

Design and Technology

General Certificate of Secondary Education

Unit **A532**: Graphics: Sustainable Design

Mark Scheme for January 2013

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

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

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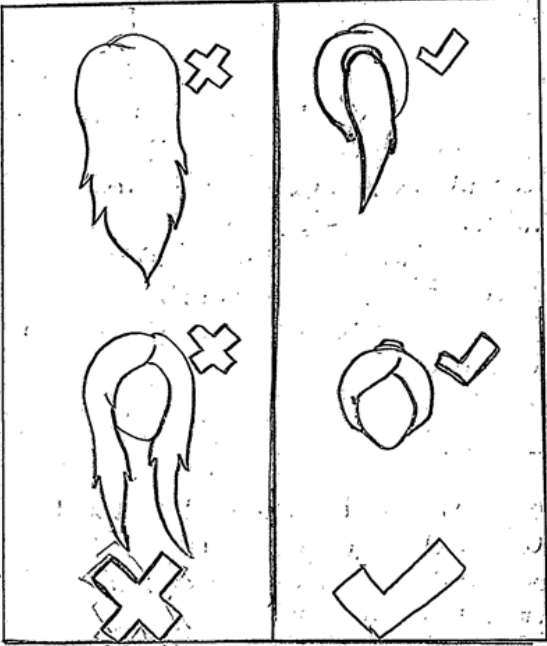
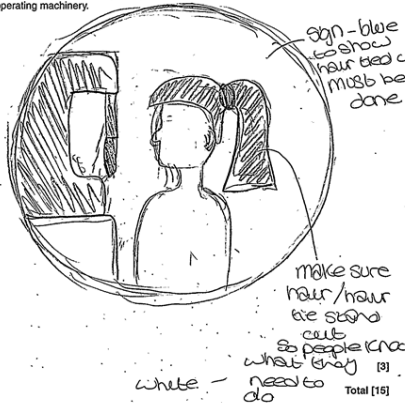
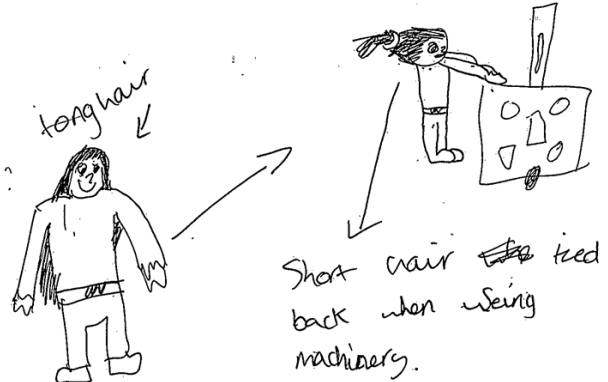
Annotations

Annotation	Meaning
Green tick	Use for all correct answers and to show where marks are awarded
L1, L2, L3	Use to show the level of response in 17d
SEEN	Use to show you have seen the candidates answer when awarding 0 marks in 17d

Question			Answer	Marks	Guidance
1			(b) Can only last a limited period of time	1	These are the only acceptable answers. No mark awarded if more than one answer circled or if a candidate's response is not clear. Accept any other method of indicating a response eg ringed
2			(a) Discouraged	1	
3			(d) Managed renewable forests	1	
4			(c) Coal	1	
5			(d) Recycle a product into a different product	1	
6			The Tidyman symbol, Tidyman, Do not litter symbol, Don't litter, Keep Britain tidy	1	Do not accept: Bin man, Tidybin man, no Litter symbol, Litter man, put rubbish in the bin
7			Eco-Design	1	This is the only acceptable answer
8			Repair, repaired	1	These are the only acceptable answers
9			Deforestation is the destruction/depletion/clearing of the rainforests/forests/cutting down trees	1	These are the only acceptable answers
10			Ergonomically/ergonomic	1	These are the only acceptable answers, accept variations of spelling. Do not accept anthropometric.
11			False	1	These are the only acceptable answers. No mark awarded if more than one answer ticked or if a candidate's response is not clear. Accept any other method of indicating a response eg ringed
12			True	1	
13			True	1	
14			False	1	
15			True	1	
			Total	15	

