



**General Certificate of Secondary Education
Design and Technology:
Resistant Materials Technology**
Specification 3545/3555

Examiners' Report

2005 examination – June series

- 3545 Full Course
- 3555 Short Course

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Introduction

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 the order on the attendance list;
- (ii) Candidate details either omitted or incorrectly recorded on the script;
- (iii) Incorrectly submitting the sheet of colour photographs with the script.

This year, however, fewer candidates contravened the regulations regarding the use of correction fluid and the colour of ink employed to record their answer.

General

The examiners reported that there was substantial evidence of the increased use of the Preparation Sheet by centres when preparing their candidates for the examination.

The Preparation Sheet is intended to give the candidates 'ownership' of their paper. It allows candidates to produce real and valid responses based on work completed 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 this resource their candidates invariably went on to produce high quality scripts. However, centres and/or candidates who failed to take advantage of the preparation material generally found themselves disadvantaged.

The quality of sketching produced by candidates was found to be particularly good. 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 'unused' time at the end of the examination to carefully go through both the questions and their answers.

There was an improvement in the response to questions which required candidates to show their knowledge of making processes. However, it is still the least well answered question on the paper and centres are encouraged to prepare their candidates accordingly.

Foundation Tier Full Course (3545/F)

Question 1

The majority of candidates answered this question well. Many candidates gained full marks by producing four relevant specification requirements for a desk tidy and subsequently went onto expand their answer and provide a suitable explanation for each.

Candidates lost marks by repeating answers already given.

Question 2

The majority of candidates answered this question well. It was clearly evident that they had worked with the preparation material and had subsequently gone on to produce quality responses.

- **Variety of Ideas**

Many candidates were able to access high marks by showing three **different** ideas and most demonstrated their creative ability by producing original designs. There were few copies of existing products. Even the basic 'tubes' idea had been manipulated and developed.

- **Quality of sketching**

The standard of sketching was generally good. Many candidates made an attempt at producing a pictorial view of their idea. The majority of 2D line drawings were clear and in proportion. There was good use of colour/rendering techniques.

- **Quality of notes**

The quality of annotation varied considerably. Most candidates chose to provide simple notes to describe the features of their ideas. Weaker candidates simply labelled the parts of their design, whilst higher marks were awarded to candidates who provided detailed notes on the function of their designs.

Question 3

- (a) This part of the question was very well answered. Most candidates were able to provide two reasons why their chosen design was the best. High quality responses reflected back to the specification.
- (b) The majority of candidates named two tests which they would carry out to evaluate their desk tidy. Many went on to gain full marks by expanding their answer. There were significantly less candidates electing to 'drop their desk tidy off a tall building' as a method of testing.

Question 4

- (a) Most candidates were able to name a suitable material from which to make their chosen note pad holder. Candidates should be made aware that there are more marks available for naming a specific material rather than simply naming a generic material. Most candidates went on to give a correct reason for choosing their material.
- (b) This question was found to elicit a better response from the candidates than in previous years. The majority were able to provide much greater detail of the types of tools and processes they would use to make their chosen note pad holder.

Question 5

Most candidates were able to give two checks which they would perform on a drilling machine to ensure it was in safe working order. However, they had greater difficulty in expressing why the check was important. The most common correct responses related to the chuck and drill, electrics, emergency stop and lubrication. Weaker candidates made reference to personal protection.

Question 6

This question was not as well answered as similar questions in previous years. Again, candidates should be made aware of the need to name a specific material rather than a generic material.

(a) Magazine file A

Most candidates correctly identified that Magazine file A was made from 'wood'. However few went on to name a suitable manufactured board. Reference to its 'appearance' was generally given as the correct reason for choosing this material.

Magazine file B

Most candidates correctly identified that Magazine file B was made of 'metal'. Many chose a specific type of metal which gained them an extra mark. 'Steel' and 'aluminium' were the most popular correct specific material chosen. Reference to its 'strength' was generally given as the correct reason for choosing this material.

Magazine file C

Most candidates correctly identified that Magazine file C was made from 'plastic'. Many chose a specific plastic which gained them an extra mark. 'Acrylic' was the most popular specific material chosen. Reference to it being 'attractive' was generally given as the correct reason for choosing this material.

