

## **General Certificate of Education**

# **Design and Technology: Food Technology 1540**

*FOOD1*

## **Mark Scheme**

*2009 examination - January series*

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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- 1**                    **Name two food sources of high biological value (HBV) protein.**
- Meat, fish, eggs, cheese, soya, nuts and pulses
- (2 marks)**
- 2**                    **Name two fat soluble vitamins.**
- A, D, E, K
- (2 marks)**
- 3**                    **Explain the difference between soluble and non soluble Non Starch Polysaccharides.**
- Insoluble absorbs water and increases bulk, soluble slows down digestion, reduces LDL cholesterol and controls blood sugar.
- 1 mark for simple or partially correct answer.  
2 marks for a full and correct answer.
- (2 marks)**
- 4**                    **What are the effects of heat/cooking on water soluble vitamins?**
- Oxidation, leaching
- (2 marks)**
- 5**                    **Explain one difference between fats and oils.**
- Solid / liquid at room temperature; saturated and unsaturated.
- (2 marks)**
- 6**                    **What units are used to measure energy?**
- Kilojoules / kilocalories
- (2 marks)**
- 7**                    **Explain two factors affecting Basal Metabolic Rate.**
- Age, thyroid gland, body size, activity
- 1 mark for a simple explanation or an unexplained list of points, some of which may not be correct.  
2 marks for a thorough explanation with appropriate examples.  
Two marks for each factor.
- (4 marks)**

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**8 Describe two functions of calcium in the body.**

Strengthens bones, teeth and nails, blood clotting, functioning of muscles and nerves.

1 mark for a simple explanation or an unexplained list of points, some of which may not be correct.

2 marks for a thorough explanation with appropriate examples.

Two marks for each function.

**(4 marks)**

**9 (a) Discuss the influence of social and cultural factors on food product development.**

Responses should include a discussion based upon specific examples of the influence of social and cultural factors affecting food production, such as:

- Family patterns
- Family life cycle
- Changes in family composition
- Different cultures
- Economics
- Work and non-work patterns
- Increased leisure time
- Foreign travel
- Health related issues
- Social ethics
- Faster methods of cooking
- Immigration

Mark Range 8-10: responses will include a full and accurate discussion, with specific points raised and justified. Candidates will consider both social and cultural factors.

Mark Range 4-7: responses will cover either both social and cultural factors in limited detail or one of these areas in depth. A number of points will be either raised superficially or few points will be raised but will be justified fully.

Mark Range 1-3: responses will be superficial with little or no justified points raised. There may be some inaccuracies in the answer.

Mark Range 0: no points worthy of credit.

**(10 marks)**

**9 (b) Explain why cheese would be a suitable ingredient when producing food products for a school canteen.**

Cheese would be a suitable ingredient for a range of food products for a school canteen, such as:

- Suitable for lacto-vegetarians
- It is reasonably priced
- Easy to store, prepare and cook, little waste, different shapes and forms, versatile e.g. grated, sliced, cubed
- Source of HBV protein, Fat Soluble Vitamins A and D, Calcium
- Environmental issues
- Popular.

Mark Range 8-10: responses will include a full and accurate explanation, with specific points raised and justified. Candidates will consider the context of the school canteen.

Mark Range 4-7: a number of points will be either raised superficially or few points will be raised but will be justified fully. Candidates may drift away from the school canteen context of the question.

Mark Range 1-3: responses will be superficial with little or no justified points raised. There may be some inaccuracies in the answer.

Mark Range 0: no points worthy of credit.

**(10 marks)**

**10 (a) What environmental issues currently affect food choice?**

Any well justified environmental issue linked to food choice will be credited, such as:

- Organic crops, due to people declining to eat foods which contain pesticides, herbicides and hormones
- Seasonal foods, to avoid food being transported around the world
- Locally sourced foods, to lessen pollution
- Loosely sold products to reduce packaging
- Issues related to Genetically Modified and irradiated foods
- Effects of 'Credit Crunch'
- Food scares / issues such as Foot and Mouth
- Battery farming.

