

# **Design and Technology (Food Technology)**

General Certificate of Secondary Education

Unit **A522**: Food Technology: Sustainable Design

## **Mark Scheme for January 2013**

---

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 2013

Question		Answer	Marks	Guidance
1		B	1	Barcode
2		A	1	The stages of developing a food product from concept to disposal
3		C	1	To reduce the amount of plastic packaging going to landfill sites
4		C	1	24 hours
5		A	1	Amount of carbon emissions used in the growing, processing and distribution of food
6		<ul style="list-style-type: none"> <li>• Bottle bank</li> <li>• Use glass kerbside collection</li> <li>• Recycle glass</li> </ul>	1	1 mark Do not accept recycle on its own / Tidyman / Keep Britain Tidy

Question	Answer	Marks	Guidance
7	<ul style="list-style-type: none"> <li>• Baked beans</li> <li>• Baked products / biscuits / cakes / cookies / cereal bars / puddings</li> <li>• Chocolate / sweets</li> <li>• Cocoa / hot chocolate / drinking chocolate</li> <li>• Coffee</li> <li>• Fruits / dried fruits /or one appropriately named fruit fresh or dried)</li> <li>• Fruit juice</li> <li>• Herbs / spices – accept named product</li> <li>• Honey</li> <li>• Ice cream</li> <li>• Jams and spreads</li> <li>• Muesli</li> <li>• Nuts / oils / seeds</li> <li>• Olives / olive oil</li> <li>• Quinoa</li> <li>• Rice</li> <li>• Sugar</li> <li>• Syrup / treacle</li> <li>• Tea</li> <li>• Vegetables or one appropriately named vegetable.</li> </ul>	1	1 mark
8	<ul style="list-style-type: none"> <li>• Methane</li> </ul>	1	1 mark

Question	Answer	Marks	Guidance
9	<ul style="list-style-type: none"> <li>• Broccoli</li> <li>• Cabbage</li> <li>• Carrots</li> <li>• Cauliflower</li> <li>• Celeriac</li> <li>• Celery</li> <li>• Jerusalem artichoke</li> <li>• Kale</li> <li>• Leeks</li> <li>• Onions</li> <li>• Parsnip</li> <li>• Potatoes</li> <li>• Salsify,</li> <li>• Spring greens</li> <li>• Sprouts</li> <li>• Swede</li> <li>• Swiss chard</li> <li>• Turnip.</li> <li>• Watercress</li> </ul>	1	1 mark
10	<ul style="list-style-type: none"> <li>• Heart disease</li> <li>• High blood pressure</li> <li>• Link to diabetes</li> <li>• Obesity/over weight</li> <li>• Reduce calorie intake</li> <li>• Reference to increased blood sugar levels</li> <li>• Stored as fat if not used for energy</li> <li>• Tooth decay/dental caries</li> </ul>	1	1 mark Do not accept teeth rotting/going bad
11	False	1	1 mark
12	True	1	1 mark
13	False	1	1 mark
14	True	1	1 mark
15	True	1	1 mark

Question		Answer	Marks	Guidance
16	(a)	<ul style="list-style-type: none"> <li>• Consumer has a better 'feeling' about the brand</li> <li>• Consumers concerned about the future of fish stocks</li> <li>• Consumers make an environmental choice when purchasing fish</li> <li>• Encourages other fisheries to change their practices</li> <li>• Ensures that fishing has a minimal effect on the <b>marine</b> environment</li> <li>• Helps to protect fish stocks / prevents them running out / prevents over fishing</li> <li>• No illegally caught fish / from a reliable source</li> <li>• Rewarding a good business</li> <li>• Sets standards for sustainable fishing</li> <li>• Traceability of the fish / know where it has come from.</li> </ul>	2	2x1 mark
	(b)	<ul style="list-style-type: none"> <li>• Two portions.</li> </ul>	1	1 mark
	(c)	<ul style="list-style-type: none"> <li>• Calcium</li> <li>• Fat</li> <li>• Fat soluble vitamins – A/D</li> <li>• Fluoride</li> <li>• Iodine</li> <li>• Omega 3</li> <li>• Protein</li> <li>• Sodium</li> </ul>	1	1 mark
	(d) (i)	<ul style="list-style-type: none"> <li>• <b>Appeal to children</b> – interesting shape – linked to fish / reference to colour / garnish / texture / flavour/ size</li> <li>• <b>Include a casing</b> - egg and bread crumbs/named pastry / pancake / tortilla wrap /bread / batter / oats</li> <li>• <b>Use a named fish</b> – names a suitable fish</li> <li>• <b>Include a vegetable</b> – must name one vegetable.</li> </ul>	4	4x1 mark Make sure same point is not credited twice. Casing means to have a coating of some kind all the way round – therefore a fish pie with a potato topping would not gain a mark
	(ii)	<ul style="list-style-type: none"> <li>• Appropriate method linked to the design of the product e.g baked / grilled / fried / microwave</li> </ul>	1	1 mark Accept answer relevant to the product Do not accept microwave for a pastry/bread product

