

Home Economics (Food and Nutrition)

General Certificate of Secondary Education **GCSE J431**

Mark Scheme for the Unit

January 2010

J431/MS/R/10J

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Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

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Any enquiries about publications should be addressed to:

OCR Publications
PO Box 5050
Annesley
NOTTINGHAM
NG15 0DL

Telephone: 0870 770 6622
Facsimile: 01223 552610
E-mail: publications@ocr.org.uk

CONTENTS

**General Certificate of Secondary Education
Home Economics (Food and Nutrition) (J431)**

MARK SCHEME FOR THE UNIT

Unit/Content	Page
B003 Principles of food nutrition	1
Grade Thresholds	21

B003 Principles of food nutrition

Question Number	Answer	Marks		Additional Guidance
1 (a) (i)	<p>Identify FOUR convenience foods from the diagram. One mark for each correct answer, FOUR required.</p> <p>Cook chill lasagne Can of chopped tomatoes Frozen pastry Instant mashed potato Frozen cauliflower Pasta</p>	[4x1]	[4]	
1 (a) (ii)	<p>Give TWO reasons why convenience foods are popular One mark for each correct answer, TWO required</p> <p>Can be cheaper Lack of time for cooking of food/time saving Lack of time for preparation of food/ready to eat instantly People working long hours Lack of skill for cooking/preparing foods/easy to cook Lack of space (kitchen) for storage of fresh foods. Effects of advertising Can be stored for longer periods</p> <p>Do not accept “convenient”.</p>	[2x1]	[2]	

Question Number	Answer	Marks		Additional Guidance
1 (a) (iii)	<p>Give TWO disadvantages of convenience foods. One mark for each correct answer, TWO required.</p> <p>More expensive More fat/sugar/energy/salt Not within healthy eating guidelines/harder to consume a balanced diet Less fibre/vitamins/minerals/less nutritive value Not fresh Contains more additives/preservatives Not as much flavour/taste as home-made/prepared More packaging – environmental issues Lack of texture/processed texture/un-natural texture.</p> <p>Do not accept “Not as healthy”.</p>	[2x1]	[2]	

Question Number	Answer	Marks		Additional Guidance
1 (b) (i)	<p>Give THREE reasons for the advice of reducing fat in the diet. One mark for each correct answer, THREE required.</p> <p>Fat has the highest energy density Too much energy/fat – leading to obesity & overweight Reduce risk of diabetes Reduce risk of CHD/heart problems/heart attacks Reduce risk of clogged arteries Reduce cholesterol To achieve a balanced diet</p> <p>Do not accept healthy /lowers blood pressure</p>	[3x1]	[3]	
1 (b) (ii)	<p>Describe what advice you could give someone trying to reduce their sugar intake. This question is marked according to the quality of response.</p> <p>High level response 5-6 marks Structured sentences, no bullet points Specific terms used appropriately with some reasoning given for suggestions 5 or more ideas for reducing sugar intake.</p> <p>Mid level response 3-4 marks Some structured sentences, some listing/bullet points Attempt at explanation/reasoning 3-4 ideas for reducing sugar intake.</p> <p>Low level response 0-2 marks Bullet point answers Repetition Limited facts No explanation/reasoning to why 1-2 ideas for reducing sugar intake.</p>			



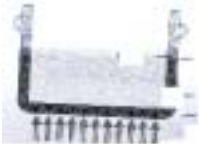
Question Number	Answer	Marks		Additional Guidance
1 (b) (ii) continued	<ul style="list-style-type: none"> • Avoid adding sugar to drinks such as tea or coffee • Choose no added sugar drinks • Use sweetener instead • Include more naturally sweet foods in meals (ie) fruit without adding sugar • Use reduced sugar products such as baked beans • Buy tinned fruit or products in natural juices rather than sugar or syrup • Restrict intake of sweets/candy and confectionary or have them less regularly/eat fruit or vegetables to prevent snacking on sugary foods • Read labels and be aware of all the names/types of sugar • Consume less processed products • Reduce (by up to half) the sugar used in recipes (ie) cakes • Choose wholegrain cereals rather than sugar coated ones <p>Do not accept eat less sugar or reduce sugar</p>	[6x1]	[6]	
1 (c) (i)	<p>What is meant by the term “hidden sugar”? One mark for each correct term.</p> <p>Sugar(s) you can not see in a food Food not associated with a high sugar content.</p>	[1x1]	[1]	
1 (c) (ii)	<p>Identify two foods containing hidden sugar. One mark for each correct answer, maximum of TWO.</p> <p>Tomato ketchup/sauce Named cereal e.g Cocoa Pops Baked beans Soup Canned spaghetti Cereal bars Processed foods/fast foods Yogurt</p>	[2x1]	[2]	
Question 1 Total			[20]	