(b) Magazine file A

Most candidates gave a suitable specific finish which could be applied to Magazine file A. ‘Varnish’ was the most popular correct specific finish chosen.

Magazine file C

Many candidates correctly chose ‘polish’ or ‘lacquer’ as a correct method of finishing Magazine file C.

The finishes must relate to the chosen material for the candidate to be awarded a mark.

Question 7

- (a)** Very well answered, with most candidates being gaining one mark by explaining why the base of the chair had five feet. Reference to stability was the most popular correct response. Many candidates went on to expand their answer and gained full marks.
- (b)** Most candidates knew that Part D was a wheel. Many went on to fully explain the advantage of the wheel.

Question 8

- (a)** Many candidates were able to correctly identify the component as a screw.
- (b)** Few candidates had any knowledge of the two types of motion which were being tested. Some gained a mark for suggesting ‘round’, but rotary and linear motion were concepts that the vast majority of candidates could not relate to.

Question 9

Many candidates showed a good understanding of the ‘input/process/output’ approach and were able to gain some of the six marks on offer. Some candidates were confused by the input/process stage, but almost all candidates knew that a paper punch produces a paper with holes in it, and that a pencil sharpener produces a sharp pencil.

Question 10

- (a)** The majority of candidates were able to correctly match the correct description with its relevant scale of production.
- (b)** Most went on to correctly name a suitable product for ‘batch’ and ‘mass production’. However, naming a product for ‘one-off’ and ‘continuous product’ proved to be much harder for some candidates.

Question 11

Most candidates were able to successfully identify the correct tool to use for the given process. Some candidates elected to name the tool rather than use the lettering but obviously they did not incur any penalties.

Question 12

- (a) The majority of candidates were able to correctly identify a product from the given list which would display the 'CE' and 'lion' symbol. However, the 'BEAB' symbol was, generally, unknown to the candidates.
- (b) Very few candidates were able to successfully give two reasons why a manufacturer would use these symbols on their products. As a result many lost marks on this question

Question 13

A full range of responses were encountered by the examiners in answers to this question.

- (a) Almost all candidates referred to the function of the staplers as an explanation of the difference in cost. They failed to expand their answers by making reference to the materials, complexity and method of manufacture.
- (b) This section was particularly well answered. Most candidates were able to provide an explanation of which stapler they felt was the easiest to use and many went on to expand their answer, thus gaining full marks.
- (c) Again the vast majority of candidates were able to access this question. They were able to explain why their chosen stapler was most suited for the school office and the better candidates went onto expand their answers and gain full marks.

Higher Tier Full Course (3545/H)

Question 1

This question was well answered. Many candidates gained full marks by producing four relevant specification points for a desktop organiser and subsequently expanding their answers to provide suitable explanations. Candidates lost marks by repeating answers already given.

Question 2

A very encouraging, well answered question. It was clearly evident that the majority of teachers and candidates had obviously worked with the preparation material.

- **Variety of Ideas**

Many candidates were able to access high marks by showing three **different** ideas. A large number of candidates were able to demonstrate their creative ability by producing original designs.

- **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**

A large number of candidates gained 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 or two of the three marks on offer by showing some measure of analytical thinking. Many went on to analyse a number of features of their design and gained full marks. 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.

Question 3

- (a) Many candidates showed a good understanding of the term 'prototype' and gained one mark. Fewer candidates went on to expand their answer sufficiently enough to attain the second mark.
- (b) The majority of candidates knew of several advantages of using a prototype. Many were able to gain full marks and some out performed the question by giving more advantages than the mark scheme had named.

Question 4

This question discriminated well between candidates who had a sound understanding of industrial process and those who did not. Some candidates' responses were excellent descriptions of either the injection moulding or vacuum forming process and scored maximum or near maximum marks. However other responses varied. Some candidates elected to give details of how their design would be made as a 'one-off', others simply explained how their design would be assembled. Weaker candidates just named an industrial process.

Question 5

This was a very well answered question with many candidates gaining full marks. The most common correct responses related to the chuck and drill, electrics, emergency stop and lubrication.

