

# **Design & Technology (Graphic Products)**

General Certificate of Secondary Education **GCSE 1955**

General Certificate of Secondary Education (Short Course) **GCSE 1055**

## **Combined Mark Schemes And Report on the Units**

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**June 2005**

**1955/1055/MS/R/05**

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Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

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Any enquiries about publications should be addressed to:

OCR Publications  
PO Box 5050  
Annersley  
NOTTINGHAM  
NG15 0DL

Telephone: 0870 870 6622  
Facsimile: 0870 870 6621  
E-mail: [publications@ocr.org.uk](mailto:publications@ocr.org.uk)

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**Mark Scheme 1955/01, 1055/01  
June 2005**

Tolerance +/- 2mm

- |          |  |                       |
|----------|--|-----------------------|
| <b>1</b> | <b>(a)</b> 1 mark for each correct line drawn  | (4) <b>[4]</b>        |
|          | <b>(b)</b> Each appropriate method 1 mark<br>E.g. coloured pencils, felt pens, marker pens, paint, airbrush, ink   | (1)<br>(1) <b>[2]</b> |
|          | <b>(c)</b> Each appropriate answer advantage 1 mark<br>E.g. quicker to change colours, easier to change colours,<br>more colours available, do not have to redraw tie each time,<br>NO marks for 'quick' or 'easy' | (1)<br>(1) <b>[2]</b> |
|          | <b>(d)</b> Appropriate method given – scored or perforated (sketch)<br>method clearly explained (notes)  | (1)<br>(1) <b>[2]</b> |
|          |  | <b>[10]</b>           |
|          |  |                       |
| <b>2</b> | <b>(a)</b> Correct number stated i.e. 4  | (1) <b>[1]</b>        |
|          | <b>(b)</b> Correct machine given i.e. guillotine   | (1) <b>[1]</b>        |
|          | <b>(c)</b> Appropriate advantage 1 mark<br>E.g. Lots of people to give flyers to, these are the type of people that would be<br>interested in going to the concerts (target market)                                | (1)                   |
|          | Appropriate disadvantage 1 mark<br>E.g. People will throw flyers away, problems with litter.   | (1)<br><b>[2]</b>     |
|          | <b>(d) (i)</b> 3-5 cities (places) correctly positioned 1 mark<br>OR<br>6-8 cities (places) correctly positioned 2 marks   | (2)                   |
|          | At least 5 places and dates printed<br>(Must be printed not joined writing)<br>Good quality printing<br>(consistent size and reasonably horizontal)  | (1)<br><b>[4]</b>     |
|          | <b>(ii)</b> At least 75% of route clearly indicated<br>Direction of route is clear   | (1)<br>(1) <b>[2]</b> |
|          |  | <b>[10]</b>           |

- 3 (a) Appropriate problem identified 1 mark (1)  
 E.g. Centres of letter will fall out.....(tick)  
 Appropriate explanation 1 mark (1)  
 e.g. .... because they are not joined to the stencil (tick) [2]
- (b) Appropriate modification to each letter 1 mark (tick) [4]  
 Max 2 marks if all 4 letters shown with no centres

# ADOR

- (c) Mylar, oiled card, acetate, **thin** plastic sheet (1) [1]
- (d) Extra stencil needed OR reference to masking out...(tick) (1)  
 ....first stencil will not include the tie shaped letter I (tick) (1)  
 ....Second stencil only has the tie shaped letter I (tick) (1) [3]
- [10]
- 4 (a) Colour/design will change.....(tick) (1)  
 ....because the ink reacts to changes in temperature (tick). (1) [2]
- (b) Each appropriate reason 1 mark (1)  
 E.g. easy to stick on  
 Already coloured  
 Gives good finish  
 Easy to cut out  
 Withstands heat  
 Waterproof  
 Flexible to follow shape of mug (1) [2]
- (c) Key factors to look for (tick each one)
- CAM machine identified – vinyl cutter or trade name (1)
- Roland CAMM machine, Lynx and Ultra cutters, Stika machine  
 Cutting **process** briefly outlined (1)
- Design is ‘weeded’ (excess vinyl is removed) (1)
- Tacky backing material smooth over surface of the vinyl (1)
- Sticky back of vinyl is removed (1)
- Design applied to mug and tacky backing sheet is removed (1) [6]

[10]

- 5 (a)** Each size given - 1 mark  
Height 121mm – 125mm (1)  
Width 121mm – 125mm (1)  
Depth 9mm – 11mm (1) **[3]**
- (b)** 2 long and 2 short sides shown (1)  
Curve shown on front and top added (1)  
Correct number (4) of glue flaps shown (1) **[3]**
- (c)** Sketch showing raised letters (1)  
  
Some explanation of the process (notes) e.g. design raised by pushing through from back (1) **[2]**
- (d)** Each function identified 1 mark  
E.g. holds lid and box together (1)  
  
Helps to stop the packaging being tampered with (security protected) (1) **[2]**

**[10]**  
**TOTAL**



**Mark Scheme 1955/02, 1055/02  
June 2005**

Tolerance +/- 2mm

- 1 (a)** Colour/design will change.....(tick) (1)  
 .....because the ink reacts to changes in temperature (tick). (1) **[2]**
- (b)** Each appropriate reason 1 mark (1)  
 E.g. easy to stick on  
 Already coloured  
 Gives good finish  
 Easy to cut out  
 Withstands heat  
 Waterproof  
 Flexible to follow shape of mug (1) **[2]**
- (c)** Key factors to look for (tick each one)
- CAM machine identified – vinyl cutter or trade name (1)
- Roland CAMM machine, Lynx and Ultra cutters, Stika machine  
 Cutting **process** briefly outlined (1)
- Design is ‘weeded’ (excess vinyl is removed) (1)
- Tacky backing material smooth over surface of the vinyl (1)
- Sticky back of vinyl is removed (1)
- Design applied to mug and tacky backing sheet is removed (1) **[6]**
- [10]**
- 2 (a)** Each size given - 1 mark  
 Height 121mm – 125mm (1)  
 Width 121mm – 125mm (1)  
 Depth 9mm – 11mm (1) **[3]**
- (b)** 2 long and 2 short sides shown (1)  
 Curve shown on front and top added (1)  
 Correct number (4) of glue flaps shown (1) **[3]**
- (c)** Sketch showing raised letters (1)
- Some explanation of the process (notes) e.g. design raised by  
 pushing through from back (1) **[2]**
- (d)** Each function identified 1 mark  
 E.g. holds lid and box together (1)
- Helps to stop the packaging being tampered with (security protected)  
 (1) **[2]**

**[10]**

- 3 (a)** Top completed (1)  
 Each tower completed 1 mark (2)  
 Bottom inside edge (1)
- Sketch shows a good degree of accuracy - Top and Towers must be drawn (1) **[5]**
- (b)** Die cutting, press knife or stamping (1) **[1]**
- (c) (i)** Staples (1) **[1]**
- (ii)** A straight edge identified (1)  
 Appropriate reason 1 mark (1) **[2]**  
 E.g. Because the pages can be joined easily
- (d)** Lithography or offset lithography or offset litho (1) **[1]**

**[10]**

- 4 (a) (i)** Some understanding of how the mechanism folds 1 mark  
 Clear explanation of how the mechanism folds 2 marks (2) **[2]**
- (ii)** Correct size 230 x 130mm or 115 x 130 (1) **[1]**
- (b) (i)** Front view of card completed  
 (to candidate's size for part (a)) (1)
- Side view of card completed  
 (to candidate's sizes for part (a)) (1) **[2]**
- (ii)** Drawing of layer A correctly completed (1) **[1]**
- (iii)** Layer B depth (1)  
 Layer B height (1)  
 Layer C depth (1)  
 Layer C height (1) **[4]**

