

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

**MARK SCHEME for the May/June 2012 question paper
for the guidance of teachers**

0445 DESIGN AND TECHNOLOGY

0445/13

Paper 1 (Design), maximum raw mark 50

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

- Cambridge will not enter into discussions or correspondence in connection with these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2012 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

Page 2	Mark Scheme: Teachers' version	Syllabus	Paper
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- 1 (a) Accept any **four** additional suitable points – carry all items together, waterproof, easier to transport, easy to clean reduces carrying weight, easy access to small items (hooks, floats, bait etc). (no repeats of question) (1x4) [4]
- (b) Accept drawings of any **two** suitable methods to provide mobility – single axle, double axle, three wheel system with jockey wheel, rollers, sledge style, carrying straps, etc. innovative approach (2x2) [4]
- (c) Any suitable ideas. At least **three different** ideas for maximum marks. Pro rata if fewer.
- Communication**
- Simple drawings displaying a low standard or limited range of techniques (0–2)
- Clear drawings displaying a good standard and a range of techniques – shading/colour/annotation etc. (3–4)
- High quality drawings using a wide range of techniques with clear annotation and detail (5–6)
- Suitability**
- Simplistic designs showing outlines only (0–2)
- Rather more detail, sensible solutions that could work (3–4)
- Accurate solutions, good fitness for purpose, detailed construction (5–6) [12]
- (d) Evaluation of each of the ideas. At least 3 evaluations up to 2 marks each (0–6)
- Selection and justification. (1+1) (2) [8]

Page 3	Mark Scheme: Teachers' version	Syllabus	Paper
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(e) Quality of drawing

- Poor line quality, proportions, little detail (1)
 Good line work, use of colour, proportions, some detail (2–3)
 High standard throughout with a range of techniques that show clearly all detail (4)

- Dimensions** 2 or 3 overall dimensions only – 1
 Additional detail dimensions – 2 (2)

Construction details

- A simplistic approach showing little or no detail of construction to be used (0–2)
 Most constructional detail may be obvious from overall views or with some annotation (3–4)
 All constructional detail will be clear with good annotation and additional detail drawings as necessary (5–6) [12]

- (f)** Suitable **specific** materials stated. (2)
 Appropriate reasons for choice. (2) [4]

- (g)** Suitable method stated. (1)
 Good detailed description of: processes (3)
 tools. (2) [6]

[Total: 50]

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- 2 (a) Accept any **four** additional suitable points – cardboard greaseproof on one side, attractive with additional items, cake separation to avoid contamination, carrying system, etc. (no repeats of question) (1x4) [4]
- (b) Accept drawings of any **two** different approaches to the construction of joints – based on slots, tabs or interlocking flaps, etc. (2x2) [4]
- (c) Any suitable ideas. At least **three different** ideas for maximum marks. Pro rata if fewer.
- Communication**
- Simple drawings displaying a low standard or limited range of techniques (0–2)
- Clear drawings displaying a good standard and a range of techniques – shading /colour/annotation etc. (3–4)
- High quality drawings using a wide range of techniques with clear annotation and detail (5–6)
- Suitability**
- Simplistic designs showing outlines only (0–2)
- Rather more detail, sensible solutions that could work (3–4)
- Accurate solutions, good fitness for purpose, detailed construction (5–6) [12]
- (d) Evaluation of each of the ideas. At least 3 evaluations up to 2 marks each (0–6)
- Selection and justification. (1+1) (2) [8]

Page 5	Mark Scheme: Teachers' version	Syllabus	Paper
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(e) Quality of drawing

- Poor line quality, proportions, little detail (1)
- Good line work, use of colour, proportions, some detail (2–3)
- High standard throughout with a range of techniques that show clearly all detail (4)

- Dimensions** 2 or 3 overall dimensions only – 1
- Additional detail dimensions – 2 (2)

Construction details

- A simplistic approach showing little or no detail of construction to be used (0–2)
- Most constructional detail may be obvious from overall views or with some annotation (3–4)
- All constructional detail will be clear with good annotation and additional detail drawings as necessary (5–6) [12]

- (f)** Suitable **specific** materials stated. (2)
- Appropriate reasons for choice. (2) [4]

- (g)** Suitable method stated. (1)
- Good detailed description of: processes (3)
- tools. (2) [6]

[Total: 50]

Page 6	Mark Scheme: Teachers' version	Syllabus	Paper
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- 3 (a) Accept any **four** additional suitable points – articulated or flexible, magnetic and non magnetic, adjust reach, hand grip etc. (no repeats of question) (1x4) [4]
- (b) Accept drawings of any **two** suitable designs using different mechanical principles – scissor action, levers, sliding, gears, rack and pinion, pulleys, chain, belt, Bowden cable etc. (2x2) [4]
- (c) Any suitable ideas. At least **three different** ideas for maximum marks. Pro rata if fewer.
- Communication**
- Simple drawings displaying a low standard or limited range of techniques (0–2)
- Clear drawings displaying a good standard and a range of techniques – shading/colour/annotation etc. (3–4)
- High quality drawings using a wide range of techniques with clear annotation and detail (5–6)
- Suitability**
- Simplistic designs showing outlines only (0–2)
- Rather more detail, sensible solutions that could work (3–4)
- accurate solutions, good fitness for purpose, detailed construction (5–6) [12]
- (d) Evaluation of each of the ideas. At least 3 evaluations up to 2 marks each (0–6)
- Selection and justification. (1+1) (2) [8]

Page 7	Mark Scheme: Teachers' version	Syllabus	Paper
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(e) Quality of drawing

- Poor line quality, proportions, little detail (1)
 Good line work, use of colour, proportions, some detail (2–3)
 High standard throughout with a range of techniques that show clearly all detail (4)

Dimensions 2 or 3 overall dimensions only – 1

- Additional detail dimensions – 2 (2)

Construction details

- A simplistic approach showing little or no detail of construction to be used (0–2)

- Most constructional detail may be obvious from overall views or with some annotation (3–4)

- All constructional detail will be clear with good annotation and additional detail drawings as necessary (5–6) [12]

(f) Suitable **specific materials stated.** (2)

- Appropriate reasons for choice. (2) [4]

(g) Suitable method stated. (1)

- Good detailed description of: processes (3)

- tools. (2) [6]

[Total: 50]