



DESIGN AND TECHNOLOGY

0445/13

Paper 1 Product Design

October/November 2016

MARK SCHEME

Maximum Mark: 50

Published

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 should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

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- 1 (a) Accept any **four** additional suitable points – lightweight, easy to transport/carry, stable on the bench, takes up small space on bench, sensible shape for storing. Accept other valid responses 1 × 4 [4]
- (b) Accept drawings of any **two** ways of holding tools – in recess, holes, clips, slot, tube, magnet, 2 × 2 [4]
- 2 (a) Accept any **four** additional suitable points – attractive colour/shape/layout, simple wording, window for drills, easy access to drills, stable as a stand. Accept other valid responses. 1 × 4 [4]
- (b) Accept drawings of any **two** holding methods – holes, slots, vacuum formed tray, clips, rubber bands. Accept other valid responses. 2 × 2 [4]
- 3 (a) Accept any **four** additional suitable points – adjusts to different sizes/shapes, heatproof, stable in use, access for soldering iron, does not damage items. Accept other valid responses. 1 × 4 [4]
- (b) Accept drawings of any **two** gripping methods – jaws, crocodile clips, spring clips, rubber bands, tapered slots, tweezers. Accept other valid responses. 2 × 2 [4]

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Questions 1, 2 and 3

- (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, construction detail	5–6 [12]

- (d) Evaluation of each of the ideas. At least 3 evaluations up to 2 marks each
Selection and justification. (1+1) 0–6
2 [8]

(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 – 1	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. (1+1) 2
Appropriate reasons for choice. (1+1) 2 [4]

- (g) Suitable method described. 1
Good detailed description of: processes 0–3
tools. 0–2 [6]

[50]