**[10]**

- 5 (a)** A one piece development (1)  
Box will hold mug but does not prevent it moving 1 mark  
Box will hold mug and prevent it moving 2 marks (2)  
A lid that will open and close (1)  
(Use a tick to indicate where each mark has been allocated) **[4]**
- (b)** Mark to candidate's solution in (a)  
Correct scale (1)  
Appropriate number of sides correctly joined (1)  
Top and bottom drawn 1 mark  
Top and bottom drawn which fit the sides 2 marks (2)
- Glue tabs (sufficient to make the box) (1)  
Fold in flaps (sufficient to secure top) (1)  
Maximum 1 mark if not clear which is a flap or a tab  
Do not accept freehand for this part of the question **[6]**
- [10]**
- TOTAL [50]**

**Mark Scheme 1955/03**  
**June 2005**

Tolerance +/- 2mm

- 1 (a) (i)** Any triangle drawn – apex touching ellipse (1)  
Equilateral triangle to 40mm long to overlay (1) **[2]**
- (ii)** 6 sided shape – one side located on A-B (length can vary) (1)  
2 – 60° angles from A-B and to their solution (1)  
Correct to overlay (1) **[3]**
- (b)** Correct name ELLIPSE, accept elliptical – NO mark for oval, eclipse (1) **[1]**
- (c)** Correct name SCANNER/GRAPHIC TABLET/DIGITAL CAMERA/WEBCAM/MOBILE PHONE CAMERA – NO mark for just camera (1) **[1]**
- (d) Two** reasons why self adhesive vinyl is a suitable material (1)  
1 mark for each reason  
(1) **[2]**  
Accept: able to be printed on/able to be stuck on different surfaces/  
Sticky/waterproof/self coloured/ gives good finish/ easy to cut/ durable/  
NO mark for strong, cheap, lamination
- (e) One** reason why normal inkjet inks are unsuitable for printing onto self adhesive vinyl (1) **[1]**  
Accept: inks will not dry/inks will smudge/inks will run.  
NO mark for waterproof
- 2 (a)** 2 x 30mm lines at 30° in correct position (1)  
2 x 57 mm heights shown (accept 60mm) to their base (1)  
Top completed to their solution for the base  
(4 lines parallel to their base) (1) **[3]**  
Up to 2 marks available for a non-isometric answer
- (b)** 1 x thick **and** 1 x thin line (1)  
Fully correct to overlay (ignore internal line) (1) **[2]**
- (c) (i)** Name the tools and equipment used for hand assembling of the card model  
Accept ruler, glue stick, scissors for scoring, craft knife, glue gun, (1)  
Double sided tape, glue (1) **[2]**  
NO mark for sellotape, blue tack, staples, paper fasteners
- (ii)** Name a commercial method for producing the perforations  
Accept die cutter, die former, stamping, punching, laser cutter  
CNC cutter, plotter cutter, Roland Camm  
(1) **[1]**

- (d) Give two reasons why embossing has been used: (1)  
(1) [2]
- improve visual effect/ looks better
  - more realistic
  - more interesting
  - surface stands out / looks 3D
  - sharks stand out
  - looks more expensive
- 3 (a) (i) FRONT VIEW – mark to overlay (1)  
60mm (120mm) width of holder central on base (1)  
50mm (100mm) height – to their width (1)  
70mm (140mm) height – to their width (1)  
Hole in proportion (1) [4]
- (ii) PLAN VIEW – **mark to candidates response to (i)** (1)  
Correct projection of holder from front view (1)  
Plan view of outside of holder within the base and front to back (1)  
Hole in proportion (1) [3]
- (b) Appropriate method i.e. slots and tabs/ Double sided tape/ Velcro (1) [1]  
NO mark for sellotape/ just tabs
- (c) Two disadvantages of using foam board (1)  
(1) [2]  
Accept difficult to make as a development/difficult to cut/bend/difficult to join/difficult to recycle
- 4 (a) C M Y K shown - **ALL four** required, any order (1) [1]
- (b) (i) Complete MAGENTA plate (1)  
1 circle shown in general proportions (1)  
Correct mask areas labelled / shaded (1) [2]
- (ii) Complete YELLOW plate (1)  
Fish to general proportions – ignore eye (1)  
2 squares drawn – labelling NOT required (1) [2]
- (iii) Complete BLACK plate (1)  
Outer square (1)  
Correct mask areas labelled/ shaded (1) [2]

- (c) State the purpose of registration marks  
Reference to lining up  
NO mark for just 'accurate' (1) [1]
- (d) What is the difference between sheet fed and web fed  
Reference to the fact that web fed paper is on a roll and sheet fed  
is in separate sheets (1)  
NO mark for 'continuous' (1) [2]
- 5 (a) Scale 2:1 section of corrugated card  
3 layers shown approx 10 mm apart (1)  
Middle layer should be shown corrugated and curved  
Accept single lines (1) [2]
- (b) One advantage of using corrugated card in the manufacture of large  
display units  
Accept light/strong/durable/can be recycled/rigid/relatively inexpensive (1) [1]
- One disadvantage  
Accept Uneven surface for printing/corners can be damaged/  
difficult to bend or cut (1) [1]
- (c) (i) State how UV lacquer is applied to one side of the display unit  
Accept Sprayed on/printed on/dipped  
NO mark for 'painted on' (1) [1]
- (ii) State why the lacquer is exposed to UV light once it has been applied  
Accept to allow it to dry much quicker/ cured (1) [1]
- (d) An **acceptable** method which allows the shelf to fit into the hexagon  
shape (1)  
Shelf **rests** 100mm (clearly indicated) below the top (1)  
Method does not prevent shape from folding flat (1)  
Clear annotation/sketches which explains method and/or gives details of  
additional materials / components (1) [4]
- Acceptable methods - Cross halving  
Slots / tabs  
Hangers  
Internal ledge
- NO mark for an unacceptable method

**Total mark for paper [50]**



**Mark Scheme 1955/04**  
**June 2005**

Tolerance +/- 2mm

- 1 (a) C M Y K shown - **ALL four** required, any order (1) [1]
- (b) (i) Complete MAGENTA plate  
1 circle shown in general proportions (1)  
Correct mask areas labelled / shaded (1) [2]
- (ii) Complete YELLOW plate  
Fish to general proportions – ignore eye (1)  
2 squares drawn – labelling NOT required (1) [2]
- (iii) Complete BLACK plate  
Outer square (1)  
Correct mask areas labelled/ shaded (1) [2]
- (c) State the purpose of registration marks  
Reference to lining up  
NO mark for just 'accurate' (1) [1]
- (d) What is the difference between sheet fed and web fed  
Reference to the fact that web fed paper is on a roll and sheet fed  
is in separate sheets (1)  
NO mark for 'continuous' (1) [2]
- 2 (a) Scale 2:1 section of corrugated card  
3 layers shown approx 10mm apart (1)  
Middle layer should be shown corrugated and curved  
Accept single lines (1) [2]
- (b) One advantage of using corrugated card in the manufacture of large  
display units  
Accept light/strong/durable/can be recycled/rigid/relatively inexpensive (1) [1]
- One disadvantage  
Accept Uneven surface for printing/corners can be damaged/  
difficult to bend or cut (1) [1]
- (c) (i) State how UV lacquer is applied to one side of the display unit  
Accept Sprayed on/printed on/dipped  
NO mark for 'painted on' (1) [1]
- (ii) State why the lacquer is exposed to UV light once it has been applied  
Accept to allow it to dry much quicker/ cured (1) [1]
- (e) An **acceptable** method which allows the shelf to fit into the hexagon  
shape (1)  
Shelf **rests** 100mm (clearly indicated) below the top (1)