Question Number	Answer	Marks		Additional Guidance
2 (a) (i)	<p>Where are the wholewheat pasta spirals produced? One mark for the correct answer, maximum of ONE.</p> <p>Italy.</p>	[1x1]	[1]	
2 (a) (ii)	<p>How much fibre is found in 75g wholewheat pasta spirals when cooked? One mark for the correct answer, maximum of ONE.</p> <p>6.8g or 6.8.</p>	[1x1]	[1]	
2 (a) (iii)	<p>How much protein is found in 100g dry wholewheat pasta spirals? One mark for the correct answer, maximum of ONE.</p> <p>12.5g or 12.5.</p>	[1x1]	[1]	
2 (a) (iv)	<p>How should the wholewheat pasta spirals be stored? One mark for the correct answer, maximum of ONE.</p> <p>In a cool dry place.</p>	[1x1]	[1]	
2 (a) (v)	<p>What does the V symbol mean on the packaging? One mark for the correct answer, maximum of ONE.</p> <p>Suitable for vegetarians Vegetarians can eat it Vegetarian friendly</p> <p>Do not accept “vegetarian”.</p>	[1x1]	[1]	

Question Number	Answer	Marks		Additional Guidance
2 (b)	<p>Describe TWO changes to pasta when cooked. One mark for description one mark for explanation. TWO required from each.</p> <ul style="list-style-type: none"> • Softens -- Starch breaks down • Expands--Absorbs water • Becomes edible/easier to access nutrients--Starch breaks down allowing access to nutrients • Lighter/change in colour (wholemeal pasta)---Fibre breaks down, becoming more accessible and therefore changes colour 	[2x2]	[4]	Soften and expand descriptions – the explanations for these 2 descriptions are interchangeable
2 (c)	<p>Give THREE reasons why pasta has become popular. One mark for each correct answer, maximum of THREE.</p> <p>Cheap Large variety available Quick to cook Easy to store/lasts a long time/long shelf life Convenient/easy to cook with/requires little cooking skills Versatile to use Increasing interest in Italian foods – predominant ingredient in Italian dishes Slow release energy/good source of carbohydrate</p>	[3x1]	[3]	

Question Number	Answer	Marks		Additional Guidance
2 (d)	<p>Name THREE carbohydrate staple foods other than pasta. One mark for each correct answer, THREE required.</p> <p>Rice or any named rice MAXIMUM of ONE Potatoes/sweet potatoes Bread or any named bread for a MAXIMUM of ONE Yam Sago Tapioca Corn Oats Barley Rye Wheat Noodles Couscous</p>	[3x1]	[3]	
Question 2 Total			[15]	

Question Number	Answer	Marks		Additional Guidance
3 (a) (i)	<p>Give THREE reasons why food is cooked. One mark for each correct answer, maximum of THREE marks.</p> <p>Makes the food edible/easier to eat Softens the food Kills bacteria/makes safe to eat Improves colour/appeal/attractiveness/appetising Improves flavour/taste/texture/pleasant to eat Improves digestion/absorption/utilisation of nutrients Makes food last longer/improved shelf life Greater variety in the diet Some things require cooking in order to make them what they are (ie) cakes/bread For warmth on a cold day (ie) soup</p>	[3x1]	[3]	
3 (a) (ii)	<p>Give TWO advantages of micro-waving vegetables. One mark for each correct answer, maximum of TWO.</p> <p>Quicker than other methods Reduces vitamin and mineral losses Reduces cost/less energy used Saves washing up/can serve in same dish Less likely to boil dry/less skill required No steamy kitchen Retains the flavour</p> <p>Do not accept “healthier”. Do not accept loss of nutrients on its own Do not accept easier or convenient</p>	[2x1]	[2]	

