



Examiners' Report June 2011

GCSE Design & Technology Resistant Materials 5RM02 01



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Introduction

This is the second paper to be sat for the new specification. The specification does allow for the paper to be sat at the end of year 10 but not many centres took up the opportunity to be able to do so last year and as such this was the first time that a substantial number of candidates sat the paper.

As a single tier paper it needs to be able to offer all candidates sitting it the opportunity to access questions. Some elements have been adapted from the legacy specification and new aspects such as the multiple choice questions have been introduced at the very start of the paper.

Question 11 (a) (i)

Candidates do not need to launch into too much detail describing what the tool is used for. 'Cutting a screw thread' was sufficient and was correctly scored by a good number of candidates.

Tool/Component	Name	Use
E B	Die	produce threads in a screw etc. (1)
		cutting metal

Results Plus Examiner Comments A good number of candidates scored well on this part as they correctly identified that the die is used for cutting or making a screw thread.



A short statement here is all that is needed; candidates do not need to give a long detailed description.

Question 11 (a) (ii)

There was much confusion over the use of the hacksaw with very many candidates giving its use 'for cutting wood'. That said a very good number were able to correctly identify its use for 'cutting metal or plastics'.

Question 11 (a) (iii)

This question was well done by a very good number of candidates who were correctly able to identify the component as a 'knock down fitting' or 'joint block'.

Question 11 (a) (iv)

The micrometer was not identified by too many candidates. Many confused it with some sort of gauge.

Question 11 (b) (i)

The command words such as 'give' in this case is key to this type of question and in relation to the properties of mild steel making suitable for use for the frame of the garden bench were either clearly known or guessed. When answers were guessed they often 'it rusts' or 'it is cheap'.

() 1	i) Give two properties of mild steel that make it suitable for the frame. (2)	****
2 Mo	llegthe	Livellirgeausa
(i) Give two reasons for applying a surface finish to the mild steel frame.	
A	Results Law Examiner Comments Il that is required here are two basic statements and that is what this andidate has provided.	

Question 11 (b) (ii)

A very good number of candidates scored well on this part question. They clearly understand why a surface finished needs to be applied to a material, in this case, mild steel. A short statement was all that was required here and the example clearly shows that.

(ii) Gi	ve two	reasons for a	pplying a	a surface finish	to the mild st	eel frame.	(2)
1S	0 (<i>that</i>	, t	doesn't	t ru	st p	for
gelt	hy	wet.					
2 56	16	looks		mese	pleaser	ng t	e the
€YC.						/	



Question 11 (b) (iii)

Most candidates were able to score at least 1 mark here with the most common finish given being 'paint'. A very good number of other responses were seen where candidates clearly had a good understanding of a range of surface finishes that could be applied to the mild steel frame.

Question 11 (b) (iv)

This type of question which requires candidates to 'explain' is not always done well. This type of question requires a point to be made and then to be further developed to give a consequence as can be seen in the first response in the example shown. The second response is not fully developed and therefore will not score a second mark. Generic terms such as 'strong' are also to be avoided. Strength needs to be better defined such as tensile or compressive strength for example.

(iv) The frame could be manufactured from aluminium. Explain two advantages of making the frame from mild steel rather than aluminium. (4) 1 Mild Steel is torgree the dominium so it wait get dominium as easily. 2 Mild atea is strager the charicity so the frame could be the more weight	
Explain two advantages of making the frame from mild steel rather than aluminium. (4) 1 Mild Steel is torgase than dominium so it work get damaged as accedent 2 Mild steel is stranger than dominium so the frame could take more veight	14
1 mild steel is torger the dominium so it wait get damaged as ask. 2 mill aked is strager the christian So the frame could be the more wight	
so it wait get damaged as assist 2 Mill steel is stranger than administra So the frame could take more weight	
2 mill abed is stranger than aluminium So the Spanne could bake more weight	
2 Mill sted is stranger than alministen So the Spanne could take more veight	
the france could take more veight	
Results Pus Examiner Comments This type of question which uses the command word of 'Explain' requires candidates to make a point and then to develop and justify it.	
Results Plus Examiner Tip Responses such as 'strong' should be avoided unless it is qualified such as tensile or compressive strength.	