	Method does not prevent shape from folding flat	(1)	
	Clear annotation/sketches which explains method and/or gives details of additional materials / components	(1)	<b>[4]</b>
	Acceptable methods - Cross halving Slots / tabs Hangers Internal ledge		
	NO mark for an unacceptable method		
<b>3</b>	<b>(a) (i)</b> Base drawn to proportions of net to fully enclose package Locking mechanism without use of glue	(1) (1)	<b>[2]</b>
	<b>(ii)</b> Lid design length to sloping edge Side flaps shown Locking cut outs or slot and tab	(1) (1) (1)	<b>[3]</b>
	<b>(b)</b> Base sizes correct to overlay Both heights correct to overlay (or base solution) Completion of sloping top to their solution	(1) (1) (1)	<b>[3]</b>
	<b>(c)</b> Cutting blade shown pointed Creasing blade shown rounded	(1) (1)	<b>[2]</b>

- 4 (a) Design related to sea life centre / adds interest - shown on the stick (1)  
Design changes colour with temperature (1) **[2]**
- (b) Give one reason for using secondary packaging  
Accept protection of the ice lolly/to stop damage to the ice lollies/  
easier to transport / easier to stack up / increase sales  
NO marks for one word answer (1) **[1]**
- (c) Explain why recycled paper would not be used to manufacture the ice  
lolly wrapper  
Accept that recycled paper is not used in food production because of possible  
contamination/ hygiene/tainting/don't know origin of material  
No mark for 'Health & Safety' or one word answer (1) **[1]**
- (d) Completion of flow chart  
6 boxes 1 mark for each box  
BOX 1 accept between 200-500 microns (1)  
BOX 2 specific CAD software mentioned such as: (1)  
Autocad  
AutoSketch  
Corel draw  
2D Design  
ProDesktop  
Serif Draw  
Draw Plus  
BOX 3 – offset lithography / offset litho / litho (1)  
BOX 4 – die form or die cutter / stamping (1)  
BOX 5 – glue/ adhesive / double sided tape (1)  
BOX 6 – **Folding** machine to assemble to box (1) **[6]**
- 5 (a) (i) 20mm height of base including 2mm thickness of foamboard (1)  
Ellipse to overlay including position (1)  
Ellipse construction  
(by recognised method, minimum 25% complete) (1)  
Tail (1) **[4]**
- (ii) 2mm thick foamboard – fish and tail projected from front view (1)  
Intersection point of tail and body (from their solution) (1)  
Length and width of pectoral fins – fits in rectangle correct size (1) **[3]**
- (b) Method which supports the fins horizontally i.e. slot/pins/tabs/ledge (1)  
Method which keeps the fins from moving i.e. glue/D.S. tape/pins (1)  
Clarity of sketches and notes (1) **[3]**

**Total mark for the paper [50]**

# **Report on the Components**

## **June 2005**

### **Chief Examiner's Introduction**

The reports for the written examinations should be read in conjunction with Papers 1-4 and the appropriate Mark Schemes.

The Coursework report should be read in conjunction with the Assessment Objectives in the Specification.

The written papers should not be considered as a test of theory recall. They are intended to examine the knowledge and understanding the candidate has acquired through the practical activities of 'designing' and 'making'. It is vital therefore that candidates are able to relate these practical activities to the nature of the examination questions. Candidates' need to be familiar with the range of graphic materials and their related construction methods. Increasingly candidates need to have a knowledge and understanding of appropriate commercial construction and production methods employed in the manufacture of commercial graphic products.

It is disappointing that in many centres candidates do not appear to be gaining a knowledge of commercial production methods.

The questions in the examination papers require the candidates to respond in a variety of ways; for example, using one-word answers, detailed explanations, annotated sketches and accurate drawings. It is important that whichever method is used, candidates try to make their answers as clear as possible and also relate their responses to the number of marks available. Candidates need to have practice in demonstrating technical knowledge learnt through the course and to avoid the use of generalised terms such as easy, cheaper.

The general level of response achieved in the individual papers of this specification shows an improvement. However, there are areas identified in the reports where the candidate's performance could be improved. In particular, there is a general lack of knowledge related to commercial and industrial methods of production for graphic products.

The overall standard of Coursework has also shown some small improvement, although generally standards seem to be reaching a plateau. Although the coursework project is divided into six separate assessment objectives it is important that candidates retain an overall view of the whole 'design and make' process from start to finish rather than seeing it as six hurdles to be overcome. It is important that candidates are able to identify the relevance of research material and subsequently show its use in their design work.

Centres should strive to get candidates to complete their project in 25-30 sheets of A3 paper. All work needs to be focussed and limitations on quantity should lead to a rise in quality in the candidate's design activity.

Centres should also strive to ensure that candidates have the opportunity to use CAD/CAM within their project work. Whilst it is accepted that this can involve resource implications for Centres, it is essential for the progress of the specification that this is taken on board by Centres. There is some anecdotal evidence, gained from moderator visits, to suggest that in some centres CAD/CAM equipment is available but students are not allowed to use it and in other centres equipment is simply not being used. It is important that adequate training is available to staff in order for this equipment to be used effectively.

Candidates need to be reminded that they are to design and make a 'marketable' product and that their designs must include a control system that would enable the product to be manufactured as the first of a batch of approximately 50.

## **1955/1 (1055/1) - Foundation Tier**

### **General Comments**

This paper proved to be accessible to all candidates and a good range of responses were seen to all of the questions.

The vast majority of candidates attempted to answer all of the questions and there was no evidence to suggest that they did not have sufficient time to complete the paper.

In many cases candidates demonstrated a good understanding of both the graphical and written requirements of the questions.

There were some inaccurate drawings seen, perhaps as a result of the appropriate drawing equipment not being available or candidates choosing not to use it.

In a good number of cases specific detailed information about materials, commercial practices, the use of ICT and constructional techniques relevant to graphic products was missing in candidate's answers. A number of candidates responded to questions, which included these aspects, using general knowledge rather than by applying an understanding of subject specific knowledge.

It is important that candidates read the questions carefully before they start to produce their answers.

### **Comments on Individual Questions**

- 1 (a) The tie was generally accurately drawn with many candidates gaining all of the 4 marks available. A limited number of candidates seemed to attempt to complete the drawing using only a straight edge and pencil, with little attempt to measure lines or draw them at the correct angle.
- (b) This question was reasonably well answered with a good number of candidates identifying appropriate colouring techniques, such as colouring pencils, felt pens or paint.
- (c) Some good answers were seen to this part of the question, including the fact that computers would be quicker to change colours, have a wider range of colours available and that the tie would not have to be redrawn every time. It was pleasing to see that many candidates provided appropriate statements rather than one word answers such as 'quicker' or 'easier'.
- (d) Generally, it was felt that there was a good understanding of the need to score or perforate the tie in order to allow the two parts to be easily separated. Whilst the drawing aspects of the question were fine for most candidates, fewer candidates actually used the word perforated or explained the process.

- 2 (a) A good number of candidates correctly stated that four A5 flyers could be printed on one A3 sheet of paper.
- (b) A reasonable number of correct answers were seen, however, guillotine was rarely spelt correctly, Although this was not penalised in the mark scheme as long as the word could be recognised.
- (c) Sound responses were seen to this part of the question. Advantages usually related to there being 'lots of people to give the flyer to' and whilst most disadvantages centred on people being drunk, many candidates added a bit about 'throwing the flyers on the floor' and thus gained the mark.
- (d) Appropriate locations where the concerts would take place were identified and positioned on the map reasonably accurately. Printing was often poorly done with some candidates producing joined writing. Whilst the route that the band would take was correct in the majority of candidates responses, many missed off the direction of the route.
- 3 (a) This part of the question was poorly answered. The majority of candidates incorrectly focused on the letters being difficult to cut out. Answers frequently failed to identify that the centres of the letters needed to be joined to the outer parts of each letter in order for the design to function efficiently as a stencil.
- (b) Many correct answers were seen to this part of the question. Some credit was given if candidates made the letters 'solid' by leaving out the inner shape.
- (c) Very few correct answers were seen to this part question. Many candidates gave a material for making the 'T' shirt rather than a suitable material for the stencil. Acceptable materials for making a stencil included mylar, oiled card, acetate and thin plastic sheet.
- (d) In their answers to this part of the question many candidates incorrectly gave solutions which related to printing from a computer rather than by using stencils. Few understood the need for masking over part of the stencil or using two stencils; one with just the tie and the other with the remainder of the design.
- 4 (a) Despite the fact that questions related to thermochromic inks have been on the last few examination papers, a number of candidates failed to display any understanding of what would happen to the design when the mug was filled with hot liquid. Incorrect answers such as 'the ink would melt and run down the mug' were frequently seen. Good answers related to the colour changing (1 mark) because the ink reacts to a change in temperature (1 mark).
- (b) This part of the question was extremely poorly answered with many candidates showing little or no understanding of the use of a vinyl cutter. Candidates answered with lots of general statements related to CAD/CAM or even hand production methods using scissors, craft knife and glue, but there was little real substance to these answers. Many candidates failed to mention the key processes and equipment, with most just repeating the information that was given in the question. Marks were awarded for the following key factors:



