OCR
Oxford Cambridge and RSA

GCSE

Design and Technology Graphics

Unit **A535**: Sustainability and technical aspects of designing and making

General Certificate of Secondary Education

Mark Scheme for June 2014

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of candidates of all ages and abilities. OCR qualifications include AS/A Levels, Diplomas, GCSEs, Cambridge Nationals, Cambridge Technicals, Functional Skills, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

It is also responsible for developing new specifications to meet national requirements and the needs of students and teachers. OCR is a not-for-profit organisation; any surplus made is invested back into the establishment to help towards the development of qualifications and support, which keep pace with the changing needs of today's society.

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.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

© OCR 2014

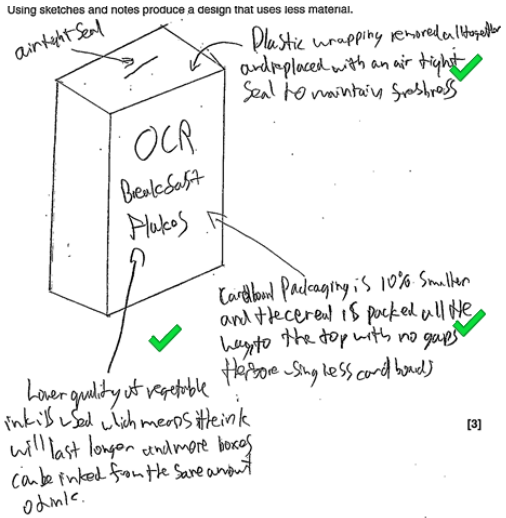
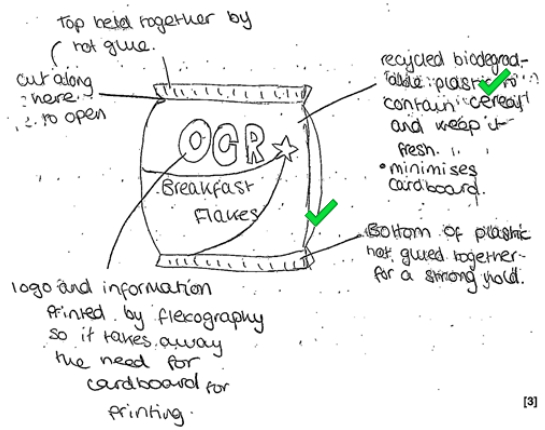
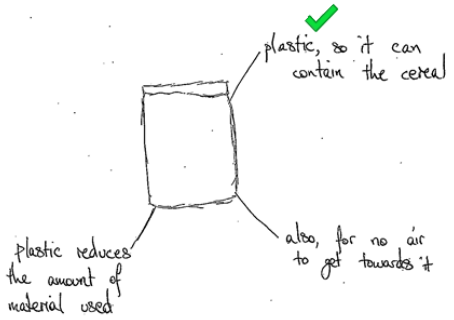
Annotations

Annotation	Meaning
BP	Blank Page – this annotation **must** be used on all blank pages within an answer booklet (structured or unstructured) and on each page of an additional object where there is no candidate response.
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 16f and 18e

