



## **General Certificate of Secondary Education**

# **Design and Technology (Resistant Materials Technology) 3545 Full Course**

**Higher Tier Written Paper**

**3545/H**

## **Report on the Examination**

*2008 examination - June series*

Further copies of this Report are available to download from the AQA Website: [www.aqa.org.uk](http://www.aqa.org.uk)

Copyright © 2008 AQA and its licensors. All rights reserved.

#### COPYRIGHT

AQA retains the copyright on all its publications. However, registered centres for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to centres to photocopy any material that is acknowledged to a third party even for internal use within the centre.

Set and published by the Assessment and Qualifications Alliance.

The Assessment and Qualifications Alliance (AQA) is a company limited by guarantee registered in England and Wales (company number 3644723) and a registered charity (registered charity number 1073334). Registered address: AQA, Devas Street, Manchester M15 6EX  
*Dr Michael Cresswell Director General.*

## **Administration**

Most centres complied with AQA's instructions relating to the collation, packaging and dispatch of scripts. There were, however, a number of centres that in one or more ways contravened the regulations, which in turn resulted in difficulties for the examiners. The following examples highlight these difficulties:

- (i) Failure to sort scripts into attendance order;
- (ii) Candidate details either omitted or incorrectly recorded on the script;
- (iii) Incorrectly submitting the sheet of colour photographs with the script.

Fewer candidates this year contravened the regulations with regard to the use of correction fluid and the colour of ink employed to record their answer.

## **General**

The examiners reported that once again there was substantial evidence of the use of the preparation material by centres when preparing their candidates for the examination.

The use of the preparation material is intended to give the candidates 'ownership' of their paper. It allows them to produce real and valid responses based on work done in the weeks before the examination. It is anticipated and intended that teachers should have full involvement when preparing candidates for the examination by fully utilising the preparation material. Where centres had made good use of the preparation material their candidates invariably went on to produce high quality scripts. Centres and/or candidates who failed to take advantage of the preparation material generally found themselves disadvantaged. However, centres must guard against over 'over coaching' as this can suppress the candidates' creative ability, particularly when answering the design question.

The quality of sketching was found to be particularly good in most centres. The use of rendered, well-annotated, pictorial views is now the norm rather than the exception.

There was some evidence of candidates misinterpreting questions. Teachers should emphasise good examination techniques to their candidates, in particular; the need to read and re-read each question carefully before attempting it. They should also be taught to use any 'spare' time at the end of the examination to carefully go through both the questions and their answers.

The manufacturing/making question remains one of the least well answered question on the paper and centres are encouraged to prepare their candidates thoroughly for this type of question.

### **Question 1**

This question was well answered. Many candidates gained full marks by producing five relevant specification points for picnic furniture and subsequently expanding their answers to provide suitable explanations.

Candidates lost marks by repeating answers already given.

### **Question 2**

It was clearly evident that the majority of teachers and candidates had worked with the preparation material.

- **Variety of Ideas**

There appeared to be less originality evident than in previous years; centres must guard against 'over coaching' as this can suppress the candidates' creative ability.

- **Quality of sketching**

The standard of sketching was very impressive. Most candidates were able to produce a pictorial view of their idea, with many displaying fully rendered pieces of artwork.

- **Quality of notes**

An increasing number of candidates are gaining full marks by providing detailed notes regarding the function of their designs, rather than simple labelling.

- **Quality of evaluation**

Most candidates were able to gain one of the two marks on offer by showing some measure of analytical thinking. Weaker candidates simply listed features of their design without making any value judgements, or simply stated that their design fulfilled the design requirements, making no further comment. Teachers should ensure that their candidates are aware that marks are only awarded where an analytical point has been fully explained.

### **Question 3**

This question provided a good range of responses, with higher ability candidates able to describe the injection moulding process in detail. Lower ability candidates gained some marks for superficial answers. A few candidates used inappropriate methods of manufacturing the cup holder. These included 'vacuum forming', 'casting' and 'fabrication'

## Question 4

Teachers and candidates are reminded that only **specific** materials will be awarded marks on this paper.

### (a) Serving spoon A

The majority of candidates correctly named a specific type of solid wood from which the serving spoon was likely to have been made. 'Beech' was the most common correct response. Incorrect responses included 'pine' and teak'.

Reference to its 'appearance' and 'strength' were generally given as correct reasons for their choice.

### Serving spoon B

A large number of candidates failed to gain a mark by incorrectly naming 'acrylic' as a suitable material. 'High density polythene', 'PVC' and 'Polypropylene' were the most common correct responses.

Reference to the material's 'self-coloured finish', 'durability' and 'easy-clean surface' were generally given as correct reasons for their choice.

### Serving spoon C

A number of candidates failed to gain a mark by incorrectly naming 'steel' or 'aluminium' as a suitable metal from which the serving spoon could be made. To gain a mark the candidate needed to be more specific and identify the material as 'stainless steel'. Reference to its 'durability', 'strength' and 'resistance to corrosion' were generally given as correct reasons for their choice.

## Question 5

- (a) Few candidates correctly identified the mechanism as a 'chain and sprocket'. 'Chain and cog' was the most popular incorrect answer.
- (b) Most candidates gained some marks on this question. Candidates correctly identified that a chain is less likely to slip than a belt and pulley system, that a chain and sprocket is stronger than a belt and pulley system and that a chain and sprocket system can be repaired.
- (c) (i) The majority of candidates were able to name another mechanism that can be found on a mountain bike. 'The brakes' was the most popular correct response.
- (c) (ii) There was a wide range in the quality of the candidates' responses to this question. The majority of candidates scored just one or two marks for sketches with limited detail. Few went on to produce detailed, well-drawn responses.
- (c) (iii) The majority of candidates were able to give some details as to how their chosen mechanism should be maintained. There were many references to cleaning, oiling,

tightening and checking. Worryingly, quite a few candidates thought it a good idea to oil the brake blocks!

- (c) (iv) Again, the majority of candidates were able to give some details as to the importance of carrying out maintenance. Many candidates made reference to the safety aspects of carrying out maintenance.

### **Question 6**

This question was well answered by most candidates. Some candidates lost marks by misinterpreting the question and naming machines rather than processes where you would see the safety symbols. The 'Electric' symbol caused the most problems.

### **Question 7**

- (a) The majority of candidates were able to show a good understanding of the term ergonomics and its relevance to mouse design. Many candidates were able to correctly identify and describe at least 3 ergonomic features of the mouse.
- (b) Most candidates were able to give a superficial understanding of how the designer would have used anthropometrical data when designing the mouse. Few went on to expand their answer sufficiently enough for the award of full marks.

### **Question 8**

- (a) (i) The candidates' knowledge of 'smart' materials was very weak, with very few correctly naming 'polymorph.'
- (a) (ii) Candidates were able to gain some marks for answers relating to generic advantages of modelling materials. Few went on to gain full marks by relating their answer specifically to polymorph.
- (b) Most candidates were able to gain some marks for giving generic details relating to the advantages and disadvantages of drawing using CAD. The more able candidates went on to provide full and detailed responses directly related to virtual modelling. Correct responses dealt with the ability to view the design from all angles and the ability to render the model in a variety of virtual materials.

### **Question 9**

- (a) Very well answered by nearly all the candidates. They clearly know of the many negative aspects of computer gaming.
- (b) Most candidates gained some marks on this part of the question. High ability candidates referred to the manufacturer's responsibility to taking into account recycling, labour conditions etc.

## ***Mark Ranges and Award of Grades***

Please see the following link:

<http://www.aqa.org.uk/over/stat.html>