Question Number	Answer	Marks		Additional Guidance
3 (b) (i)	<p>Label the diagrams below showing the different types of heat transfer. Radiation has been labelled for you.</p> <div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; align-items: center; margin-bottom: 20px;">  <div style="margin-left: 20px;">Radiation</div> </div> <div style="display: flex; align-items: center; margin-bottom: 20px;">  <div style="margin-left: 20px;">Convection</div> </div> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;">Conduction</div> </div> </div>	[2x1]	[2]	

Question Number	Answer	Marks		Additional Guidance
3 (b) (ii)	<p>Explain TWO different methods of heat transfer used when cooking food. TWO points required for each method, TWO different methods required.</p>			
3 (b) (ii) continued	<p>Conduction Heat is conducted from one molecule to another in solid or liquids. Heat is conducted round a metal pan and through a joint of meat as it roasts. Wood and plastic are poor conductors whereas metal is a good conductor.</p> <p>Convection Heat travels round liquids and air by convection current. Convection currents heat ovens. Hot air rises and cold air falls, which is why a traditional oven is hotter at the top and a fan-assisted oven, has a constant heat throughout. Boiling food in a saucepan and baking in the oven are examples of convection.</p> <p>Radiation Heat travels in waves or rays that heat up the food. Toasted or grilled food is cooked by radiation with the direct rays heating up the food.</p> <p>Some foods are cooked by a combination of methods (ie) a baked potato is cooked by convection with the heat around the oven and by conduction through the potato. Therefore candidates can use the same foods as examples as long as the method is explained correctly.</p> <p>Examples are not requested but candidates may feel that using examples makes it easier to explain. Therefore generic responses such as “grilling” or a more specific “grilling of bacon” will be accepted.</p>	[2x2]	[4]	

Question Number	Answer	Marks		Additional Guidance
3 (c)	<p>Jam making is one method of home preservation. Complete the table below with TWO other methods of home preservation. Give ONE different example of a food suitable for each method. One mark for each correct answer, TWO from each required.</p> <p>Preservation method and Food to be preserved</p> <p>Freezing Any vegetable Fruits Meats Fish Portions of home cooked meals</p> <p>Pickling/vinegar Eggs Cabbage Onions Beetroot Cucumbers/Gherkins Carrot Cauliflower Aubergine Rollmops Fish Okra Asparagus Beef Pork Ham Capers Olives</p>	[4x1]	(4)	

Question Number	Answer	Marks		Additional Guidance
	Bottling Fruit for juices Vegetables for juices Grapes for wine Drying Herbs or named herb Spice or named spice			
	Question 3 Total		[15]	