Question		Answer	Marks	Guidance
	(iii)	<ul style="list-style-type: none"> <li>• <b>Fridge</b> - 0 – 8°C / growth of micro organisms are slowed down / link to being a high risk food</li> <li>• <b>Freezer</b> -18°C / micro organisms are dormant / stops bacteria growing /allows you to store it until it is required /consumed / longer</li> <li>• <b>Wrapped / covered /sealed / in a box</b>– to prevent drying out / passing smell onto other foods / cross contamination.</li> </ul>	2	2 x 1 mark Accept either two separate points or one point with an explanation
	(e)	<ul style="list-style-type: none"> <li>• Avoid cross contamination</li> <li>• Check use by date</li> <li>• Colour coded / separate equipment / board</li> <li>• Cook thoroughly / use a probe to check the temperature</li> <li>• Once cooked serve immediately</li> <li>• Use a clean knife / chopping board / work surfaces for preparing</li> <li>• Wash hands before preparing / after handling</li> <li>• Wear protective clothing / hair tied back</li> </ul>	4	4 x 1 mark Do not accept reference to storage
17	(a)	<p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>• Can be cheaper/saves money</li> <li>• Encourages use of seasonal British foods</li> <li>• Fresher – ref to nutritional content</li> <li>• Reduced food miles/carbon footprint/pollution/energy required to transport</li> <li>• Supporting local economy/farmers/farm shops</li> <li>• Supporting use of traditional foods to UK</li> <li>• Tractor mark reference to better welfare standards.</li> <li>• Local/regional varieties of products available, often not seen in supermarkets</li> <li>• Some people consider they have a better flavour / texture</li> </ul> <p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>• Cannot buy all the weeks shopping in one place</li> </ul>	6	6 marks Must refer to both advantages and disadvantages to be awarded full marks (6 marks) <b>Level 1 (0–2 marks)</b> Basic discussion, if candidates only write in point form a maximum of 2 marks should be awarded, showing some understanding of the advantages and disadvantages of purchasing local/UK products. There will be little or no use of specialist terms. Answers may be ambiguous or disorganized. Errors of grammar, punctuation and spelling <b>Level 2 (3–4 marks)</b> Adequate discussion, showing an understanding of the advantages and disadvantages of purchasing local/UK products. There will be some use of specialist terms, although these may not always be used appropriately. The information will be presented for the most part in a structured

Question		Answer	Marks	Guidance
		<ul style="list-style-type: none"> <li>Limited variety</li> <li>May be more expensive to buy local foods</li> <li>May increase personal use of fuel to shop at different places.</li> <li>Only available when in season</li> <li>Outlets selling local produce not accessible to all</li> <li>Cannot support Fairtrade initiatives</li> </ul>		<p>format. There may be occasional errors in spelling, grammar and punctuation</p> <p><b>Level 3 (5–6 marks)</b> Thorough discussion, showing a clear understanding of the advantages and disadvantages of purchasing local/UK products. Specialist terms will be used appropriately and correctly. The information will be presented in a structured format. The candidate can demonstrate the accurate use of spelling, punctuation and grammar.</p>
	(b) (i)	<ul style="list-style-type: none"> <li>Biodegradable</li> <li>Can be laminated</li> <li>Can be made from recycled material</li> <li>Can come from sustainable source/managed forests</li> <li>Cheap / cheap to produce</li> <li>Compostable / rots down</li> <li>Easy to print on</li> <li>Lightweight</li> <li>Recyclable</li> <li>Variety of shapes/shaped easily</li> <li>Variety of sizes</li> <li>Variety of thicknesses/strength.</li> </ul>	2	<p>2 x 1 mark</p> <p>Do not accept environmentally friendly unless qualified</p>
	(ii)	<ul style="list-style-type: none"> <li>Biodegradable</li> <li>Can be composted / rots down</li> <li>Can be produced in the UK as potatoes are grown in this country</li> <li>Can see the products</li> <li>Comes from a sustainable source</li> <li>Easy to open</li> <li>Lightweight</li> <li>Not harmful to human, animal or marine life even if eaten by mistake.</li> </ul>	2	<p>2 x 1 mark</p> <p><b>Don't accept same answers as in (i)</b> <b>Do not accept environmentally friendly / eco friendly</b></p>