Question 11 (b) (v)

Two effects needed to be described here and again this type of question is not always well done by the majority of candidates. A point needs to be made and then developed or a consequence given. The example shown makes two good points but in each case they are not fully developed and therefore only score 1 mark for each of the two responses.

(v)	 Describe two effects on the environment of being able to recycle mild steel. (4)
1 Th	See will be less us ste geing to dfill.
2 les Me Ste	ss notral reserves need to be dyge from the groud to make new mild
Two are o vill I	ResultsPlus Examiner Comments separate good points are made but they are not fully developed and so only awarded 1 mark for each of the two separate responses. The second onse for example could have gone on to say 'therefore natural resources last longer'

Question 12

This question is a very familiar question from the legacy specification but the evaluation section has been removed. Candidates for the most did quite well on this question but they do need to be aware that the second design solution needs to be different from the first in that it should not be a variation on a theme. Different materials and processes should also be used and therefore if they give vacuum formed acrylic for both responses they will not get the marks for material and process in the second solution.

Candidates should try to present two clearly laid out design ideas that are different from one another. The example shown is excellent in this respect.







Examiner Comments

The candidate has used annotation well here to convey information about the solution.



Drawings should be gone over to make the line density and quality that little bit darker. Some candidates have labelled up their work to show where each of the eight separate points were made and resolved.

Question 13 (a)

Basic factual knowledge and recall is tested here. Two properties of ABS were required as so a short word or statement will suffice as can be seen by the selected clip.

(a) Give two properties of ABS which make it suitable for the handle.	
	(2)
1it has high impact strength	1111A (PLAY IN- 110) (DAIDY 4007 (D 1 100 10
2 it is possible to Scholches	14 4 1 1 1 1 4 4 4 4 4 4 4 4 4 4 4 4 4





Question 13 (b)

On the whole a poorly completed part question with many responses relating to the mould be squeezed and the ability of ABS being able to withstand heat.

(b) The trigger of the workshop cramp is manufactured in ABS.
Describe two reasons why injection moulding is a suitable process to manufacture the trigger.
(4)
1 injection moulding allows many identical triggers to be produced to
the exactly. The same dimensions because the would is reused are and ones
and so the process is cheapor as there is no need for any
extra surface finishing (except for the sprice pins being removed)
2 injection Moulding also allows the triggers to be produced in institled
amount of time because the process is highly automated and can
run for 24 hours a day, which means the consumer can purchase multiple
products which will be received quickly.



A fully described first response scores the full two marks allocated. The use of the word 'because' has helped as a trigger for the candidate has been able to go on to justify the point being made.

Question 13 (c) (i)

Many candidate responses repeated the main part of the question here and as such they would only be able to score one mark at best if they were able to focus on the shape/size of the handle or its relative position to the trigger. Very few candidates picked up on the fact that a squeezing action was required rather than a twisting action would require two hands.

Question 13 (c) (ii)

A generally poorly completed question, with very few candidates being able to focus on the mechanical advantage that might be gained by the long lever/trigger.

Question 13 (d)

This part question requires the candidates to be able to make some comparisons between the two products shown. It is also one of the parts of the paper that considers the candidates quality of written communication, QWC.

Some candidates did not make the comparisons in relation to the criteria given, in this case 'material requirements' and 'user requirements' and as such could not be awarded any marks.

In some instances candidates simply presented a list of bullet points that were observations as opposed to any evaluative comments and again here they could not be awarded full marks.

Candidates are better advised to concentrate on making three good points that consider both of the specification criteria listed. At this point they must also develop the points made by comparing the two different products shown.