Question Number	Answer	Marks		Additional Guidance															
4 (a) (i)	<p>Vitamins and minerals are essential for good health. Complete the table below:</p> <p>One mark for each correct answer, maximum of FIVE.</p> <table border="1" data-bbox="383 395 1321 1316"> <thead> <tr> <th data-bbox="383 395 577 435">Nutrient</th> <th data-bbox="577 395 1003 435">Good food source</th> <th data-bbox="1003 395 1321 435">Deficiency disease</th> </tr> </thead> <tbody> <tr> <td data-bbox="383 467 577 507">Calcium</td> <td data-bbox="577 467 1003 507">Milk</td> <td data-bbox="1003 467 1321 571">Rickets Osteoporosis Soft bones</td> </tr> <tr> <td data-bbox="383 643 577 683">Iron</td> <td data-bbox="577 643 1003 746">Red meat, Fish, Liver Dark green leafy vegetables Nuts, Dried fruits</td> <td data-bbox="1003 643 1321 746">Anaemia</td> </tr> <tr> <td data-bbox="383 810 577 850">B Vitamins</td> <td data-bbox="577 810 1003 1010">Cereals Beans Seeds Nuts Soya products Bread</td> <td data-bbox="1003 810 1321 1010">Beriberi</td> </tr> <tr> <td data-bbox="383 1153 577 1193">Vitamin A</td> <td data-bbox="577 1153 1003 1313">Eggs Liver Fish/fish oils Red or yellow fruits/ vegetables Fat/oils</td> <td data-bbox="1003 1153 1321 1313">Night blindness Keratomalacia Xerophthalmia Bitot's spots Eyesight problems</td> </tr> </tbody> </table>	Nutrient	Good food source	Deficiency disease	Calcium	Milk	Rickets Osteoporosis Soft bones	Iron	Red meat, Fish, Liver Dark green leafy vegetables Nuts, Dried fruits	Anaemia	B Vitamins	Cereals Beans Seeds Nuts Soya products Bread	Beriberi	Vitamin A	Eggs Liver Fish/fish oils Red or yellow fruits/ vegetables Fat/oils	Night blindness Keratomalacia Xerophthalmia Bitot's spots Eyesight problems	[5x1]	[5]	
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Question Number	Answer	Marks		Additional Guidance
4 (a) (ii)	<p>Explain why a pregnant woman needs an increased intake of folic acid. One mark for each correct answer, maximum of TWO required.</p> <p>Reduces risk of neural tube defect in baby Part of the spine or nervous system formation To normalise brain function.</p> <p>Do not accept “for normal growth”.</p>	[2x1]	[2]	

Question Number	Answer	Marks		Additional Guidance
4 (b)	<p>Mid to high level response 7-8 marks Structured sentences Use of explanation and reasoning Virtually balanced discussion General terms used and attempt at specialist terms 3-4 ideas and or reasons.</p> <p>Mid to low level response 4-6 marks Some structured sentences, some listing/bullet points Attempt at explanation/reasoning Both areas covered, one more heavily than the other 2-3 ideas and or reasons</p> <p>Low level response 0-3 marks Bullet point answers Repetition Limited facts No explanation/reasoning to why One sided discussion 1-2 ideas or reasons</p>			

Question Number	Answer	Marks		Additional Guidance
4 (b) continued	<p>Specific information that may be covered by the candidate:</p> <p>Ideas and reasons</p> <ul style="list-style-type: none"> • Planning spending/creating a budget-Know there are enough foods for the week. Maximise nutrient intake for minimum cost • Taking a shopping list- Only get what is planned, saves money. Allows people to plan to get a variety of nutrients • Plan meals -No wasted money • Buy in bulk (go shopping with friends) -Cheaper in the long run. Can spread the cost. Make the most of special offers/money saving • Store products correctly-Products keep longer so less waste • Make use of the home freezer-Can take advantage of offers. Cooking in bulk to save time & money/freezing leftovers • One pot meals/slow cookers/one heat source- Limited skill & time but nutritious. Saves money on utilities • Buy tinned/frozen/local/pick your own foods-Cheaper but can be as nutritious • Buy store own brands/compare prices-Cheaper but can be as nutritious/value for money • Shop at stores which offer products at a cheaper price/ research prices-Get the best deals, value for money • Buy in season fruits and vegetables-Often cheaper and more nutritious 	[8]	[8]	

	<ul style="list-style-type: none">• Ensure a variety of foods is bought/eaten-Maximum nutrition intake• Use all oven space -To save money on utilities• Make your own dishes rather than buying pre-prepared• Check best before date- longer time to use/ less waste			
		Question 4 Total	[15]	