Question 6

- (a) The majority of candidates showed an understanding of the 'input process output' approach and were able to gain some of the six marks on offer. Several candidates misunderstood the question and related it to the industrial manufacture of the pencil sharpener and the hole punch.
- (b) Most candidates were able to give details of how the designer had resolved the issues of 'movement' and 'stability'. However, many failed to give any significant details of how the designer had resolved the issues of 'height adjustment' and 'back rest adjustment'. Many simply listed the ergonomic benefits of the chair being adjustable.

Question 7

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

(a) Magazine file A

A number of candidates incorrectly named a specific type of solid wood from which the magazine file was likely to have been made from. It is obvious that candidates are not sufficiently aware of the properties of manufactured boards. Reference to its 'appearance' and 'strength' were generally given as correct reasons for their choice.

Magazine file B

Most candidates correctly named 'steel' or 'aluminium' as being suitable, specific materials from which the magazine file was likely to have been made from. Reference to its 'strength' and 'durability' were generally given as correct reasons for their choice.

Magazine file C

Most candidates provided a named plastic as being a suitable material from which the magazine file was likely to have been made from. 'Acrylic' being the most common, correct, response. Reference to it being 'colourful' was generally given as a correct reason for their choice.

- (b) Most candidates gave 'varnish' as a suitable specific finish which could be applied to Magazine file A. At the higher tier the examiners were looking for polyurethane or acrylic varnish. Most candidates gave a suitable specific finish which could be applied to Magazine file C; 'polish' and 'lacquer' were the most popular correct responses

Question 8

- (a) This question was, generally, well answered. Most candidates demonstrated their knowledge of the scales of manufacture. Many went on to increase their overall marks by successfully naming products which could be made by each scale of production. However, few candidates were able to name a suitable product made by continuous production.
- (b) Many candidates were able to produce several correct reasons of how the scale of production affects the cost of the product. There was common reference to 'use of machinery reducing cost', 'use of low skilled labour reducing cost' and 'bulk purchase of raw materials reducing cost'. Weaker candidates tended to repeat themselves.

Question 9

- (a) Most candidates were able to calculate the maximum size of the spigot.
- (b) Most candidates were able to calculate the minimum size of the spigot. Mistakes on (a) and (b) occurred when candidates misread the size as 10 ± 0.02 .
- (c) Few candidates knew of a suitable tool to measure with this accuracy. Most incorrectly answered 'ruler'.
- (d) Many candidates correctly stated that a gauge would speed up the measuring process. Few went on to provide details on it reducing human error.
- (e) Few candidates understood why tolerance was important to the manufacturer when producing products in quantity.

Question 10

- (a) Few candidates knew which product would display the 'BEAB' symbol. Many correctly provided a children's toy as their answer to which product would display the 'lion' symbol.
- (b) Virtually all candidates knew something of the work of the BSI. Weaker candidates made reference to safety. Better quality responses included, use of the 'kite' mark, and giving the customer an 'assurance' and a 'guarantee' of quality.

Foundation Tier Short Course (3555/F)

Question 1

The majority of candidates responded well to this question well. Many candidates gained full marks by producing four relevant specification requirements for a desk tidy and subsequently went onto expand their answer and provide a suitable explanation for each. Candidates lost marks by repeating answers already given.

Question 2

The majority of candidates answered this question well. It was clearly evident that those candidates who had worked with the preparation material, subsequently went on to produce quality responses.

- **Variety of Ideas**

Many candidates were able to access high marks by showing two **different** ideas. Many candidates were able to demonstrate their creative ability by producing original designs. There were few copies of existing products. Even the basic 'tubes' idea had been manipulated and developed.

- **Quality of sketching**

The standard of sketching was generally good. Many candidates made an attempt at producing a pictorial view of their idea. The majority of 2D line drawings were clear and in proportion. There was good use of colour/rendering techniques.

- **Quality of notes**

The quality of annotation varied considerably. Most candidates chose to provide simple notes to describe the features of their ideas. Weaker candidates simply labelled the parts of their design, whilst higher marks were awarded to candidates who provided detailed notes regarding the function of their designs.

Question 3

- (a) This part of the question was very well answered. Most candidates were able to provide two reasons why their chosen design was the best. High quality responses reflected back to the specification.
- (b) The majority of candidates named two tests which they would carry out to evaluate their desk tidy. Many went on to gain full marks by expanding their answer. There was a greater understanding of realistic testing with significantly less students electing to 'drop their desk tidy off a tall building' as a method.

