

# MARK SCHEME for the October/November 2013 series

# 0445 DESIGN AND TECHNOLOGY

0445/31

Paper 3 (Resistant Materials), 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 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.

Cambridge is publishing the mark schemes for the October/November 2013 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

		Sullabus	xtrapapers.com
Page 2	Mark Scheme	Syllabus	
	IGCSE – October/November 2013	0445	Da
	Section A		Canno.
(a) Speed, [	repetitive] accuracy, shape could not be marked out	t with traditional tools	embridge.
(b) Coping s	aw, fret saw, Hegner saw, scroll saw or equivalent		[1] COM

## Section A

- 1 (a) Speed, [repetitive] accuracy, shape could not be marked out with traditional tools
  - (b) Coping saw, fret saw, Hegner saw, scroll saw or equivalent

2

Product	Specific material	Reason for choice
plastic gears	Nylon	Self-lubricating
wooden rolling pin	Beech	Hardwood, hard, close-grained

4 × 1 [4]

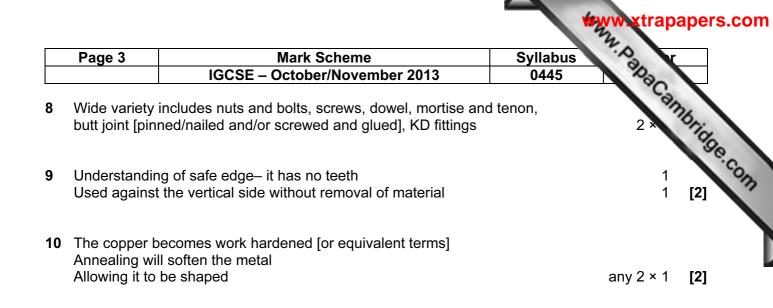
3	Α	Countersunk head	В	Flat head	С	Round/snap head		3 × 1	[3]
4		ips shown across the ocks shown on both ec			Sandw	viched top and bottom with ply	1		[2]

5

Any sensible situation involving noisy machinery or tools
Operations involving heat or chemicals

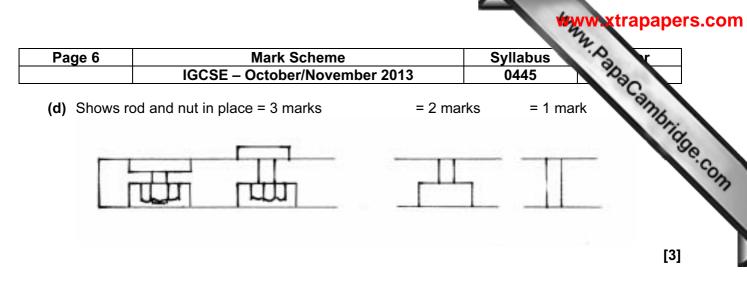
apron Wide variety of workshop situations- must give specific situation [3]

- Pencil, marking knife, rule, try square, marking, mortise and cutting gauges [3] 6 3 × 1 [1] 7 (a) vacuum forming, blow moulding, press forming/moulding
  - [1] (b) injection moulding



		Market Market	xtrapa	apers.com
Pa	ige 4	Mark Scheme Syllabus	Sal I	
		IGCSE – October/November 2013 0445	aC.	Y
		Section B	13	Br.
11 (a)	The type	e of tools, their sizes, quantity, weight, methods of accessibility	2 × 1	300
( <b>b</b> .)	(i) Dol	stively about compared to bardwood, bardwooring, durable, easy to war	1.	COM
(b)	.,		ĸ	
	(ii) Acc	ept any reference to pine, red wood, red/white deal, parana pine		[1]
(c)	Mortise a	and tenon, dowel, butt pinned and glued, lapped, dovetail, finger [comb]		
( )	Correct		1 0–3	[4]
	Accurac		0-3	[-]
(d)	(i) Jigs	aw, router		[1]
	(ii) Ans	wers can refer to <b>any</b> portable power tool: trailing leads, clamping work	securely,	
	pers	sonal protection equipment		[1]
(a)	Some fo	rm of handle: dowel or metal tube/rod between the two ends	1	
(6)			1	
		naterial appropriate	1	
	Construc	ctions appropriate	1	[3]
(f)	Methods	include: pin or screw and glue flush [accept one only], rebate, gro	oove, app	olied
	beads	-3 for each method dependent upon technical accuracy	2 × 3	[3] [3]
	, mara o		2 0	[0]
(g)	Three di	fferent size areas	0–2	
	Appropri	ately named materials	0–1	
	Construc	ctions appropriate and shown clearly/accurately	0–3	[6]
12 (a)	(i) The	rmoplastic		[1]
	• •	rmoplastics can be heated and shaped/formed and process repeated rmosetting plastics can only be heated and shaped/formed once	1 1	[2]
	ING	mosetting plastics can only be neated and shaped/formed once	I	[2]
<b>(b)</b> A	0–2			
А	Accuracy of	of position of 2 lugs	0–2	[4]
	-	-		
(c)		ven only [not strip heater/line bender]	1 1	
		ormer/mould shown clearly with acrylic draped y of technical detail	1	[3]

Pa	ige 5	5	Mark Scheme Syllabus	S V	
			IGCSE – October/November 2013 0445	Da	
(d)		•	on of method should include: drill a hole, insert blade of coping saw, saw or equivalent, cut out shape, file to final size	BahaCall 3 *	horn
(e)	(i)		cch shows 2 lines bisecting to provide centre east one tool or item of equipment named	1 1	0/14
	(ii)	-	lic clamped securely in position itional reference to speed of drill, safety precautions	1 1	[2]
(f)	ade	quate	fety precautions include: e ventilation, mask to prevent breathing in fumes, r use of barrier cream, no naked flames	3 × 1	[3]
(g)	(i)	weta	and dry used to make the edges smooth		[1
	(ii)	polis	hing mop and compound used to polish the edges		[1]
(h)			ome protruding lugs the back needs to be brought away from the wall mark for recognition of solution	1	
	Tec	chnica	al accuracy of solution to include some form of 'spacer'	0–2	[3
(a)	(i)	Mild	steel, stainless steel		[1]
	(ii)	Alum	ninium, brass, copper		[1]
	(iii)	Do n	not corrode, self-finished, attractive appearance, bends easily	2 × 1	[2]
(b)	Roo Cha Use	d held amfer e of di	ages including: I securely in vice filed on end of rod ie in die stock/holder ibricant		
			of cutting thread described	4 × 1	[4
(c)	Sta	rt pos	sition for end of rod	1	
	Use	e of fo	ormer: 15mm Ø bar to bend around held securely in vice	1	
	Hol	d one	e part of rod in position for bending	1	
	Me	thod o	of force required: mallet [not hammer]	1	[4



### (e) Face plate turning

glue hardwood block to softwood block with paper between screw block onto faceplate set up on lathe

set up tee rest use of scrapers/gouges to produce shape

check required diameter

### Sawing from sheet/block and making round.

Mark out diagonals/circle on wood, secure to bench/flat surface, use of tenon saw to remove most waste or use of Hegner/vibro saw or equivalent, e.g. coping saw with wood held in vice, use of files and glasspaper to make round or use of sanding disc.

Award 0–4 marks for details of main stages	4	
Award 0–2 marks for quality of communication	2	[6]

- (f) (i) Suitable finish: varnish, oil, preservative, paint, white/French polish [1]
  - (ii) Glasspaper, remove dust, glasspaper [finer grade], use of brush or rag to apply carefully along the grain, avoid 'runs' and drips 3 × 1 [3]