Question Number	Answer	Marks		Additional Guidance
5	<p>Everyone requires different amounts of energy.</p> <ul style="list-style-type: none"> • Describe the factors that influence an individual's energy requirements • Discuss the effects of an energy imbalance. <p>This question is marked according to the quality of response.</p> <p>A high level response 12-15 marks The candidates present a well-balanced answer covering equally both areas and linking directly to the questions. Good reasoning for answers and ideas. A whole range of specialist terms are used with precision. The candidate can demonstrate the accurate use of spelling, punctuation and grammar. The response will be well presented and in structured sentences throughout.</p> <p>A mid to high level response 9-12 marks The format will be predominately structured sentences, giving equal coverage to both areas or mainly presenting a balanced discussion. Specialist terms will be used accurately. The candidate will offer some justification and reasoning for answers given. Some spelling, punctuation and grammar errors.</p> <p>A mid to low level response 5-8 marks The answer will be presented in a mixture of bullet points/list and structured sentences. The candidate will have made a limited attempt to cover the different factors affecting individual's energy balance and apply this to the consequences of an imbalance of energy intake. General terms will be used with some spelling, punctuation and grammar errors.</p>			

Question Number	Answer	Marks		Additional Guidance
5 continued	<p>A low level response 0-4 marks</p> <p>The candidate presents a one sided answer, looking at either the factors affecting energy needs or the consequences of an energy imbalance. The candidate presents the information in a bullet pointed or listed format throughout the answer. Basic information is offered to support statements although facts may not always relate to the question. Errors in spelling, punctuation and grammar.</p> <p>Subject specific material that the candidate may cover:</p> <p>Factors:</p> <p>Age – Different needs at different stages of life. Can also link to BMR Gender – Males have a higher energy need than females Occupation – Manual labour or physical activity at work increases needs Exercise – More exercise generally requires more energy intake Illness – Energy is needed for growth, repair, fighting infections Pregnancy – Increased need as providing for a growing foetus Lactation – Providing milk for the baby and may be more active</p> <p>Greater weight or muscle mass – a heavier person requires more energy for maintaining their mass. Muscle uses more energy per kilogram than fat tissue.</p> <p>BMR – This is the resting rate of energy usage before activity levels are applied. Higher BMR has a higher need for energy</p> <p>Reference to where we get our energy from – better to have more from carbohydrates & protein than fat. This mix can change for certain sports/exercise.</p>			

Question Number	Answer	Marks		Additional Guidance
5 continued	<p>Energy imbalance:</p> <p><i>Consuming too much energy can lead to:</i> Increased risk of overweight/obesity Increased risk of coronary heart disease/heart problems Increased risk of diabetes Increased risk of some cancers Possibility of financial problems (due to eating a larger amount or the high cost of foods) Reduced/low self-esteem Lack of energy to do things/sluggish/poor concentration/motivation Lack of specific nutrients may lead to the onset of deficiencies such as rickets Hard(er) to lose weight after pregnancy Shorter life span if over weight or obese.</p> <p><i>Consuming too little energy can lead to:</i> Risk of losing weight Risk of becoming anorexic Reduction in energy levels/increased tiredness/reduced productivity/do not enough energy to do the things they need to do Risk of stopping or reducing milk production (harm to baby-reduction of nutrients/anti-bodies) if lactating Risk of low weight baby if pregnant Increased risk of infection Not receiving the correct nutrients – risk of deficiencies such as anaemia Periods stops Reduction in fertility Low self-esteem (if very thin). Growth implications for children/do not grow or develop properly</p>	[15]	[15]	
	Question 5 Total		[15]	

Grade Thresholds

General Certificate of Secondary Education
Home Economics (Food and Nutrition) (J431)
January 2010 Examination Series

Unit Threshold Marks

Unit	Max Mark	A*	A	B	C	D	E	F	G
B003	80	72	64	56	48	40	32	24	16
UMS	80	72	64	56	48	40	32	24	16

Overall

	A*	A	B	C	D	E	F	G
Percentage in Grade	0.0	0.0	3.7	7.41	11.1	22.2	40.7	7.41
Cumulative Percentage in Grade	0.0	0.0	3.7	11.1	22.2	44.4	85.2	92.6

The total entry for the examination was 30
Statistics are correct at the time of publication.

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

OCR Customer Contact Centre

14 – 19 Qualifications (General)

Telephone: 01223 553998

Facsimile: 01223 552627

Email: general.qualifications@ocr.org.uk

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Telephone: 01223 552552
Facsimile: 01223 552553