Question 4

- (a) Most candidates were able to name a suitable material from which to make their chosen note pad holder, ‘MDF’ and acrylic being the most popular correct materials chosen. Candidates should be aware that there are more marks available for naming a specific rather than a generic material. Most candidates went on to give a correct reason for choosing their material.
- (b) Although the new format of this question was found to elicit a better response from the candidates, this was still the least well answered question on the paper and teachers are encouraged to ensure that the correct tool terminology is understood by candidates. The majority of candidates were able to provide much greater detail of the types of tools and processes they would use to make their chosen note pad holder.

Question 5

Most candidates were able to name one check which they would perform on a drilling machine to ensure it was in safe working order. However, they had greater difficulty in expressing why the check was important. The most common correct responses related to the chuck and drill, electrics, emergency stop and lubrication. Weaker candidates made reference to personal protection.

Question 6

This question was not as well answered as similar questions set in previous years. Again, candidates should be made aware that there are more marks available for naming a specific rather than a generic material.

(a) Magazine file A

Most candidates correctly identified that Magazine file A was made from ‘wood’. However few went on to name the correct manufactured board. ‘MDF’ was the most popular incorrect response. Reference to its ‘appearance’ was generally given as the correct reason for choosing this material.

Magazine file B

Most candidates correctly identified that Magazine file C was made from ‘plastic’. Many chose a specific plastic which gained them an extra mark. ‘Acrylic’ was the most popular specific material chosen. Reference to it being ‘attractive’ was generally given as the correct reason for choosing this material.

(b) Magazine file A

Most candidates gave a suitable specific finish which could be applied to Magazine file A. ‘Varnish’ was the most popular correct specific finish chosen. Teachers and candidates should be aware that naming a specific varnish, ‘polyurethane, or ‘acrylic’, will gain them extra marks.

Question 7

- (a) Very well answered, with most candidates being able to gain one mark by explaining why the base of chair had five feet. Reference to stability was the most popular correct response. Many candidates went on to expand their answer and gained full marks.
- (b) Most candidates knew that Part D was a wheel. Many went on to fully explain the advantage of the wheel.

Question 8

- (a) Many candidates were able to correctly identify the component as a screw.
- (b) Few candidates had any knowledge of the two types of motion which were being tested. Some gained a mark for suggesting 'round' but rotary and linear motion were concepts that the vast majority of candidates could not relate to.

Question 9

Many candidates showed a good understanding of the 'input/process/output' approach and were able to gain some of the six marks on offer. Some candidates were confused by the input/process stage, but almost all candidates knew that a paper punch produces a paper with holes in it, and that a pencil sharpener produces a sharp pencil.

Question 10

Most candidates were able to successfully identify the correct tool to use for the given process. Some candidates elected to name the tool rather than use its letter but obviously they did not incur any penalties.

Question 11

- (a) The majority of candidates were able to correctly identify a product from the given list which would display the 'CE' and 'lion' symbol. However, the 'BEAB' symbol was, generally, unknown to the candidates.
- (b) Very few candidates were able to successfully give two reasons why a manufacturer would use these symbols on their products. As a result many lost marks on this question

Question 12

A full range of responses were encountered by the examiners in response to this question.

- (a) Almost all candidates referred to the function of the staplers as an explanation of the difference in cost. They failed to expand their answers by making reference to the materials, complexity and method of manufacture.
- (b) This section was particularly well answered. Most candidates were able to provide an explanation of which stapler they felt was the easiest to use and many went on to expand their answer, thus gaining full marks.

Higher Tier Short Course (3555/H)

Question 1

This question was well answered. Many candidates gained full marks by producing four relevant specification points for a desktop organiser and subsequently expanding their answers to provide suitable explanations. Candidates lost marks by repeating answers already given.

Question 2

A very encouraging, well answered question. It was clearly evident that the majority of teachers and candidates had studied the preparation material.

- **Variety of Ideas**

Many candidates were able to access high marks by showing two **different** ideas. A large number of candidates were able to demonstrate their creative ability by producing original designs.

- **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 gained full marks by providing detailed notes showing the function of their designs, rather than simple labelling.

- **Quality of evaluation**

Most candidates were able to gain one or two of the three marks on offer by showing some measure of analytical thinking. Many went on to analyse a number of features of their design and gained full marks. 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.