12 GCSE Design & Technology Resistant Materials 5RM02 01

and 0 mild stead top jow. In terms of performance, cramp B mould allow " a greater damping face to be applied them cramp A due to those bonder elatorials, yet due the where jows on cramp A, the first cramp is bes. Weeky to derivage workpress on area which could prove an issue for ecamp B. "Moreover, another area of performance cramp A excels in is ease for ecamp B. "Moreover, another area of performance cramp A excels in is ease for ecamp B. "Moreover, another area of performance cramp A excels in it eases of use; the scamp can be operated using just one band due to the main trigger, whereas the presume searched by Machanis, whereas a user francely, quice welface erigger forbores in cramp A, Saurn, the event searched by mechanis, whereas a user francely, quice welface erigger forbores in cramp A, Saurn, the eventy and effort. the terms of inderively cramp A's is noget from ABS, where as a Hermiphotic can be easily and accurately shaped we complemed with she injection manding press, but of heigh temperature the ABS bandle could be shaped by Mark of the form of the structure on the and to be the ABS bandle could be shaped by the one of the structure on the and the presence the area of form is in the injection manding press, but of here here the ABS bandle could be shaped by America and late its structure on the and the inderively last lenger, yet would be shaped by a more true commung press such as forgons. Total for Question 13 = 16 marks)	· cramp A features mober jaws whereas aromp B incorporates a motal foot
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Total for Question 13 = 16 marks)	oramp A, and would probably last larger, yet would be shaped by a more true consuming
	Total for Question 13 = 16 marks)



This candidate has made a good number of points that considers both materials requirements and user requirements. For the points made they have also gone on to develop and explore the points. They use technical vocabulary well, demonstrating a detailed understanding of the comparison. D&T terms are also well used throughout.

Question 14 (a)

This type of question relies on basic factual knowledge and recall. A very good number of candidates were able to correctly identify the name of the joint shown.

Question 14 (b)

This question relied on a basic level of factual knowledge and recall in relation to the properties of oak. Hard, tough and durable were by far the most popular responses observed but candidates were not able to fully justify why those properties were appropriate.

Question 14 (c)

Two reasons were required in relation to the use of MDF rather than solid oak. Candidates should avoid the generic use of the word 'stronger' without any further qualification. Many candidates recognised that using MDF would be cheaper but did not go on to develop their response.

Question 14 (d)

Two advantages needed to be described again. In many cases candidates were able to give to reasons but did not go on to fully describe the advantages and subsequently did not gain access to the 4 marks available. Less 'travel required' and 'cheaper' were the most common responses seen.

Question 14 (e)

This part question was another area where the candidates QWC was assessed. On the whole too many candidates did not pick up on the thread that this question was about how to minimise waste during the manufacture, not how to recycle materials or the furniture once it had been used or was broken. Again some candidates simply presented a list of bullet points that considered the advantages and disadvantages of recycling.

*(e) Waste minimisation in the production of wooden furniture is a key issue in today's society. Discuss the ways in which waste can be minimised in the manufacture of wooden furniture. (6)That is way to minimised the waste that is one a product. The woods before shape you used shape. If your product all boxy produck have derigh, make less make ... For example, you top, you need to cut the edge to cirde nasting piece. But if you going to make will easy to and out the make, and that make bit can also can make some this on thing else. another way that a can minimised the waste, that iś shape out near the edge of the nood. For example, you circle from a wood board, you can drow one going to of the wood board that your going to use. edge And board still have some more place for you to wood and it If you cut the circle out from the middle the wood Something else. board will not easy to make something more and it will become the vaste.



This candidate has made some good points which they have been able to go on to develop and discuss as opposed to making a list of bullet points. They have also used technical vocabulary well.

Paper Summary

Centres do need to work with their candidates so that they become more familiar with the style and nature of the paper and in particular candidates need to be better prepared to be able to respond to the describe/explain type questions. Candidates could also be guided to structure their responses to the design question a little better. A better understanding of materials, processes and properties would also enable candidates to be able to access more of the paper in future series.

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