Mark Range 8-10: responses will include a full and accurate discussion, with specific points raised and justified. Candidates will remain focused on both environmental issues and food choice.

Mark Range 4-7: a number of points will be either raised superficially or few points will be raised but will be justified fully. Answers may not always remain focused on the specific question asked.

Mark Range 1-3: responses will be superficial with little or no justified points raised. There may be some inaccuracies in the answer.

Mark Range 0: no points worthy of credit.

**(10 marks)**

**10 (b) Discuss current dietary guidelines with regard to healthy eating.**

Responses should refer to current dietary guidelines in connection to healthy eating and will make reference to such as things as the following:

- The Health of the Nation
- COMA
- RDAs
- DRVs
- DEFRA
- Eat Well Plate / Balance of Good Health
- Reduce intake of fat and saturated / trans fats; reduce intake of sugar; reduce intake of salt; increase of NSP (dietary fibre); eat regular meals / reduce snacking
- Increased water consumption.

Mark Range 8-10: responses will include a full and accurate discussion, with specific points raised and justified. Candidates will consider both dietary guidelines and healthy eating in detail.

Mark Range 4-7: responses will cover either both current dietary guidelines and healthy eating in limited detail or one of these areas in depth. A number of points will be either raised superficially or few points will be raised but will be justified fully.

Mark Range 1-3: responses will be superficial with little or no justified points raised. There may be some inaccuracies in the answer.

Mark Range 0: no points worthy of credit.

**(10 marks)**

- 11 (a) **Describe how a range of food products based on rice can be developed. You may use annotated sketches to illustrate your answer.**

**In your answer make reference to:**

- **nutritional value** (8 marks)
- **flavour** (4 marks)
- **texture** (4 marks)
- **colour.** (4 marks)

Responses will make reference to different types of rice, such as long grain (patna), basmati, short grain (Carolina), Easy Cook, Ground, Flaked, Wholegrain, Wild, Risotto / Arborio.

Reference: thiamine, NSP, carbohydrates, protein, low fat, increase fibre e.g. wholegrain rice

Addition of protein foods, e.g. chicken, prawns, ham, pulses

Increase Water Soluble and Fat Soluble vitamins with fresh vegetables, e.g. grated carrot

Use of herbs and spices, garlic

Use of raw, fresh vegetables to add texture / colour

Methods of cooking rice

Annotation will allow candidates to show use of herbs etc

Any well justified response will be credited.

**(20 marks)**



**11 (b) Discuss the factors affecting bacterial growth in food.**

Responses may include the following:

- Cross contamination
- Conditions for bacterial growth
- High Risk Foods – high protein
- Time
- Food type
- Temperature
- Packaging
- Moisture
- Poor personal hygiene.

Any well justified point will be credited.

Mark Range 8-10: responses will include a full and accurate discussion, with specific points raised and justified. Candidates will consider bacterial growth in food in detail.

Mark Range 4-7: a number of points will be either raised superficially or few points will be raised but will be justified fully.

Mark Range 1-3: responses will be superficial with little or no justified points raised. There may be some inaccuracies in the answer.

Mark Range 0: no points worthy of credit.

**(10 marks)**

**11 (c) How is Information Communication Technology (ICT) used in the development of food products?**

Any well justified response will be credited. Responses may include:

- Computer modelling – nutrition, costing, temperature, weighing, measuring
- Word Processing / DTP
- Spread sheets
- Digital photography
- Explanation of CAD CAM.

Mark Range 8-10: responses will include a full and accurate discussion, with specific points raised and justified. Candidates will consider ICT specifically in relation to the development of food products and in detail.

Mark Range 4-7: responses will cover either the use of ICT in the development of food products in limited detail or one of these areas in depth. A number of points will be either raised superficially or few points will be raised but will be justified fully.

Mark Range 1-3: responses will be superficial with little or no justified points raised. There may be some inaccuracies in the answer.

Mark Range 0: no points worthy of credit.

**(10 marks)**