Question 3

- (a) Many candidates showed a good understanding of the term 'prototype' and gained one mark. Fewer candidates went on to expand their answer sufficiently enough to gain the second mark.
- (b) The majority of candidates knew of several advantages of using a prototype. Many were able to gain full marks and some out performed the question by giving more advantages than the mark scheme had named.

Question 4

This question discriminated well between candidates who had a sound understanding of industrial process and those who did not. Few candidates were able to provide a full description of a method of production suitable for producing 5000 desk tidies. Some candidates gave details of how their design would be made as a 'one-off', others simply explained how their design would be assembled. Weaker candidates simply named an industrial process.

Question 5

This was a very well answered question with many candidates gaining full marks. The most common correct responses related to the chuck and drill, electrics, emergency stop and lubrication.

Question 6

- (a) The majority of candidates showed an understanding of the 'input/process/output' approach and were able to gain some of the six marks on offer. Several candidates misunderstood question and related it to the industrial manufacture of the pencil sharpener and the hole punch.
- (b) Many candidates were able to give details on how the designer had resolved the issues of 'movement' and 'stability'. However, some failed to give any significant details on how the designer had resolved the issues of 'height adjustment' and 'back rest adjustment'. Many simply listed the ergonomic benefits of the chair being adjustable or made vague references to the use of a 'lever' or a 'knob'.

Question 7

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

(a) Magazine file A

A number of candidates incorrectly named a specific type of solid wood from which the magazine file was likely to have been made from. It is obvious that candidates are not as familiar with manufactured boards as they are with solid wood. Reference to its 'appearance' and 'strength' were generally given as correct reasons for their choice.

Magazine file C

Most candidates provided a correctly named plastic as being a suitable material from which the magazine file was likely to have been made from. 'Acrylic' being the most common, correct, response. Reference to it being 'colourful' was generally given as a correct reason for their choice.

- (b) Most candidates gave 'varnish' as a suitable specific finish which could be applied to the Magazine file A. At higher tier level the examiners are looking for polyurethane or acrylic varnish.

Question 8

- (a) This question was, generally, well answered. Most candidates demonstrated their knowledge of the scales of manufacture. Many went on to increase their overall marks by successfully naming products which could be made by each scale of production. However, few candidates were able to name a suitable product which is made by continuous production.
- (b) Many candidates were able to produce several correct reasons of how the scale of production affects the cost of the product. There was common reference to ‘use of machinery reducing cost’, ‘use of low skilled labour reducing cost’ and ‘bulk purchase of raw materials reducing cost’. Weaker candidates tended to repeat themselves.

Question 9

- (a) Few candidates knew which product would display the ‘BEAB’ symbol. Many correctly stated a children’s toy as their answer to which product would display the ‘lion’ symbol.
- (b) Virtually all candidates knew something of the work of the BSI. Weaker candidates simply made reference to safety. Better quality responses included, use of the ‘kite’ mark, and giving the customer an ‘assurance’ and a ‘guarantee’ of quality.

Coursework (3545/C)

General

Centres are becoming increasingly accurate in both their assessments and in administrative procedures. Advice given in Autumn meetings has been acted upon making the moderation of coursework easier. Teachers should be congratulated for this.

Centres should be reminded that the moderation procedure is completely confidential and the moderator is not permitted to offer verbal feedback during their visit. This is particularly so given that moderators are not in a position to determine whether or not any adjustment will be made to centre marks at a later date. Written feedback will be available when results are formally announced.

Assessment

Most schools were sufficiently accurate in their marking and the moderator was able to confirm the centre's assessments. Many centres referred to the Autumn meeting photo sheets to aid the accuracy of their assessments. Where assessments were inaccurate, they tended to be lenient rather than harsh.

Internal Standardisation

Most centres had carried out this task thoroughly. However, in a few centres only a small number of projects from different teachers had been internally standardised, sometimes leading to anomalies in the rank order. This can affect all candidates in the centre once regression is performed. It is, therefore, vitally important that internal standardisation is carried out rigorously.

Annotation

The Candidate Record Forms provided essential information to moderators. Breaking down the overall designing and making grades allows moderators to see how centres had arrived at their assessment. Commentary to illuminate these grades was also very helpful. Occasionally, additional comments could have been added, for example, where a jig or template had been made, but wasn't available on the moderator's visit.