Question	Answer	Marks	Guidance
(c)	<ul style="list-style-type: none"> <li>• Use of recycling symbols / symbols / picture / image/ instructions / diagram / label / logo</li> <li>• Mobius loop.</li> <li>• Using Keep Britain Tidy symbols/ Litterman symbols</li> </ul>	1	1 x1 mark Accept named recycling symbol
(d)	<p><b>Use by date</b></p> <ul style="list-style-type: none"> <li>• <b>Products with a short shelf life / protein foods -</b> high risk – ref to products deteriorating quickly / spoilage / not having been preserved / perishable / no longer safe to eat</li> <li>• <b>Know when to eat / be eaten by-</b> protects the consumer – ref to possibilities of food poisoning/illness / health and safety reasons</li> <li>• <b>Products require special storage</b> – need temperature control to slow down growth of bacteria/need to be stored in a fridge/below 5°C.</li> <li>• <b>It is illegal to sell food that has gone past a use by date</b> – shops can be prosecuted if they do so</li> </ul> <p><b>Best before date</b></p> <ul style="list-style-type: none"> <li>• <b>Used on products with a long shelf life =</b> low risk foods – ref to method of preservation/addition of preservatives/relevant example of food given</li> <li>• <b>After this date will start to deteriorate</b> – may become unsafe to eat</li> <li>• <b>Will be still edible</b> - colour, texture, flavour may deteriorate / change / reference to sensory qualities</li> </ul>	4	4 x1 mark  Maximum two marks for each type of date marking  Either two separate points or 1 explained point – 2 marks Do not accept references to 'go bad ' or 'going off'
		15	

Question		Answer	Marks	Guidance
18	(a)	<ul style="list-style-type: none"> <li>• Add extra vegetables</li> <li>• Change beef to chicken/turkey or Quorn</li> <li>• Change butter to margarine or low fat / reduced fat spread</li> <li>• Reduce amount of butter</li> <li>• Reduce the amount of beef</li> <li>• Reduce the amount of beef dripping</li> <li>• Reduce the amount of cheese</li> <li>• Reduce the amount of double cream</li> <li>• Remove beef dripping</li> <li>• Remove butter</li> <li>• Remove cheese</li> <li>• Remove double cream</li> <li>• Use crème fraiche instead of double cream</li> <li>• Use lean beef</li> <li>• Use milk instead of double cream.</li> <li>• Use reduced fat/ lite / half fat cheese</li> <li>• Use single cream / Elmlea instead of double cream</li> <li>• Use yoghurt instead of double cream</li> </ul>	4	4 x 1 mark
	(b)	<ul style="list-style-type: none"> <li>• Angina</li> <li>• Blood cholesterol / cholesterol levels</li> <li>• Breathlessness</li> <li>• Cancer</li> <li>• CHD / heart disease.</li> <li>• Clog / block / narrow arteries</li> <li>• Diabetes</li> <li>• High blood pressure</li> <li>• Increase in obesity / overweight</li> <li>• Osteoarthritis</li> <li>• Strokes</li> <li>• Varicose veins</li> </ul>	2	2 x 1 mark Do not accept reference to heart attacks / heart problems

Question		Answer	Marks	Guidance
	(c)	<ul style="list-style-type: none"> <li>• Source ingredients near to where the product is made</li> <li>• Use British / English beef</li> <li>• Use English / British cheddar cheese</li> <li>• Use British / English potatoes.</li> <li>• Use British /English butter</li> </ul>	2	2 x 1 mark Credit reference made to any country in Britain / UK
	(d)	<ul style="list-style-type: none"> <li>• Reference to replacing the meat with pulses, beans, peas, lentils</li> <li>• Reference to replacing the meat with Quorn,</li> <li>• Reference to replacing the meat with Soya / tofu</li> <li>• Reference to using vegetables instead of meat</li> <li>• Remove beef dripping / use vegetable fat</li> <li>• Remove beefstock / use vegetable stock</li> <li>• Remove the meat</li> <li>• Remove Worcester sauce</li> <li>• Remove dairy products</li> </ul>	3	3 x1 mark (Remove dairy products put in to cover candidates who consider vegans)
	(e)	<ul style="list-style-type: none"> <li>• <b>Affects the final cost of the food product</b> – consumers make choices based on price / foods cost more / more used higher cost of the food / affects profits / use less energy and the price will be less to the customer/may mean more sales.</li> <li>• <b>Carbon footprint / Eco footprint</b>– linked to consumer choice</li> <li>• <b>CO<sub>2</sub> emissions</b> - global warming / which can damage the environment / reference to ozone layer / pollution</li> <li>• <b>Discussion of food miles</b> – transport / CO<sub>2</sub> production</li> <li>• <b>If using non renewable energy</b> – this will eventually run out / need to consider alternatives.</li> </ul>	4	4 x 1 mark 2 marks for statement 2 marks for explanation
			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](mailto:general.qualifications@ocr.org.uk)

**[www.ocr.org.uk](http://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 2013