- A CAM machine being identified – vinyl cutter such as the Roland Camm, Lynx, Ultra or Stika machines
  - The cutting process briefly outlined
  - Design is ‘weeded’ (excess vinyl)
  - Tacky backing material smoothed over surface of vinyl
  - Sticky back is removed from vinyl
  - Design is applied to mug and tacky backing sheet removed.
- 5 (a) Some candidates incorrectly dimensioned the height and width of the insert to the same size as a CD (120mm) and the same depth as the lid and box (12mm). A good number realised that the measurements needed to be adjusted but frequently gave inappropriate sizes. For example, they simply measured the given drawing, although the question clearly stated this was not to scale; alternatively giving a size that was greater than the depth of the lid and box rather than a dimension which needed to be smaller. Correct answers were those that gave the height and width as larger than a CD (121 – 125mm) and the depth less than the lid and box (9 – 11mm).
- (b) Most candidates sketched a workable net and gained the first 2 marks. Fewer gained the third mark because they failed to show enough glue flaps (i.e. 4) to fully secure the lid.
- (c) Answers to this part of the question tended to vary centre by centre. Whilst some candidates clearly understood the process and were able to explain it, others simply referred to embossing as being a type of printing or involving sticking extra pieces of material onto a surface.
- (d) A number of candidates talked about the appearance of the sticker rather than its function. However, some good answers were seen which correctly identified that the self adhesive sticker could be used to hold the lid and box together as well as acting as a security tag, to see if the box had been opened before it was purchased.

## 1955/2 (1055/2) - Higher Tier

### General Comments

This paper proved to be accessible to all candidates and a good range of responses were seen to the questions.

The vast majority of candidates attempted to answer all of the questions and there was no evidence to suggest that they did not have sufficient time to complete the paper.

In many cases, candidates demonstrated a good understanding of both the graphical and written requirements of the questions.

There were some inaccurate drawings seen, perhaps as a result of the appropriate equipment not being available or candidates choosing not to use it.

In a good number of cases specific detailed information about materials, commercial practices, the use of ICT and constructional techniques relevant to graphic products was missing in candidate's answers. A good number of candidates responded to questions, which included these aspects using general knowledge rather than by applying an understanding of subject specific knowledge.

It is important that candidates read questions carefully before they start to produce their answers.

### Comments on Individual Questions

1 (a) Despite the fact that questions related to thermochromic inks have been on the last few examination papers, a number of candidates failed to display any understanding of what would happen to the design when the mug was filled with hot liquid. Incorrect answers such as 'the ink would melt and run down the mug' were frequently seen. Good answers related to the colour changing (1 mark) because the ink reacts to a change in temperature (1 mark).

(b) This part of the question was extremely poorly answered with many candidates showing little or no understanding of the use of a vinyl cutter. Candidates answered with lots of general statements related to CAD/CAM or even hand production methods using scissors, craft knife and glue, but there was little real substance to these answers. Many candidates failed to mention the key processes and equipment, with most just repeating the information that was given in the question. Marks were awarded for the following key factors

(c)

- A CAM machine being identified – vinyl cutter such as the Roland Camm, Lynx, Ultra or Stika machines
- The cutting process briefly outlined
- Design is 'weeded' (excess vinyl)
- Tacky backing material smoothed over surface of vinyl
- Sticky back is removed from vinyl

Design is applied to mug and tacky backing sheet removed.

- 2 (a) Some candidates incorrectly dimensioned the height and width of the insert to the same size as a CD (120mm) and the same depth as the lid and box (12mm). A good number realised that the measurements needed to be adjusted but frequently gave inappropriate sizes. For example, they simply measured the given drawing, although the question clearly stated this was not to scale; alternatively giving a size that was greater than the depth of the lid and box rather than a dimension which needed to be smaller. Correct answers were those that gave the height and width as larger than a CD (121 – 125mm) and the depth less than the lid and box (9 – 11mm).
- (b) Most candidates sketched a workable net and gained the first 2 marks. Fewer gained the third mark because they failed to show enough glue flaps (i.e. 4) to fully secure the lid.
- (c) Answers to this part of the question tended to vary centre by centre. Whilst some candidates clearly understood the process and were able to explain it, others simply referred to embossing as being a type of printing or involving sticking extra pieces of material onto a surface.
- (d) A number of candidates talked about the appearance of the sticker rather than its function. However, some good answers were seen which correctly identified that the self adhesive sticker could be used to hold the lid and box together as well as acting as a security tag, to see if the box had been opened before it was purchased.
- 3 (a) Most candidates produced a solution which completed the top curve and the two towers. Many failed to show the bottom inside curve or to gain the mark available for the accuracy and quality of their sketch.
- (b) A good number of candidates correctly gave die cutting as their answer but common incorrect methods included CAM and hand methods such as scissors.
- (c) Many candidates correctly gave staples as the method of joining the pages together but fewer candidates were correct with the selection of an appropriate position such as along a straight edge. A significant number failed to indicate a position for the staples on the sketch.
- (d) Whilst lithography was often given as the correct answer, inappropriate responses such as photocopying were frequently seen.
- 4 (a) Many candidates calculated the missing correct size by adding the 80mm and the 35mm lengths together to give the correct size of 115mm. Some candidates failed to make use of sketches to show how the card closed. Some candidates failed to give both of the sizes for the card. Either 115x130 (when the card was closed ) or 230x 130mm (when the card was open) were considered acceptable answers.
- (b) Whilst the front view of the card was generally correctly completed, some candidates failed to complete the end view. Surprisingly many candidates failed to project lines from one view to another; this frequently resulted in layer A being the wrong height in the front view. The side view of layers B and C was often correct within the drawing tolerance allowed.
- 5 (a) Candidates made good use of notes and sketches in this part of the question, however, a good number failed to address all of the specification points,

particularly the issue of preventing the mug from moving inside the packaging. Some candidates tried to make their designs far too complicated.

- (b) Candidates generally produced good net designs, which were drawn to the correct scale. The most common errors were to draw too many glue tabs and/or too few fold in flaps for the lid. The lid often had only one fold in flap which would not be enough to fully secure the top of the box and lock the lid in place.

## **1955/3 - Foundation Tier**

### **General Comments**

It was generally felt that candidates were entered for the appropriate tier.

The majority of candidates were able to complete all five questions on the examination paper. In addition it was pleasing to see that the majority of candidates completed most parts within each question.

Whilst the number of questions involving the use of formal drawing techniques has reduced in this Specification it is still important that candidates have access to suitable drawing equipment in the examination room.

Candidates also need to be well prepared for the questions involving sketching and design skills. Well executed and legible design sketches and notes will improve candidate access to the higher mark allocation within this type of questions.

The level of response demonstrated in written questions is giving cause for concern. Many candidates use very simplistic language such as saying a process is cheap, quick or easy without any justification or reason as to why this is the case.

This point was highlighted in last year's report but there seems to have been little or no improvement.

Candidates need practice in answering questions of this type so that they demonstrate knowledge gained through the course.

It is surprising how many candidates suggest resistant material solutions rather than demonstrating knowledge of graphic materials and components.