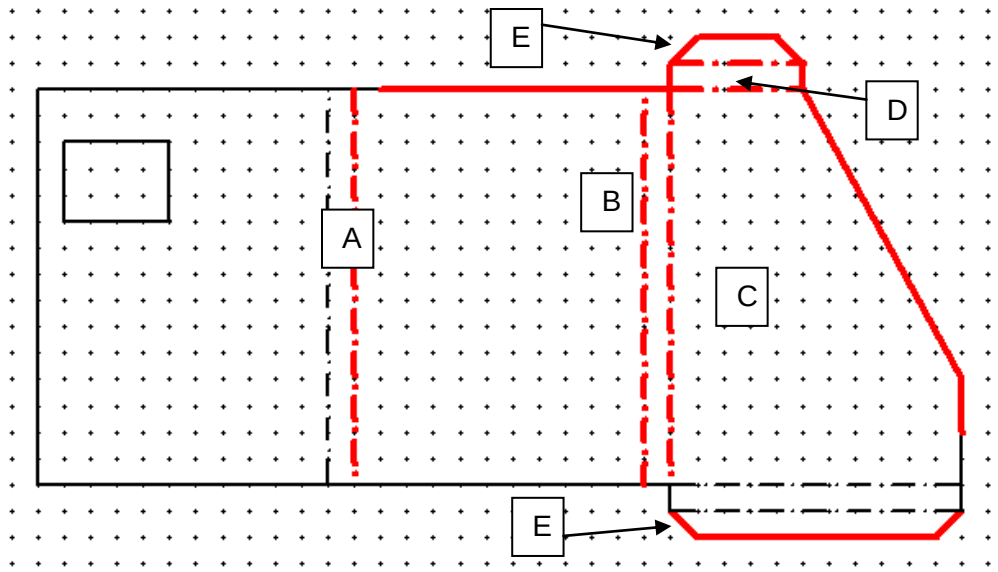
Question			Answer	Marks	Guidance
1			(a) Recyclable Steel	1	These are the only acceptable answers. No mark awarded if more than one answer ringed or if a candidate's response is not clear. Accept any other method of indicating response eg. tick
2			(c) Using the product again	1	
3			(b) Light	1	
4			(b) Has reached the end of its useful life	1	
5			(c) Redesign it	1	
6			The percentage shows how much of the material **is** recycled or has been recycled	1	Do not accept: shows how much **can be** recycled or **is** recyclable
7			It will eventually run out, a limited resource, not last forever, lasts for a period of time, it's unsustainable, has an end point, non renewable.	1	Do not accept 'limited' on it's own, or 'not infinite', or redundant, or doesn't last long
8			Carbon Footprint, Eco footprint, Ecological footprint	1	These are the only acceptable answers Do not accept: Eco or Ecological on its own
9			Landfill/Landfilling	1	These are the only acceptable answers
10			**Forest/Forestry** Stewardship **Council**	1	Both Forest/Forestry and Council are needed
11			False	1	These are the only acceptable answers. Only one answer should be ticked. If candidate ticks/marks both answers award zero.
12			True	1	
13			False	1	
14			True	1	
15			True	1	
			Total	15	

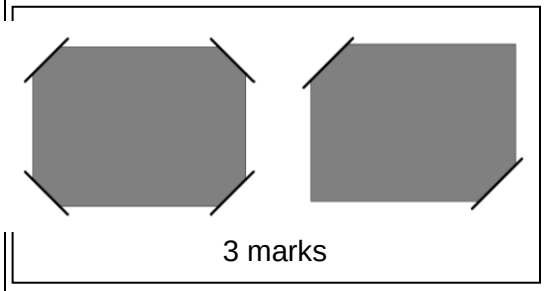
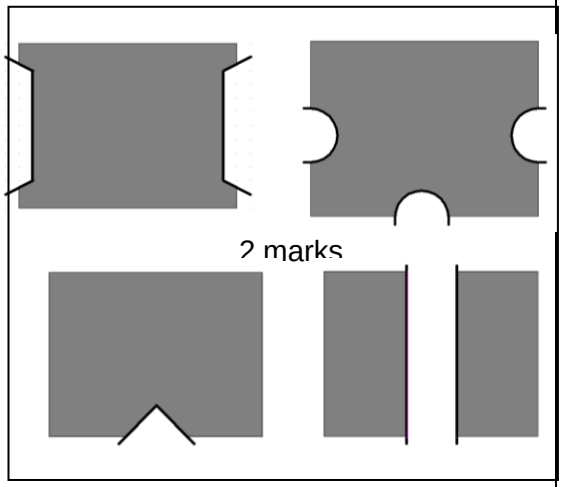
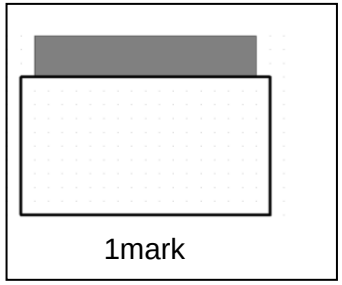
Question			Answer	Marks	Guidance
16	(a)		Protect the cereal from contamination Stop the cereal spilling out of the box/hold the cereal/easier to remove cereal from box Stop the cereal getting wet and going soggy / damp Help to keep the cereal to stay fresher / crisper / last longer / preserved	2	Be careful not to credit repeat answers. Two correct one word answers – max 1 mark (e.g. preserve & protect = one mark)
	(b)		**The Cardboard:** -is biodegradable and will rot into the ground when recycled. -can be recycled after use which lessens the impact on the environment / reduces landfill -helps to save trees/habitats and prevent deforestation **The Inks:** -used are vegetable based this means that they come from a sustainable source -use less energy in the recycling process to remove the vegetable inks meaning less CO2 released into the atmosphere -can be removed (de-inked) more easily from paper, making it easier/quicker to recycle -do not contain chemicals that could harm wildlife if a manufacturing spillage occurred -are low VOC meaning they are less harmful to workers during manufacture -are non toxic so wont harm the environment	4	Answers must be explained to be awarded full marks and be linked to the environment. Full credit can be given to two qualifying answers to just card or just ink. Do not accept: Is made from recycled material unless qualified Re-using of wasted/unwanted vegetables Better for the environment /doesn't harm the environment (this on its own is not a creditable response) Be careful not to credit repeat answers NOTE: Vegetable inks do not decompose/biodegrade more easily than normal (solvent based) inks, they do not give off gases or toxins during the degrading process
	(c)		Best before date Barcode Ingredients Weight Country of origin Nutritional information Manufacturers name/logo and address/contact details Name & description of food/benefit of product Storage & cooking/serving instructions	2	Do not accept 'what's inside' as too vague