Question		Answer	Marks	Guidance
16	(a)	Post consumer cardboard is a material that has been used before and recycled or is made from recycled material.	2	There are two aspects to this answer; <ul style="list-style-type: none"> That 'post' means after (use), material has been recycled before, made from recycled material, material used before A well explained answer/or example given Do not accept: Can be recycled . Product/box/package has been used before.
	(b)	Can be printed onto, gives a good print finish, can be folded/cut, can be recycled after use, material can biodegrade, Stronger/strong/sturdy/protection. Material readily available. Lightweight.	1	Do not accept: Lower cost, cheaper.
	(c)	Package B is made from 2 materials. The two materials cannot be recycled together and have to be separated before being recycled. The consumer could make this easier by separating the two materials before recycling the packaging; this would not be difficult as the bubble has to come off to reach the toy car inside. The recycling centre could have to employ staff or use machinery to separate products made from two materials so that they can be recycled separately. Consumers may just throw away the package into the normal household waste as this could be easier than separating the two materials, the packaging could then end up in landfill.	3	Candidate must explain their answer. Candidate answer must show that they understand the two materials have to be separated before being recycled. There are 3 aspects to this answer; <ul style="list-style-type: none"> The package is made from 2 materials The materials cannot be recycled together/need to be separated Further processes/costs/time/energy will be incurred because it is a more complex procedure. Do not accept sort as an explanation for separate.
	(d)	The product (toy car) can be seen without opening the package, the toy car is visible to the consumer	1	Accept answers that relate to the customer being able to see the product. Do not accept: Looks professional
	(e)	Package C is cheaper to produce as there are less printing costs because the header card label is quite small/less card The toy is packaged in a bag so there are lower costs involved in the manufacture/transportation of the packaging. The header card label and bag can be used for multiple products so is cheaper to manufacture.	2	Candidates should explain that <ul style="list-style-type: none"> The cost is cheaper, <u>due to</u> the reduced amount of material/printing/manufacturing/transportation involved. 1 mark for a well explained answer. Do not accept answers relating to recycling

Question			Answer	Marks	Guidance
	(f)		The packaging does not suffocate/cut the user/user may swallow part of package/print finish/adhesives may be harmful/sharp edges/small parts	2	Do not accept vague or generic answers such as; Does not injure/hurt the user. Toxic materials/chemicals. Do not accept answers relating to animals or the environment
	(g)	(i)	Red, yellow, blue	1	These are the only acceptable answers

Question	Answer	Marks	Guidance
	<p>(ii) If more than one response mark the most appropriate. Sketch(s) which show hair tied back/being tied back/or shows loose hair is a danger (ignore notes/labels) (1) Good quality simplistic stylised image (outline or block shading) (1) Symbols/images are combined/integrated (contained within a shape) (1)</p> <p>(ii) In the space below, design a symbol to show that long hair must be operating machinery.</p>  <p>3 marks Sketch shows hair tied up – 1 mark Design is integrated (just) – 1 mark Good quality/simple/stylistic image – 1 mark</p>	<p>3</p>	<p>(ii) In the space below, design a symbol to show that long hair must be tied back when operating machinery.</p>  <p>2 marks Sketch shows hair tied up – 1 mark Design is integrated – 1 mark No mark for good quality/stylistic image</p>  <p>1 mark Sketch shows hair tied up – 1 mark Design is not integrated No mark for good quality/stylistic image</p>
	Total	15	

Question		Answer	Marks	Guidance
17	(a)	<p>Reduces the amount of waste that goes into landfill</p> <p>Reduces the amount of energy used in the production of new materials(virgin materials)/decreases the amount of greenhouse gases produced in the manufacture of new/raw material</p> <p>Jobs/employment can be created to make the products</p> <p>Traditional crafts/techniques are sustained/continued</p> <p>Slows the depletion of non-renewable materials</p> <p>Reduces the need for incinerating/burning waste</p> <p>Conserves natural materials</p> <p>Lower carbon footprint</p> <p>Helps to reduce climate change</p> <p>Unique products/more desirable product/better public image of manufacturer</p>	4	<p>Do not accept: Better for the environment, no harm to the environment, eco friendly, sustainable, is recyclable, they can be recycled, biodegradable (the new product may not be suitable for this after it has been made into a new product), cheaper to make, safe for the consumer, reference to the manufacture of the product</p> <p>Do not accept one word answers</p> <p>Do not credit repeat answers</p>
	(b)	<p>Better working conditions</p> <p>Better/fair/improved pay</p> <p>Improved living standards</p> <p>Basic workforce rights/minimum pay/maximum hours</p> <p>No exploitation</p> <p>No forced labour/no abuse</p> <p>Free to leave employment</p> <p>Not discriminated against</p> <p>Can join/form a trade union</p> <p>Receive proper training</p> <p>Safe working environment/proper safety training</p> <p>Access to regular breaks and rest facilities</p>	3	<p>Any three ethical trade initiative benefits to a worker</p> <p>Do not accept:</p> <p>Fair trade on its own</p> <p>Goggles, guards or one word answers relating to safety or hygiene unless explained, recycling or environmental benefits</p>
	(c)	<p>The carbon footprint will be increased due to the movement/shipment/transportation to the UK.</p>	2	<p>There are two aspects to this answer;</p> <ul style="list-style-type: none"> • The Carbon footprint is increased/made bigger • Because of the transportation/shipment/movement of the product to the UK to be sold