### **Comments on Individual Questions**

- 1 (a) Most candidates scored well by drawing the equilateral triangle in the correct position and to the correct size.  
The hexagon was often drawn correctly on the given starter line but some candidates were not able to draw the sides correctly at 60 degrees or to complete the regular hexagon.
- (b) Marks were only awarded for the correct name of ellipse; oval was not considered an acceptable answer; considering the nature of the course and the importance of candidates having a knowledge of 2D geometrical shapes.
- (c) Most candidates correctly named a scanner as the most appropriate piece of equipment that could be used to import a hand drawing into a computer system.
- (d) Far too many candidates gave vague or generalised responses such as cheap, easy; rather than focusing on the specific properties of self adhesive vinyl.
- (e) Most candidates correctly identified that water based inks would 'run off' the vinyl.

- 2 (a) The question involved the completion of an isometric view of the assembled card model of a shark tank.  
Most candidates understood the principles of isometric drawing, considering that the starter lines helped them to draw lines at the correct angles.  
The most common error occurred in drawing the base to the incorrect size and in some cases to the incorrect height as well.
- (b) In this part of the question, candidates had to add the thick and thin line technique to their drawing of the shark tank. It was disappointing that the majority of candidates had no knowledge of how to apply this technique to a drawing.
- (c) (i) Candidates had to name appropriate tools and equipment suitable for the hand assembly of the card model. Most candidates were able to apply knowledge gained through the coursework to name two suitable pieces of equipment.  
  
(ii) Fewer candidates were able to identify a suitable commercial method for producing the perforations, such as die cutting.
- (d) Many responses were vague and did not demonstrate that candidates understood what was meant by the term embossing.  
Common errors included stating that embossed images would not 'rub off' and that the process was 'cheap', 'easier' and 'quick'.
- 3 (a) (i) Candidates were asked to complete the front view of a leaflet holder.  
Most were able to gain good marks in this part of the question, however in some cases oblique views were drawn. The main error related to the lack of projection of the hole from the end view.  
  
(ii) In this part of the question, candidates had to project a plan view of the leaflet holder including the hole. Many candidates did not project the view in line with the front view even though the outline of the holder was predrawn.
- (b) The most common acceptable answer was the use of slots and tabs; double sided tape was also considered correct. Many candidates chose sellotape, which was not considered an acceptable solution for joining the foamboard pieces.
- (c) Few candidates were able to state suitable disadvantages of foamboard for the leaflet holder, many responses were vague generalisations related to 'cheap', 'strong' etc rather than identifying specific problems in relation to the difficulty of cutting, bending or joining of foamboard.
- 4 (a) Most candidates failed to score the one mark for this part of the question because they stated the four colours as C M Y B instead of C M Y K, which is the correct convention for the four process colours.
- (b) The Magenta and Black plates were generally correctly drawn with the masked areas identified, although many drew too much detail. Marks were most frequently lost on the drawing of the Yellow plate where candidates failed to realise that the

area between the two squares needed to be printed yellow to give the required colour of green.

(c) This question was poorly answered, with very few correct responses related to the alignment of the plates by the registration marks. Most candidates related their answer to some aspect of identification or security.

(c) Similarly in this part of the question nearly all candidates did not have any understanding of the difference between sheet fed and web fed litho printing.

5 This product analysis question was based on the theme of large free standing display units used to promote the sale of products.

Pre-release material is provided to centres and gives clear guidance of the aspects to be covered in this question. Despite this it was evident that many candidates were ill prepared some of the specific content of this question, although there was more evidence than in previous years that candidate's had been given some appropriate input.

Centres would serve their candidates best by spending a few lessons prior to the examination studying in detail the content of the pre release material. It is appropriate for teachers to produce material for their candidates and little benefit is served by simply making them aware of the content and then leaving any research up to the individual candidates.

(a) In this part of the question, candidates had to sketch a scale sectional view showing the construction of 5mm thick corrugated card.

Many candidates failed to understand the term section view and an equal number had no knowledge of the construction of corrugated card.

(b) Most candidates were able to state an advantage of using corrugated card, but many struggled to find a disadvantage. There were many incorrect responses relating to the card 'going soggy' when it gets wet and other similarly vague responses.

(c) Most candidates correctly identified that UV lacquer would be sprayed onto the card although many thought that the reason was to make it glow in the dark.

(d) Responses to this part of the question suggested that many centres had carried out some research into the given theme.

Common errors included failing to show that the shelf would be 100mm below the top edge and also failing to explain the method chosen in sufficient detail. A small number of candidates misinterpreted the context and gave a resistant materials based response, referring to putting a shelf on a wall.

## **1955/4 - Higher Tier**

### **General Comments**

It was generally felt that whilst the majority of candidates were entered for the appropriate tier, in some cases candidates would have achieved much higher marks on the foundation tier.

The majority of candidates were able to complete all five questions on the examination paper. In addition it was pleasing to see that the majority of candidates completed most parts within each question.

Whilst the number of questions involving the use of formal drawing techniques has reduced in this specification it is still important that candidates have access to suitable drawing equipment in the examination room.

Candidates also need to be well prepared for the questions involving sketching and design skills. Well executed and legible design sketches and notes will improve candidate access to the higher mark allocation within this type of questions.

Centres should be encouraged to prepare their candidates for the 'newer' aspects of the specification, particularly in relation to commercial production methods and materials used in the manufacture of graphic products.

The level of response demonstrated in written questions is giving cause for concern. Many candidates use very simplistic language such as saying a process is cheap, quick or easy without any justification or reason as to why this is the case.

Candidates need practice in answering questions of this type so that they demonstrate knowledge gained through the course.

On the higher tier candidates need to be aware that the level of response required to achieve a particular mark is higher on the later questions on the paper.

### **Comments on Individual Questions**

- 1 (a) Most candidates failed to score the one mark for this part of the question because they stated the four colours as C M Y B instead of C M Y K, which is the correct convention for the four process colours.
- (b) The Magenta and Black plates were generally correctly drawn with the masked areas identified, although many drew too much detail. Marks were most frequently lost on the drawing of the Yellow plate where candidates failed to realise that area between the two squares needed to be printed yellow to give the required colour of green.
- (c) This question was poorly answered, with very few correct responses related to the alignment of the plates by the registration marks. Most candidates related their answer to some aspect of identification or security.
- (d) Similarly in this part of the question candidates did not have any understanding of the difference between sheet fed and web fed litho printing.



2

This product analysis question was based on the theme of large free standing display units used to promote the sale of products.

Pre- release material is provided to centres and gives clear guidance of the aspects to be covered in this question. Despite this it was evident that many candidates were ill prepared for some aspects of specific content of this question, although overall it was felt that more candidates than in previous years had clearly covered some of the required content for this question.

Centres would serve their candidates best by spending a few lessons prior to the examination studying in detail the content of the pre release material. It is appropriate for teachers to produce material for their candidates and little benefit is served by simply making them aware of the content and then leaving any research up to the individual candidates.

(a) In this part of the question, candidates had to sketch a scale sectional view showing

the construction of 5mm thick corrugated card.

Many candidates failed to understand the term section view and an equal number had no knowledge of the construction of corrugated card.

(b) Most candidates were able to state an advantage of using corrugated card, but many struggled to find a disadvantage. There were many incorrect responses relating to the card 'going soggy' when it gets wet and other similarly vague responses.

(c) Most candidates correctly identified that UV lacquer would be sprayed onto the card although many thought that the reason was to make it glow in the dark.

(d) Responses to this part of the question suggested that many centres had carried out some research into the given theme.

Common errors included failing to show that the shelf would be 100mm below the top edge and also failing to explain the method chosen in sufficient detail. A small number of candidates misinterpreted the context and gave a resistant materials based response, referring to putting a shelf on a wall.

3 (a) Many candidates lost marks for failing to draw the side flaps on the package. This applied to both the base and the lid.