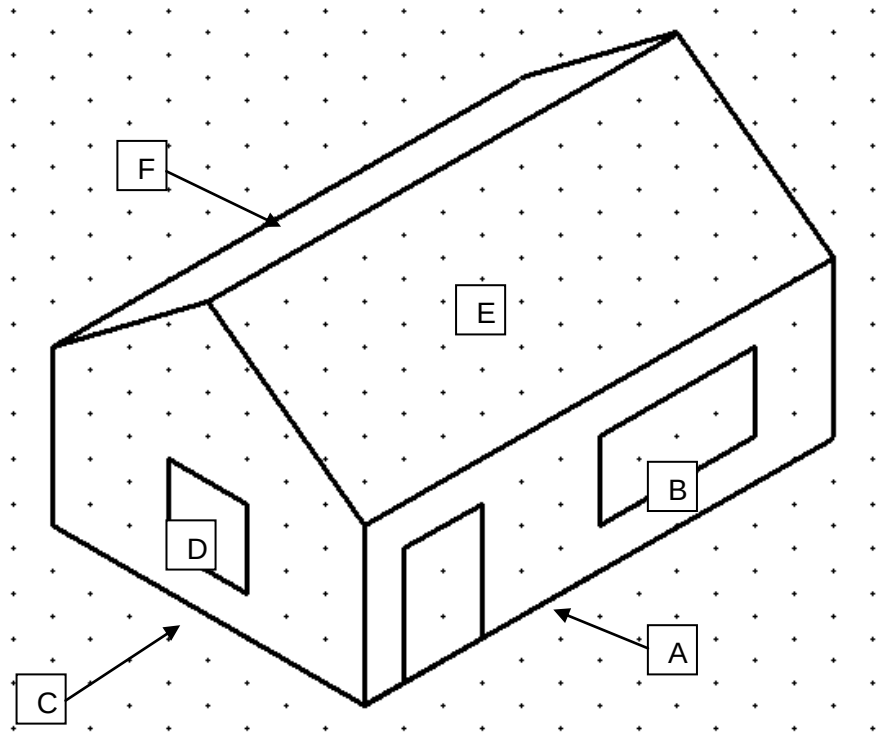
Question			Answer	Marks	Guidance
			Recycling/disposal of packaging information Opening instructions Allergy/Safety/Age related warnings Price		
	(d)		The design should not be ***offensive*** to different races/religions/genders/ethnic groups *M*ust be able to be ***understood*** by people who speak different languages.	**3**	Up to 3 marks available; An identifiable point – 1 mark Two identified points – 2 marks OR One point explained Full marks for a single supported point well explained OR Two points with some explanation on one

