		<p>Naming packaging materials:</p> <p>A – Accept any of the following:            Cartonboard            Cartridge board and any other paper based board product            Paperboard            Waxed paperboard</p> <p>Do not accept cardboard</p> <p>B –Accept:            Any specific thermoplastic e.g. polystyrene, polypropylene            Do not accept plastic</p> <p>Why it is used:</p> <p>A - Accept any of the following            Can be printed on            Easy to fold into shape            Rigid so easy to stack            Recyclable            Protect            Only accept cheap if it is qualified.</p> <p>B - Accept any of the following            Can be moulded into a variety of shapes            Clear so the product inside can be seen            Resistant to moisture            Strong to prevent delicate chocolate egg from being crushed            Retain the egg in the correct position            Stop contamination of the chocolate</p> <p>If the candidate refers to the packaging rather than the material function, they can still be awarded a mark.            If they repeat the same response for both materials, maximum 1 mark.</p>	<p>1 mark</p> <p>1 mark</p> <p>1 mark</p> <p>1 mark</p> <p><b>Total (4 marks)</b></p>

<p><b>3</b></p>	<p><b>b</b></p>	<p>This question tests QWC  Answers may refer to some of the following points (this is not an exhaustive list):</p> <ul style="list-style-type: none"> <li>• More materials used than necessary to perform the functions of packaging – waste of resources</li> <li>• Packaging is disposable so single use. This is an issue, particularly in relation to the use of non-renewable materials</li> <li>• Energy consumption required to process materials, manufacture and dispose of the packaging</li> <li>• Poor use of precious non- renewable materials</li> <li>• Over packaging makes items bulky, so fewer can be transported in one go – carbon footprint issue</li> <li>• A lot of materials to dispose of – issues relating to litter, landfill and ease of recycling.</li> <li>• Some of the plastics used here are not commonly recycled.</li> <li>• Definition of over packaging – superfluous materials used that do not perform an essential function – protect, preserve, contain, inform etc</li> </ul> <p>3 separate points made, well qualified with examples, or 5 – 6+ less well qualified points made  Response well-structured with good use of appropriate design and technology and showing a good grasp of grammar, punctuation and spelling.</p> <p>2+ points made with some explanation, or 4 points made with less explanation.  Response reasonably well structured with some use of design and technology terminology with some errors in grammar, punctuation and spelling.</p> <p>Simplistic response  Response poorly structured with little or no use of design and technology terminology and with numerous errors in grammar, punctuation and spelling.  A totally incorrect or unrelated response, still shows qwc is awarded 1 mark.</p>	<p>5 - 6 marks</p> <p>3 - 4 marks</p> <p>1 – 2 marks</p> <p><b>Total (6 marks)</b></p>



<b>3</b>	<b>c</b>		<p>Well communicated practical solution</p> <ul style="list-style-type: none"> <li>• Reduction in the number of layers of packaging in the product</li> <li>• Reduction in the overall size of the packaging so that fewer materials are used</li> <li>• Changes are well communicated and justified.</li> </ul> <p>Solution uses less material but the design has flaws and/or lacks detail.</p> <p>Simplistic solution that is not viable.</p> <p>No solution proposed</p>	<p>4 – 5 marks</p> <p>2 -3 marks</p> <p>1 marks</p> <p>0 marks</p> <p><b>Total (5 marks)</b></p>
<b>4</b>	<b>a</b>		<p>Marking out, drilling or cutting and polishing pendant in a logical sequence</p> <p>Cut, thread and knot necklace correct order</p> <p>Packaging is the final stage</p>	<p>1 mark</p> <p>1 mark</p> <p>1 mark</p> <p><b>Total (3 marks)</b></p>
<b>4</b>	<b>b</b>		<p>There are numerous problems with the layout as it is including the following:-</p> <ul style="list-style-type: none"> <li>• The store room door opens the wrong way making it very difficult to get into the store room</li> <li>• The room is not laid out in a way that one operation follows on from another as one works through the processes. This makes the production of the necklace less efficient.</li> <li>• The sander is tucked in the corner of the room, where it is difficult to get to.</li> <li>• There is insufficient space near one of the pillar drills,</li> </ul>	<p>2 x 2 marks</p>

		<p>meaning that it would be difficult to use safely.</p> <ul style="list-style-type: none"> <li>• Equipment/work stations are not laid out in a logical order, meaning that work cannot flow round the room efficiently</li> <li>• Details of particular workstations that are not organised efficiently e.g. the marking out stage F is the opposite side of the room to the cutting out stage A, meaning that people will have to walk right across the room passing the stages in the middle of the room. Accept other suitable comments.</li> </ul> <p>1 mark for each problem identified, 1 additional mark for describing the problem.</p> <p>Accept other suitable problems. (Check with your team leader if unsure).</p>	<p><b>Total (4 marks)</b></p>
4	c	<p>Problem 1 Cause:- Inaccurate measuring or failure to use a template or jig. Solution:- measure more carefully or use a jig or template.</p> <p>Problem 2 Cause:- The edges have not been sanded or polished sufficiently Solution:- Sand or polish edges more</p> <p>Problem 3 Cause:- Hole has been drilled too small Solution:- Drill the holes larger</p> <p>Cause:- Leather for necklace is uneven/inconsistent sizes Solution:- Drill larger holes.</p>	<p>1 mark 1 mark</p> <p>1 mark 1 mark</p> <p>1 mark 1 mark</p> <p><b>Total (6 marks)</b></p>
4	d	<p>Well described advantages e.g.</p> <ul style="list-style-type: none"> <li>• CAD/CAM would improve accuracy as multiple copies would be identical – less risk of human error</li> <li>• Laser cutter would produce the shapes faster than it would be possible to cut by hand</li> <li>• The design could be repeated at a later date easily.</li> <li>• The design could be changed easily.</li> <li>• It reduces the need for humans to work on the product.</li> </ul> <p>1 advantage only, no matter how well explained Multiple advantages poorly described</p>	<p>2 marks</p> <p>1 mark 1 mark</p> <p><b>Total (2 marks)</b></p>