Additionally many candidates failed to realise that some method of closing the box had to be included. Those candidates which included some form of closure generally included a slot and tab method.

(b) Candidates had to produce an isometric drawing of the assembled packaging. It was pleasing to see that many candidates were able to confidently draw the isometric drawing including the sloping top. The main error by candidates related to drawing the box in the incorrect orientation.

(c) Candidates had to complete a section view of a die cutter by showing the rounded end of the creasing blade and the point of the cutting blade. The majority of candidates were able to gain the two marks available for this question.

- 4 (a) In this question candidates had to demonstrate a knowledge of the application of thermochromic inks within a simple design context.  
Many candidates were able to add a simple design to the lolly stick, usually using the fish design given in the question and then successfully giving detail of how the design could change when the stick was eaten and warmed up.
- (b) Whilst a lot of vague answers were given to this part of the question many candidates were able to give responses related to the protection of the ice lollies.
- (c) Not very many candidates were able to identify that recycled paper was a health hazard when in contact with food.
- (d) In completing the flow chart, most candidates were able to pick up some marks. Most correctly identified offset litho printing and die cutting as suitable processes for printing and cutting. Very few, however, were able to give a suitable thickness of card. Glue or adhesive was generally correctly given in the finishing section. The majority of candidates were able to demonstrate some knowledge of suitable CAD software.

- 5 (a) It was surprising how many candidates attempted a freehand solution to the front and plan views of the counter top display. A question of this nature at the end of the higher paper is designed to test candidates' ability to produce accurate drawings, and as a result are marked to a tolerance of plus or minus 2mm. It is unlikely therefore that many marks will be picked up for freehand answers.  
On the front view, the ellipse was generally well drawn in centres where clearly this construction had been taught. Construction detail should be left in and not rubbed out. The accurate drawing of the tail was a little more difficult to achieve by many candidates.

The plan view was usually less well drawn, but marks were given for projection of the body and tail from the candidate's drawing of the front view.

The pectoral fins were in some cases constructed, but in others a rectangle was drawn and an approximate curve then drawn. Credit was given for this approach.

- (b) This part of the question involved candidates showing a design for the assembly of the pectoral fins onto the body of fish.  
Most candidates showed a method which included the use of a slot, with the fin being pushed through the body.  
The use of exploded sketches to show how the parts would fit together was evident in the responses from many candidates.

## 1955/5 (1055/3) - Internal Assessment

### Overview

The standard of work presented for moderation this year has been variable, with the majority of the work being good. Most of the work undertaken by candidates was appropriate for the OCR D&T: Graphic Products specification. It is clear that there are many very talented students, producing excellent work in Centres where they have received commendable guidance from their teachers. Moderators have reported that Centres are generally doing a very good job, sometimes under very difficult circumstances.

Moderators have reported that Centres are acting positively on advice given in previous years and at OCR INSET events, and that the range of products seen has much improved. Those Centres with access to digital cameras and photography have made greater use of these facilities to show evidence of their candidates' making and testing throughout the design process. This has enabled moderation to be an easier and smoother process as evidence to justify the marking is readily accessible. Those Centres who made available some form of annotation for the sample to explain how marks had been awarded also contributed to a successful moderation.

There has been some evidence of unrealistic marks being awarded by Centres this year. Centres are reminded that the OCR GCSE Design and Technology mark scheme is based upon a system of numerical values rather than grades. Each numerical value is directly related to a description of an activity undertaken by the candidate that relies upon evidence being clearly presented within the folder, or clearly evident in the modelling and the final prototype product.

Unfortunately, a number of Centres were reported as awarding marks when there was no clear evidence within any of the activities undertaken by the candidate to justify those marks.

It is pleasing to report that the majority of Centres are now ensuring that candidate's design and manufacture three-dimensional products from compliant graphic materials as outlined in the specification. Fewer two-dimensional outcomes were seen this year, but the number of Centres that allowed candidates to produce products that were not functioning prototypes and were not suitable for quantity (batch) production has increased. Typical unsuitable examples are the 'Shop Front' corporate identity and 'Interior Design' style of project. Such projects do not meet the requirements of the current specification. A small number of Centres are still allowing their candidates to follow projects that are more suited to a Resistant Materials course, with outcomes made in thick acrylic and plywood.

Teacher guidance on topic and content in the early stages of the coursework project continues to make a significant contribution to the success of candidates.

Evidence of excessive teacher guidance was again noted in a number of Centres this year. Teachers need to take greater care when making the distinction between guidance and *prescription*. In such cases individual ability can be hard to assess and moderators found it difficult to justify the marks awarded by the Centre.

Centres are reminded that there are a number of subject-specific support systems in place to aid teachers in the delivery of this specification, ranging from written advice on coursework proposals, to dedicated telephone numbers, and to a full programme of In-Service Training meetings.

## **Administration**

Internal moderation in Centres was not always effectively carried out which created problems when trying to justify the rank order of candidates' marks. The attention of Centres is drawn to the fact that this very important process must be carried out with due care and sufficient time allocated to the task.

The generic Coursework Summary Form (CSF) now includes the breakdown of marks for Objective 5 into its four component parts and was generally used correctly. This form is also available online in an Excel format to automatically calculate the addition of marks and has generally led to fewer errors. However, where manual calculation has been used, a high number were completed incorrectly, the vast majority of errors being incorrect additions. The new CSF includes a check column to be ticked to indicate that Centres have confirmed the calculations; unfortunately, many errors were still evident. The transfer of marks between CSF and MS1 produced a greater number of errors. Obviously more care is required here.

The majority of Centres used the combined Centre Authentication Form for Coursework and Candidate Authentication Statement (CCS160) correctly. Centres are reminded that the teacher(s) responsible for carrying out the internal assessment must complete one Centre Authentication Form for Coursework and either post this to the moderator with the MS1 and CSF or have this available for collection by the moderator during his/her visit. Each candidate must complete one Candidate Authentication Statement and include this within their coursework. A small number of Centres failed to make available either the Centre Authentication Form for Coursework, or the Candidate Authentication Statement.

Centres are advised to carefully check that the above forms are completed correctly, to liaise closely with their examinations officer when completing these documents and if in any doubt, to contact OCR for guidance.

A number of Centres are still failing to send a copy of the completed CSF form(s) to the moderator along with the Moderator Copy of the MS1. This inevitably leads to delays in the moderation process, as does the late posting of moderation paperwork to the visiting moderator.

## **Content**

The specification clearly states that candidate's projects should represent a maximum of 40 hours work (20 hours short course). Guidance to Centres has been that this can be accomplished with a target of 25 sheets (12 – 15 short course) of A3 paper providing the work is concise and that candidates edit the content. Moderators this year have reported very few instances of projects with excessive sheets of A3 paper.

There remain a small number of Centres who are allowing their candidates to spend an inordinate amount of time on elaborate sheet layouts, often at a cost to the content.

## Performance of Candidates in Assessment Objectives

The more successful candidates showed evidence of having used the Internal Assessment mark scheme as printed in the specification along with the Internal Assessment Comment Sheets as published in the OCR Teacher Guide for Design and Technology. As already noted, teacher guidance played a great role in the success of candidates.

Centres are reminded to determine the amount of time that they allow for candidates to work on each Assessment Objective by considering carefully the number of marks that the Objective carries in comparison to the total score of 105 marks.

Centres are advised to encourage candidates to cut down Objectives 1 and 2, and to extend the work evidenced for Objectives 4, 5 and 6.

### Assessment Objective One

Moderators witnessed fewer examples of excessive work on this assessment objective this year. It should be possible for *all candidates* to produce enough evidence to warrant four marks on preferably one, possibly two sides of A3 paper. Above all, the content of this Objective should be relevant. Many candidates are still spending too much time on this Objective for the four marks available.

A few Centres are still allowing candidates to work to unrealistic briefs; teacher guidance and intervention at this early stage would help steer the project towards an achievable outcome. The more successful candidates clearly identified a real need for a real user or client. The attention of Centres is drawn to the list of exemplar outline tasks given in the 1955/1055 Specification.