Question	Answer	Marks	Guidance
(e)	Notes **or** sketch(es) that show **one** method that reduces the amount of material - 1 mark eg. compressed packaging make the box smaller using one material rather than two Zip lock bag No inner/outer packaging Reduce/less ink Remove parts of the cardboard/flaps Notes **or** sketch(es) that show a second method to reduce the material – 1 mark State the materials used/needed on new design – 1 mark  **3 marks** Design shows the package is 10% smaller, the plastic wrapping is removed and the material to be used, 'cardboard' is clearly identified.	3	 **2 marks** Method to reduce clearly shown (bag) Material to be used identified (biodegradable plastic)  **1 mark** Material used is identified as 'plastic' It is not clear what the design is

Question			Answer	Marks	Guidance
	(f)		Read through candidates answer decide on the level of response, then decide whether it just meets that level or clearly meets that level. **Maximum of 2 marks for a list of separate points** Points to consider; • When manufacturing graphic products such as packaging, **excess waste** is created after the die cutting process when excess card is cut away and disposed of. • During printing, waste from **inks** needs to be **disposed** of **safely** so that the environment is not harmed – solvent waste should not be leaked into rivers and streams as this could harm fish and animals. • The waste generated during manufacture will more than likely end up in **landfill** as it will probably be contaminated and not suitable for **recycling.** • **Unethical** manufacturers may **dump their waste**; this causes harm to the atmosphere/environment. • Manufacturers have a duty to try to **reduce** their waste. • **Tessellating** nets effectively to maximise material could help to **reduce waste**. • **Vegetable/soya inks** could be used as they will cause little damage to the environment when disposed of. • Manufacturers have to **pay** to have their waste taken away; they should ensure that their waste is not just going to landfill.	**Level 3 (5 - 6 marks)** **Level 2 (3-4 marks)** **Level 1 (1 - 2 marks)** **0**	**Thorough discussion**, showing clear understanding of the issues of the waste created in the manufacture of graphic products. Can provide clear examples of issues with examples. **Specialist terms** will be **used appropriately** and **correctly.** The information will be presented in a **structured format.** The candidate will demonstrate the **accurate use** of spelling, punctuation and grammar. **Adequate discussion**, showing an understanding of the issues of waste created in the manufacture of graphic products. Can provide a reasonable discussion of the issues with some examples. There will be **some use** of **specialist terms**, although these may not always be used appropriately. The information presented will be for the most part in a **structured format.** There may be **occasional errors** in spelling, grammar and punctuation. **Basic discussion**, showing some understanding of the issues of waste created in the manufacture of graphic products. Can provide a limited discussion of some of the issues. There will be **little or no use** of **specialist terms**. Answers may be **ambiguous** or disorganised or **'list like'. Errors** of grammar, punctuation and spelling may be **intrusive.** **Response worthy of no credit**
			Total	**20**	