The provision of photos of outcomes provided by many centres was a great help to the moderation process and is positively encouraged.

Display of the sample

Almost without exception, centres laid out projects in rank order of making. In a very small number of centres where internal standardisation had not been thorough, staff often realised that there might be a problem with the centre's rank order before the moderator even arrived.

Choice of Coursework Projects

Projects are tending to become smaller, as advised in Autumn meetings, allowing candidates to achieve a higher quality finish in the time available. CAD/CAM is on the increase, often leading to use of materials other than wood. Candidates are usually opting for a project brief which is within their capability, but occasionally the most able candidates are limited by opting for, or designing a project with a low level of demand.

Design Folders

Most candidates were choosing, or being given, a specific design brief as a starting point. This allowed them to make an efficient start to the designing process, rather than spending time recording decisions about what project to do. The design brief was usually analysed, but not always sufficiently well to focus any initial research. Although the amount of research carried out has been reduced in quantity over the last two years, it often lacks focus. It is often research for the sake of research, rather than the candidate setting out to find information that is really useful. Quality research should directly influence the designing and development stages of the project. It may well appear during the development stages. A weaker project may include copious notes on all sorts of materials, joining techniques and finishes. The candidate could have simply justified the choice of material with a single sentence at the development stage. Initial research can often be completed in two to three well organised A3 sheets, and sometimes less.

Specification

These are still usually limited to a single spec for the designer. Only a very small number of candidates considered client’s and manufacturer’s specifications as well. The majority of candidates’ specifications were for a product, although a number of candidates talked about the specification for ‘their project’, rather than the product.

Design ideas and development

More candidates are presenting ‘busy’ pages with lots of ideas presented in a fluid way, the best truly demonstrating their ‘thinking on paper’ through their sketches and notes. This reflects advice given in Autumn meetings over many years.

CAD/CAM

Many candidates are effectively using CAD to communicate their final ideas, and in some cases CAD is being used to develop ideas. This is to be commended. It is important that candidates communicate this CAD based development work in their folders. A simple way this has been successfully done is through the use of multiple screen shots on a single page of the folder. Annotation helps to explain these. Prodesktop lends itself to RMT very well indeed, but a number of other programmes have been used successfully, including free software from the front cover of computer magazines.

Other successful techniques used by candidates include making simple models from easy to handle materials such as balsa, foam board and card. Again it is important to evidence this work in the design folder; a photo of the model is one way.

Some candidates also took the time to develop jigs and or templates at this stage in their project, covering some aspects of industrial practice.

Planning for manufacture

Candidates could be most highly rewarded in this respect if they considered the stages of commercial manufacture for their own product. Manufacturer specifications, details of materials sizes and finishes, tolerances and quality control procedures could all help at this stage. A fully detailed design should contain enough detail to allow manufacture by a third party.

Evaluation

Whilst many candidates evaluated their ideas as they progressed and evaluated the ideas of others at the research stage, final evaluations were often poor. Sometimes they were merely a reflection of 'how the project went' instead of how well the product met the specification. Candidates should also look to produce evidence and analysis of testing of the product in its intended market.

Practical Outcomes

A huge variety of projects were seen by moderators, ranging from traditional wooden boxes to innovative projects developed to make very effective use of CAD/CAM. In a number of centres, candidates have made manageably sized products for a third party. This has allowed them to demonstrate innovation in their ideas and many were able to integrate modern production techniques (laser cutting) with traditional techniques. Where CAM has been used, it is important that it is well documented in the folder, so that the moderator can determine the level of candidate input. Reference to this could also be made on the Candidate Record Form. There is evidence that jigs formers and templates are being developed by a larger number of candidates. Projects are tending to be smaller in size than in previous years, which allow a high quality finish to be achieved in the time available.

Further Support

Autumn teacher meetings this year will focus more on the content of the design folder than meetings of recent years. The meetings will, however, continue to demonstrate standards for assessments for the making element.

AQA is grateful to those centres who allowed a selection of their candidates work to be used as exemplar material for awarding meetings.