Candidates clearly need guidance on the structure of Objective One and reminding that the brief should be clear, concise and precise. Design briefs are improving but too many still fail to include the need for a marketable product capable of being produced in quantity.

**Successful candidates** gave examples of the range of users and the user's needs (*rather than the candidates*), and the target market, using evidence in the form of photographs, graphs/charts and diagrams to clearly describe the situation and need for design. They identified and described a target user or user group. They briefly analysed the information gathered before using this to generate a concise Design Brief that clearly identified the product, user(s) and target market, and highlighted the production of a marketable prototype product capable of quantity (batch) manufacture.

### Assessment Objective Two

As with Objective One, candidates continue to spend too much time on this Objective and producing considerably more, frequently irrelevant work, than is required for the twelve marks available. Three or four sides of A3 paper containing edited relevant, coherent, and concise work should suffice.

Candidates need to *plan* their research if they are to produce relevant, coherent, concise and appropriate work. They should include evidence of primary as well as secondary

research. Candidates would benefit from guidance as to whether work is relevant to this Objective, or would be better suited to Objective Four.

Questionnaires of doubtful and superficial value are still being used that have no relevance to the brief, and a plethora of pie charts and graphs are often present. The vast majority of these graphs and charts are now produced using ICT and so it is quite realistic to expect them to be edited, sized appropriately, and used concisely. Analysis of the results of questionnaires or surveys is often shallow and conclusions drawn are not always used in the Design Specification.

When evaluating and analysing existing products, candidates need more guidance on the difference between descriptive as compared to analytical and evaluative comments. Simple labelling is not sufficient evidence for high marks. There was much evidence of product analysis work being restricted to basic descriptions of the appearance of the product rather than investigating and analysing aspects such as materials, construction, production techniques, target market for the product, etc.

Candidates should be guided towards evaluating and analysing *one or two* products in depth rather than gluing a great number of actual products onto their sheets. ICT and photography can help here. Many candidates continue to collect copious quantities of material and data, and then fail to analyse it, draw conclusions or make any useful reference towards it in the development of the Design Specification.

Design Specifications continue to improve and most candidates made reference to producing their product in quantity. However, it was felt that many Specifications were generic and superficial, and could have applied to almost any product. Candidates need reminding that this Objective should give direction to and aid their design work, and Centres should be aware that a good Design Specification is essential to scoring highly in all the remaining Objectives.

**Successful candidates** planned their research. They identified and carried out research into the needs of a range of possible users, and fully analysed and evaluated appropriate existing products. They used ICT to find or contact other sources, to help sort, analyse, edit and communicate their results, and to keep their work concise. They explored the facilities available to them in their Centre to manufacture more than one product. They were very selective about what to include and produced work that had great depth, with all findings analysed and evaluated. They drew conclusions from all this work and incorporated them into a structured, detailed, bullet-point Design Specification that included reference to a system to ensure control over the production of the product in quantity.

### **Assessment Objective Three**

Objective Three continues to be the most accurately marked and strength of the folders from many candidates. The range of techniques and media used varied widely but was generally accurately assessed. Centres are advised to encourage their students to initially explore pencil sketches and generate a range of free-flowing ideas rather than resort to formal, instrument drawings. There was evidence of design work demonstrating preconceived solutions; this limits the credit that the candidate can be given.

Many Centres are still producing work with the formulaic approach of drawing a fixed number of ideas and then selecting one or two to consider as the best solution, with minimal development. This can lead to unresolved design issues and poorly developed

solutions. Annotation by the candidate and particularly critical evaluation of ideas/solutions continues to be an area where candidates would benefit from greater guidance. If candidates are to score highly, there must be evidence that they have used their design specification in the generation and subsequent development of their design solutions. Many candidates are failing to justify their final choice of design proposal and to evaluate it against their design specification.

Candidates could improve their response by taking a more holistic view to their designing instead of concentrating on one aspect of their product. For example, candidates who are designing items such as pop-ups and CD/DVD packaging are tending to focus more on the graphics to be applied onto the product than the product itself.

Centres are reminded that there are marks within this objective for communication that uses a "wide range of appropriate techniques" and Centres' attention is drawn to the range of communication techniques listed in the current 1055/1955 Specification. Moderators have reported a predominance of pencil crayon rendering on freehand three-dimensional sketches. Candidates who have used a limited range of techniques should be given limited credit.

The use of ICT and particularly CAD continues to improve, and many candidates who had access to such facilities produced work of a very good standard using a range of software. Centres are reminded that good graphic, freehand and formal drawing skills are still fundamental to the written examinations.

**Successful candidates** produced a range of rough, initial pencil-sketch ideas, which could then be explored and developed into a workable solution. They used a wide range of freehand and formal graphical techniques to communicate their ideas, which they evaluated against the Design Specification. They used ICT appropriately to enhance, develop and communicate their designs. They produced simple 2D and 3D models to justify decisions about size and form. They annotated, evaluated and discussed their proposals to ensure their chosen solution was fully developed and resolved. They skilfully used a range of graphic media to present their chosen design proposal on a separate sheet of A3 paper and fully justified their choice with reference to their Design Specification and the users needs.

#### **Assessment Objective Four**

Candidate's work in Objective Four continues to improve, but it remains the Objective that requires a great deal of teacher guidance. This Assessment Objective displayed a very high number of Centres over marking candidates work, mainly due to incorrect interpretation and use of the Levels of Response as described in the mark scheme. Moderators have commented that many Centres still encourage candidates into *design development* rather than *product development*. All design development should take place in Objective Three - Objective Four should be concerned with turning the design proposal into a prototype product suitable for quantity manufacture.

Published information on the theory of industrial processes is still relied upon by many candidates, yet is worthy of very limited credit when merely copied out if conclusions are not drawn from it. Although evidence of materials testing was seen in most folders, this tended to be of a general nature and on occasion unrelated to the product. Higher scoring candidates carried out more specific tests appropriate to their product.

There was limited evidence generally of candidates considering and exploring the possibilities of school-based technologies being used to manufacture a batch of their prototype product, or of tackling the problem of quality control. It would appear that many Centres are ignoring the requirement for a control system to produce the product in quantity.

Moderators reported limited evidence of presentation drawings, dimensioned working drawings and formal production drawings. These should be present in all Graphic Products candidate's folders, whether produced by hand or by CAD.

There was good evidence of the use of ICT in many Centres to model and communicate ideas. The use of three-dimensional modelling to aid the development of the product *through testing* was less common. Candidates should produce a range of models to test design proposals and parts of design proposals, and then record and analyse the results of these tests.

Reviews and revisions of the original design specification, and Final Product Specifications were evident in some candidates work and are to be encouraged if candidates are to score highly in Objective Five.

**Successful candidates** produced a range of full or part models to test their design proposal. They explored the materials, tools and equipment available to them in their Centre, tested and evaluated their suitability for their prototype product, and then justified their final selection. They tested materials through modelling (sometimes to destruction) and recorded the evidence through photographs, nets (developments), etc. Small-batch systems of manufacture, i.e. templates, stencils or simple jigs, had been designed and produced, tested for effectiveness and then evaluated. They made reference to their Design Specification and Design Brief to check their proposal.

Any modifications to the design proposal brought about by this testing were recorded and evaluated, before the final design proposal was drawn out accurately and fully dimensioned. At this point they successfully incorporated Industrial Processes into their work by considering the consequences of higher volumes of production should a major manufacturer take up their prototype product. They used ICT appropriately to model, test and communicate their proposal.

Successful candidates then reviewed and analysed all of their findings from Objective Four and considered their original Design Specification in the light of these findings. They then produced a Final Product Specification to guide them in the manufacture of their prototype product.