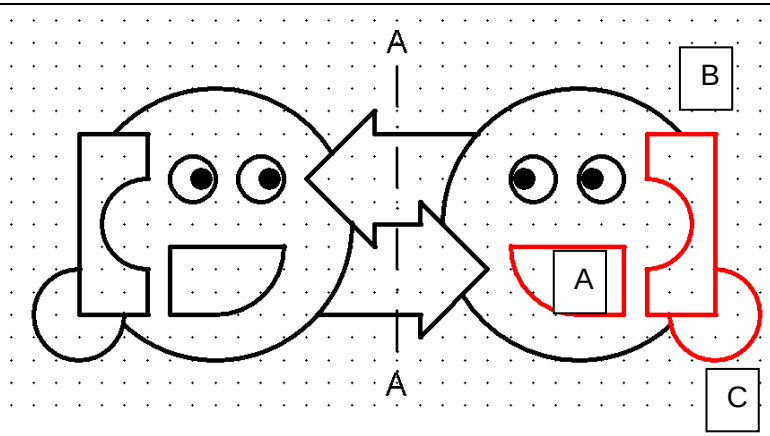
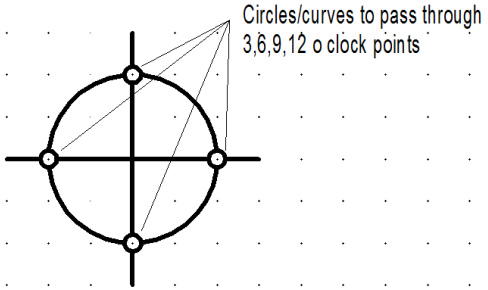
Question			Answer	Mark	Guidance
17	(a)			1 1 1 1 1 1	Fold line correctly completed – (A) Fold line correctly completed – (B) Inner sleeve correctly completed – (C) Top rectangle added correctly to candidates solution – (D) (Note could be fixed to back instead of C) BOTH Flaps added – (E) Award last mark for all of the 5 dotted/dashed lines on fold lines to candidates solution.
17	(b)		To allow the company logo to be **seen /show** the company initials/see the company initials **when the wallet is closed**	1	Accept answers which relate to the logo being seen through the window when the **wallet is closed.** Do not accept: To view the product/to tell what the product is/to see what's in the wallet
17	(c)		A4	1	This is the only correct answer
17	(d)		Phone number, website, email address, fax number, name of contact (eg manager), slogan, QR code, social network address.	1	Accept any of the answers given opposite. Do not accept: **company address** or **logo**, or vague answers such as 'something about the company', 'contact details'

17	(e)		Embossing process: The paper or card is placed between a metal die (male/raised/positive relief) and a counter die (female/indented/negative relief). Pressure is applied Formed into raised / 3D / indented surface	 **1** **1** **1**	Do not award first mark for answers which don't mention matching shaped formers.
17	(f)		Designs using slots to hold the card securely in place that would work eg.  3 marks  2 marks Designs which hold the card securely but need adhesive eg.pocket of some kind:  1mark Designs which rely on the use of adhesive to actually stick the card to the wallet, eg, blue tack, Velcro etc : Award 1 mark	**3**	Designs should show a way of temporarily fixing the card to the wallet without the use of adhesive. Eg. Slots for the card to slide in/out. 1 mark for a design that holds the card (can be slots/Velcro/blu tack/pocket/tab) 1 mark for a method that uses **no additional** materials (eg. slots/cuts) 1 mark for a design that prevents the card from moving horizontally **and** vertically Any design that would not work : Award no marks.
			Total	**15**	

Question			Answer	Mark	Guidance
18	(a)			1 1 1 1 1 1	Front wall elevation completed correctly– (A) Front window correctly added – (B) End elevation completed correctly – (C) End window correctly added – (D) Front roof slope correctly added – (E) Rear roof slope correctly added – (F) to candidates answer
18	(b)	(i)	To see what it looks like before its built, to check the design looks right, to make sure the proportions are correct/to see if changes need to be made/to see if people will like it before its made	1	Accept answers which relate to it being checked before it is built for real so that time / materials are not wasted. Do not accept answers that only relate to testing or to 'see if it works' or 'find any faults'. Answers must relate to proportions not measurements/dimensions
		(ii)	Easy to cut/shape, easy to fold, lightweight, can be drawn on / printed on easily, can be stuck together easily, more rigid than paper.	1	Do not accept answers such as cheap, strong/durable unless qualified. Do not accept answers relating to environmental / sustainability / recycling.
18	(c)		**The bungalow will be 20 times bigger than the model**	1	This is the only correct answer