Mark Range and Award of Grades

Full Course

Foundation tier

Component	Maximum Mark (Raw)	Maximum Mark (Scaled)	Mean Mark (Scaled)	Standard Deviation (Scaled)
Paper	125	140	77.4	19.8
Coursework	95	210	112.5	36.9
Foundation tier overall 3545/F	--	350	189.9	47.4

		Max. mark	C	D	E	F	G
Paper boundary mark	raw	125	87	74	62	50	38
	scaled	140	97	83	69	56	43
Coursework boundary mark	raw	95	60	48	36	24	12
	scaled	210	133	106	80	53	27
Foundation tier scaled boundary mark		350	223	185	147	109	71

Higher tier

Component	Maximum Mark (Raw)	Maximum Mark (Scaled)	Mean Mark (Scaled)	Standard Deviation (Scaled)
Paper	125	140	77.9	15.9
Coursework	95	210	162.7	30.7
Higher tier overall 3545/H	--	350	240.6	39.8

		Max. mark	A*	A	B	C	D	allowed E
Paper boundary mark	raw	125	87	81	75	69	55	--
	scaled	140	97	91	84	77	62	--
Coursework boundary mark	raw	95	95	83	71	60	48	--
	scaled	210	210	183	157	133	106	--
Higher tier scaled boundary mark		350	298	269	239	210	168	147

Provisional statistics for the award

Foundation tier (33 288 candidates)

	C	D	E	F	G
Cumulative %	25.8	56.1	78.5	90.6	96.5

Higher tier (26 349 candidates)

	A*	A	B	C	D	allowed E
Cumulative %	6.2	25.3	53.6	79.7	95.5	97.7

Overall (59 637 candidates)

	A*	A	B	C	D	E	F	G
Cumulative %	2.7	11.2	23.7	49.6	73.5	87.0	93.7	97.0

Short Course

Foundation tier

Component	Maximum Mark (Raw)	Maximum Mark (Scaled)	Mean Mark (Scaled)	Standard Deviation (Scaled)
Paper	100	120	63.6	17.9
Coursework	95	180	94.0	34.1
Foundation tier overall 3555/F	--	300	157.7	41.5

		Max. mark	C	D	E	F	G
Paper boundary mark	raw	100	77	66	55	44	33
	scaled	120	92	79	66	53	40
Coursework boundary mark	raw	95	60	48	36	24	12
	scaled	180	114	91	68	45	23
Foundation tier scaled boundary mark		300	196	163	130	98	66

Higher tier

Component	Maximum Mark (Raw)	Maximum Mark (Scaled)	Mean Mark (Scaled)	Standard Deviation (Scaled)
Paper	100	120	69.3	11.4
Coursework	95	180	142.3	26.3
Higher tier overall 3555/H	--	300	211.6	32.8

		Max. mark	A*	A	B	C	D	allowed E
Paper boundary mark	raw	100	75	72	69	66	49	--
	scaled	120	90	86	83	79	59	--
Coursework boundary mark	raw	95	95	84	72	60	48	--
	scaled	180	180	159	136	114	91	--
Higher tier scaled boundary mark		300	258	240	216	193	150	128

Provisional statistics for the award

Foundation tier (638 candidates)

	C	D	E	F	G
Cumulative %	18.8	42.9	69.6	88.6	94.8

Higher tier (840 candidates)

	A*	A	B	C	D	allowed E
Cumulative %	5.2	20.7	48.1	75.5	94.9	98.3

Overall (1478 candidates)

	A*	A	B	C	D	E	F	G
Cumulative %	3.0	11.8	27.3	51.0	72.5	85.9	94.1	96.8

Definitions

Boundary Mark: the minimum (scaled) mark required by a candidate to qualify for a given grade. Although component grade boundaries are provided, these are advisory. Candidates' final grades depend only on their total marks for the subject.

Mean Mark: is the sum of all candidates' marks divided by the number of candidates. In order to compare mean marks for different components, the mean mark (scaled) should be expressed as a percentage of the maximum mark (scaled).

Standard Deviation: a measure of the spread of candidates' marks. In most components, approximately two-thirds of all candidates lie in a range of plus or minus one standard deviation from the mean, and approximately 95% of all candidates lie in a range of plus or minus two standard deviations from the mean. In order to compare the standard deviations for different components, the standard deviation (scaled) should be expressed as a percentage of the maximum mark (scaled).