Question			Answer	Marks	Guidance												
18	(a)		<table><tr><th>Component</th><th>Material</th><th>Environmental disadvantage</th></tr><tr><td>Front & back cover</td><td>420 micron bleached white card</td><td>Card is bleached and bleach could leak/pollute into rivers & streams. Fumes from bleach can cause damage to people/workers</td></tr><tr><td>Text/ images</td><td>Oil based inks</td><td>Solvent fumes given off during printing can be harmful to the atmosphere/ ozone layer Oil based inks are non-sustainable/non-renewable</td></tr><tr><td>Pop-up mechanisms</td><td>Card made from virgin pulp</td><td>Depletion of forests/trees Non-sustainable source if not from managed/non-renewable forests</td></tr></table>	Component	Material	Environmental disadvantage	Front & back cover	420 micron bleached white card	Card is bleached and bleach could leak/pollute into rivers & streams. Fumes from bleach can cause damage to people/workers	Text/ images	Oil based inks	Solvent fumes given off during printing can be harmful to the atmosphere/ ozone layer Oil based inks are non-sustainable/non-renewable	Pop-up mechanisms	Card made from virgin pulp	Depletion of forests/trees Non-sustainable source if not from managed/non-renewable forests	3	<p>Do not accept <u>repeat</u> or vague answers</p> <p>Do not Accept: <u>Can't be Recycled</u> for any answer</p>
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Question		Answer	Marks	Guidance
	(b) (i)	PVA glue, double sided sellotape, contact adhesive, Pritt stick, UHU glue, copydex	1	Do Not accept: Glue, super glue, epoxy resin, spray adhesive/glue, hot glue gun.
	(ii)	Adds interest/interaction Engages/entertains the user More appealing/fashionable to children/develops motor skills	1	Do not accept: Look more aesthetic
	(c) (i)	Aesthetic means the look of a product	1	
	(ii)	Change/improve or add colour Change font style/size A U.V varnish or spot varnish could be added Embossed design or lettering LED lights Fabric material or decoration/pattern/texture could be added to the pages Photochromic or Thermochromic inks/smart materials could be added A design could be die cut onto the front of the book Change shape of book Different paper used for different pages/parts of the book	3	Do not accept: Add Pop-up mechanisms, different pop-ups, , more pictures, make it recyclable Accept Physical alterations that would be an addition to the book

Question		Answer	Marks	Guidance
	(d)	<p>People/consumers have access to digital technology. 1000's of books can be stored/downloaded on small portable devices such as mobile phones, mp3/4's, ipads or e-readers.</p> <p>e-book can read the book to you</p> <p>Books are more expensive to buy than electronic versions. Books take up a lot of space that these digital products do not need.</p> <p>Reduces the amount of deforestation.</p>	3	<p>Candidate needs to;</p> <ul style="list-style-type: none"> Identify the emergence of new digital technology (Kindle, e-book, smart phone or similar) Benefits of the devices are that they are portable Can store lots of books on one device <p>Do not accept cheaper unless qualified.</p>
	(e)	<p>Give to a charity shop, sell on ebay, give to a friend or relative, garage sale, give to a dentist/doctor's waiting room, donate to a school or nursery, donate to a third world country, used for display.</p>	3	<p>Answers must demonstrate that the candidate understands that primary recycling is secondhand use of the product without altering/changing it.</p> <p>Be careful not to credit repeat answers.</p>
		Total	15	
		Paper Total	60	

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