Question			Answer	Marks	Guidance	
18	(d)		Read through candidates answer decide on the level of response, then decide whether it just meets that level or clearly meets that level. **Maximum of 2 marks for a list of separate points** Points to consider; • More accurate • Uses less materials such as paper • Easier to make changes and modifications • Mistakes can be rectified easily • Easier to store the design • Copies can be made easily and at less cost • Easier and quicker to share electronically • Takes up less physical space • Less prone to damage • Can be quicker (parts can be copied and pasted)		**Level 3 (5-6 marks)** **Level 2 (3-4 marks)** **Level 1 (1-2 marks)** **0**	**Thorough** explanation, showing clear understanding of the benefits of using **CAD compared to by hand**. Can provide **clear examples** of issues with examples. **Specialist terms** will be used **appropriately** and **correctly.** The information will be presented in a **structured format.** The candidate will demonstrate the **accurate** use of spelling, punctuation and grammar. **Adequate** explanation, showing an understanding of the benefits of using **CAD compared to by hand**. Can provide a **reasonable discussion** of the issues with **some examples**. There will be **some** use of **specialist** terms, although these may not always be used appropriately. The information presented will be for the **most part** in a **structured** format. There may be **occasional errors** in spelling, grammar and punctuation. **Basic** explanation, showing **some understanding** of the benefits of using **CAD compared to by hand**. Can provide a **limited discussion** of some of the issues. There will **be little or no use** of **specialist terms**. Answers may be ambiguous or disorganised or **'list like'**. Errors of grammar, punctuation and spelling may be **intrusive.** **No response worthy of credit**
				Total	**15**	

Question			Answer	Marks	Guidance
19	(a)		High Impact Polystyrene Sheet or **H**igh **I**mpact **P**oly **S**tyrene	1	These are the only correct answers. All FOUR words required for the mark.
19	(b)		Lip/side added to front edge to stop leaflets falling out Sides made taller to allow more leaflets to be put in Sharp corners could be rounded off for safety Made stronger by using thicker plastic Suction pads on bottom to reduce movement when grabbing a leaflet More attractive logo/graphics added to holder to attract more customers	2	An explained answer: 1. A problem identified (Leaflets fall out/Sharp corners could hurt someone/graphics not exciting or clear/plastic too thin to be stable) 2. A suitable solution (lip or side added/edges rounded off/better logo or information added/ thicker plastic used) Do not accept answers relating to making the holder from metal etc,.adding weight or making it more stable.

Question			Answer	Marks	Guidance
19	(c)			1 1 1	Mouth completed correctly – (A) Phone completed correctly – (B) Hand completed correctly – (C) Note circles/curves must have a smooth circumference within +/- half square tolerance 
19	(d)		<u>Marking out:</u> Marker pen, pencil, fineliner, set square, ruler, CAD program, masking tape. <u>Cutting out the net:</u> Bandsaw, scroll saw, hacksaw blade, coping saw, laser cutter, craft knife, Stanley knife, scalpel <u>Bending:</u> Strip heater, line bender, strip heat bender, heat gun, former	1 1 1	Any one of the answers shown opposite Any one of the answers shown opposite Any one of the answers shown opposite These are the only acceptable answers

Question			Answer	Marks	Guidance
19	(e)		Sketches and notes are used to show a design for a phone holder that:		
			• is made from 5mm thick foamboard	1	Award 1 mark if the thickness of the foam board is shown (sketch shows some edge thickness of foamboard or notes/label stating 5mm thickness)
			• holds a mobile phone in an upright position	1	Award 1 mark if the design can display a phone at an angle of between 45% and vertical. Award 2nd mark if the phone will not slide down / topple over
			• is made from shapes that slot together	1 1	Award 1 mark if workable design shown is fixed together using slots Award 1 mark for the words X- FONE shown on the design.
			• has surface graphics that promote the X-FONE	1	Award 1 mark if the quality of the design communication is clear and easy to understand.
			• Quality of design and communication	1	
			Total	**15**	

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

OCR Customer Contact Centre

Education and Learning
Telephone: 01223 553998
Facsimile: 01223 552627
Email: general.qualifications@ocr.org.uk

www.ocr.org.uk

For staff training purposes and as part of our quality assurance programme your call may be recorded or monitored

Oxford Cambridge and RSA Examinations
is a Company Limited by Guarantee
Registered in England
Registered Office; 1 Hills Road, Cambridge, CB1 2EU
Registered Company Number: 3484466
OCR is an exempt Charity

OCR (Oxford Cambridge and RSA Examinations)
Head office
Telephone: 01223 552552
Facsimile: 01223 552553

© OCR 2014

PART OF THE CAMBRIDGE ASSESSMENT GROUP

LLOYD'S REGISTER QUALITY ASSURANCE · ISO9001 · UKAS MANAGEMENT SYSTEMS 001