### **Assessment Objective Five**

This Assessment Objective caused the greatest number of differences between the Centre's marking and OCR's agreed standard. The quality of the outcomes and range of skills evident in their manufacture, varied greatly. Unfortunately, many Centres would appear to find it difficult to objectively judge the quality of their candidates' prototype products and there were many instances of generous marking in this Objective. Many Centres are reported as marking 'reasonable standard' work as 'good standard' and marking 'good standard' work as 'high quality'.



Centres are reminded that the outcome should be a *high quality* prototype product, whose manufacture has been *planned* and *recorded* in *detail*. Candidates must be given clear guidance about what constitutes a *high quality* graphic product.

Planning in this Objective continues to be very variable. Good, careful planning is more likely to produce the high quality product that this Objective requires. There was much evidence of planning being limited to one A3 sheet and being of a very general and superficial nature. In many Centres it was apparent that candidates had not used this planning work when making their final outcome. It is expected that to score the higher marks for planning, candidates produce at least three sheets of detailed planning on A3 paper.

Centres are reminded that the marks for Objective 5 are effectively broken down into four strands:

Planning: 12 marks;

Being economic, resourceful and adaptable: 12 marks;

Independent work and safe working procedures: 12 marks;

Production of a high quality graphic product: 16 marks.

Evidence was readily found for the Quality mark and frequently evident to justify the Planning mark, but there was insufficient evidence *in candidate's folders* to justify the marks awarded for the middle two assessment headings as listed in the assessment criteria. Candidates need to be aware that out of the total mark of 52 for Objective Five, only 16 marks are directly attributable to the final prototype product. The remaining 36 marks are dependent upon evidence being present within the candidate's folder.

Candidates must show evidence of how they have economically marked out and prepared materials, and how they have been resourceful and adaptable. They should also show evidence of having carried out Risk Assessment on the materials, tools, equipment and processes to be employed, and how they have worked independently and safely if Centres are to give them credit. Those candidates that tackled this successfully used facilities such as photography to record their progress and produced detailed production diaries.

Centres with a range of ICT facilities including CAD/CAM used it effectively to increase the quality of the outcomes and produce work moving towards a professional, industrial standard.

**Successful candidates** produced detailed evidence in their folios for the production of their prototype product, including items such as:

For planning (12 marks):

Annotated time plans including constraints and deadlines;

Flow charts including sub-assemblies and quality control loops;

Gantt charts which had been annotated as work progressed;

Annotated storyboards showing logical sequencing;

Lists of equipment, materials and tools required.

For being economic, resourceful and adaptable (12 marks):

Economical marking out and preparation of materials with sizes;

Lists of processes;

Clear explanations of how and where tools and processes are to be used.

For independent work and safe working procedures (12 marks):

Illustrated Production Diaries with modifications or problems highlighted;

Clear evidence of how any problems were overcome;

Health and Safety considerations including Risk Assessment.

This allowed the candidates full access to the 36 marks available for planning, resourcefulness, independent work and safe working procedures.

Such candidates produced some excellent, high quality, prototype graphic products, demonstrating creativity, attention to detail, pride and enthusiasm in their work. They made frequent reference to their Final Product Specification and Design Brief to check their prototype product.

### **Assessment Objective Six**

Too many candidates are still only evaluating the *project* rather than the *product*, or reporting on the activities that had taken place.

Most candidates evaluated their product against the original Specification and evidence of testing is increasing, although it remains mainly superficial. Many evaluations were unfortunately little more than descriptions of the product and testing limited to comments by friends and family. There were far too many personal opinions expressed by candidates, rather than structured and analytical questioning of the intended user(s) leading to reasoned proposals for modifications and improvements.

There was little evidence of candidates reviewing or evaluating their system to control manufacture, i.e. how well the templates or jigs functioned. Modifications tended to be limited to brief descriptions; there was little evidence of sketching or formal drawing to effectively communicate proposals for further development.

Teacher guidance is clearly needed in this Objective if candidates are to address the assessment objectives accurately. Centres need to allow sufficient time for testing and evaluating to take place.

**Successful candidates** compared their final prototype product with their Final Product Specification point-by-point and analysed how well it had been met. They reviewed their original brief in light of their experiences. They drew upon their Production Diary from Objective Five and evaluated the changes made. They tested their products in an appropriate environment with the target users and interviewed them. They produced questionnaires and carefully analysed the results. They produced photographic evidence of testing, often with the target user and annotated the outcome. They reviewed the use of the system to control production and analysed its effectiveness in manufacturing a batch of the product. They produced annotated sketches and drawings to show suggestions for further development.

### **Presentation**

Most Centres applied this mark fairly and accurately. However, to be awarded more than three marks, Centres should note that candidate's work must be *concise*. Candidates would benefit from greater guidance with the final content and structure of the design folder before it is submitted for assessment and moderation.

**General Certificate of Secondary Education  
Design & Technology: Graphic Products (Short Course) 1055  
June 2005 Assessment Session**

**Component Threshold Marks**

Component	Max Mark	A	B	C	D	E	F	G
01 Paper 1	50			26	22	18	15	12
02 Paper 2	50	32	28	24	19			
03 Coursework	105	82	69	57	45	33	22	11

**Syllabus Options**

**Foundation Tier**

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	175				85	71	57	43	29
Percentage in Grade					19.7	22.6	16.7	16.7	14.7
Cumulative Percentage in Grade					19.7	42.3	59.1	75.8	90.6

The total entry for the examination was 217

**Higher Tier**

	Max Mark	A*	A	B	C	D	E	F	G
Overall Threshold Marks	175	142	125	108	91	72	62		
Percentage in Grade		7.1	25	29.1	17.8	10.9	4.9		
Cumulative Percentage in Grade		7.1	32.1	61.2	79.1	90.1	95		

The total entry for the examination was 376

**Overall**

	A*	A	B	C	D	E	F	G
Percentage in Grade	4.5	16	18.6	18.5	15.1	9.1	6	5.2
Cumulative Percentage in Grade	4.5	20.6	39.3	57.8	73	82.1	88.1	93.4

The total entry for the examination was 593

**General Certificate of Secondary Education  
Design & Technology: Graphic Products (Full Course) 1955  
June 2005 Assessment Session**

**Component Threshold Marks**

<b>Component</b>	<b>Max Mark</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>
01 Paper 1	50			26	22	18	15	12
02 Paper 2	50	32	28	24	19			
03 Paper 3	50			28	23	19	15	11
04 Paper 4	50	30	25	21	16			
05 Coursework	105	82	69	57	45	33	22	11

**Syllabus Options**

**Foundation Tier**

	<b>Max Mark</b>	<b>A*</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>
Overall Threshold Marks	175				91	75	59	43	27
Percentage in Grade					25.4	23.7	20.6	15.4	8.8
Cumulative Percentage in Grade					25.4	49.3	69.8	85.2	94.1

The total entry for the examination was 10006

**Higher Tier**

	<b>Max Mark</b>	<b>A*</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>
Overall Threshold Marks	175	139	122	105	89	70	60		
Percentage in Grade		8.1	22.4	29.9	22.3	12.0	2.1		
Cumulative Percentage in Grade		8.1	30.6	60.5	82.9	94.9	97.1		

The total entry for the examination was 12679

**Overall**

	<b>A*</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>
Percentage in Grade	4.5	12.6	16.7	23.7	17.2	10.2	6.7	3.8
Cumulative Percentage in Grade	4.5	17.1	33.9	57.6	74.8	85.1	91.9	95.8

The total entry for the examination was 22685







**OCR (Oxford Cambridge and RSA Examinations)**  
**1 Hills Road**  
**Cambridge**  
**CB1 2EU**

**OCR Information Bureau**

**(General Qualifications)**

Telephone: 01223 553998

Facsimile: 01223 552627

Email: [helpdesk@ocr.org.uk](mailto:helpdesk@ocr.org.uk)

**[www.ocr.org.uk](http://www.ocr.org.uk)**

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**Head office**  
**Telephone: 01223 552552**  
**Facsimile: 01223 552553**

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