



GCSE

Food Preparation and Nutrition

8585/W Paper 1

Report on the Examination

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Introduction

This report explores all of the questions that were presented on this year's written examination for GCSE Food Preparation and Nutrition.

Across Section A and Section B of the examination, a range of different question styles were used to assess students against three assessment objectives:

- AO1: Demonstrate knowledge and understanding of nutrition, food, cooking and preparation.
- AO2: Apply knowledge and understanding of nutrition, food, cooking and preparation.
- AO4: Analyse and evaluate different aspects of nutrition, food, cooking and preparation.

It is important to note that there is no set style of question used to examine students against each assessment objective. It is a requirement to assess different aspects of nutrition, food, cooking and preparation through a range of question styles. Centres and students should therefore expect to see questions presented in different formats year-on-year. Centres are encouraged to ensure that all of the specification content is covered so that students are well-prepared for sitting the written examination at the end of the GCSE course. This can be achieved by mapping the specification across schemes of learning.

This year's question paper was well-differentiated and appropriately demanding, eliciting a wide range of responses from students of all ability levels. The demand of the question paper was in line with previous examinations and performance was as expected. The number of marks allocated to questions was similar to what has been seen in previous years. Most questions were well-attempted; however, and as raised previously, gaps in knowledge and understanding were identified with questions linked to food science. Centres are encouraged to reflect on the teaching of this area of the specification to enhance retrieval and application of knowledge.

Section A

As typically seen, Section A presented students with 20 multiple choice questions, which covered a wide range of topics from the specification. The vast majority of students attempted all questions, and the style of questions enabled students to achieve marks. Good practice was noted when students were seen to have annotated the questions, with this demonstrating that they had spent the required amount of time working out the correct response from the options provided for each question.

A small minority of students did not answer the multiple-choice questions clearly, which impacted the number of marks that they could be awarded. Centres are therefore advised to ensure students are fully aware of the correct way to identify chosen responses. Students' attention should be drawn to the guidance given at the start of Section A to help with this. It is important to note that if multiple responses are given by a student for a question – purposely or accidentally – and it is not obvious which response they are choosing, a mark will not be awarded. Students should ensure that **one** response is clearly marked for each multiple-choice question. Students should also be advised against leaving any multiple-choice questions blank as this immediately reduces the number of marks that can be achieved.

Regular practice of multiple-choice questions is actively encouraged. This can be achieved by setting multiple choice questions as retrieval practice at the start or end of lessons, interleaving them throughout lessons, and/or setting them as part of homework tasks.

Question 1.1

This was a successfully answered question with the vast majority of students recognising that wholemeal flour is a source of dietary fibre.

Question 1.2

One-third of students correctly identified that vegetable oil is a source of vitamin E. This highlights lower levels of confidence with micronutrients, which was also seen with Question 1.16 and Question 3.1.

Question 1.3

This question was correctly answered by around half of students. This was surprising as the question focuses on a healthy eating guideline that students should be familiar with. Centres are advised to teach students that the maximum daily amount of salt recommended for an adult is 6g when exploring diet-related health conditions, such as high blood pressure/hypertension.

Question 1.4

Approaching three in five students answered this question correctly, recognising that a starch-based sauce will thicken due to gelatinisation. When teaching students about the process of gelatinisation, centres are encouraged to use the terminology ‘starch-based sauce’ alongside examples, such as cheese sauce and custard. They are also encouraged to identify the source of starch in each sauce recipe.

Question 1.5

Nearly two in five students answered this question correctly, highlighting fortification as an area that students are less confident with.

Question 1.6

Two-thirds of students correctly identified that steam is the main raising agent in Yorkshire pudding, demonstrating good knowledge and understanding of raising agents.

Question 1.7

This was the most successfully answered multiple choice question, with a significant majority of students recognising that bacteria grow and multiply rapidly in moist conditions.

Question 1.8

Around two-thirds of students linked the definition provided in the question stem to plasticity. This demonstrates confidence with defining key food science terms.

Question 1.9

This was a very well-answered question with most students identifying that baking and grilling are dry methods of cooking.

Question 1.10

Three-quarters of students correctly identified potato as the vegetable that would be quickly affected by enzymic browning.

Question 1.11

Osteoporosis was correctly identified as the condition caused by calcium deficiency by over four in five students, making this a very well-answered question.

Question 1.12

This was a relatively challenging question to answer, with around two in five students able to identify that a maximum of 35% of our recommended percentage of energy should come from fat. Centres should ensure that students are able to recognise the percentage of recommended energy sources from nutrients, as stipulated in the specification.

Question 1.13

This was a well-answered question, with the majority of students identifying that bacteria multiply rapidly in a temperature range of 5 °C to 63 °C.

Question 1.14

It was pleasing to see that around three in five students selected pasteurised milk as an example of a primary processed food.

Question 1.15

Three-quarters of students identified that serving suggestions are not a legal requirement on a food packaging label.

Question 1.16

This was a more challenging questions for students, with less than half correctly identifying that vitamin A deficiency leads to night blindness.

Question 1.17

This was a well answered question with approximately four in five students able to identify that the rotation of crops is a feature of organic farming.

Question 1.18

This was a successfully answered question, with the vast majority of students recognising that lasagne is a popular Italian dish.

Question 1.19

This was a challenging question for students to answer. Around one-third of students correctly identified PAL as the amount of energy we use for movement each day. However, students found it difficult to differentiate between the acronyms given, with many selecting BMR.

Question 1.20

This question presented some challenge to students to conclude Section A, with two in five recognising that vitamins B and C can be lost when preparing and cooking vegetables. Centres are encouraged to make links to water-soluble and fat-soluble vitamins when utilising different cooking methods when completing practical activities to aid students' application of knowledge.

Section B

In Section B, students were required to write responses to a range of questions that carried between two and 12 marks. This section of the question paper was accessible to all students, with each question composed of between two and four sub-parts, most of which were linked by clear themes. Students' responses varied in terms of length, detail and the level of knowledge and understanding demonstrated; however, it was pleasing to see very few questions left unanswered. Accessibility was partly aided by the way in which questions were structured, with formats eliciting the correct type of responses in line with indicative content on the mark scheme.

Question 2.1

This question was well-attempted with very few blank responses. The majority of students were able to correctly name at least one food poisoning bacteria, with the most popular response being salmonella. Approaching half of students achieved full marks having correctly named two food poisoning bacteria. E-coli was another popular response; however, it was pleasing to see students also naming listeria, campylobacter and staphylococcus aureus. Where students did not achieve marks, they had typically identified other microorganisms, such as mould, rather than naming specific food poisoning bacteria.

Question 2.2

This question was answered with confidence, with almost all students achieving at least one mark, and the vast majority achieving full marks. Vomiting and diarrhoea were the most common responses, with nausea, abdominal pains, fever-like symptoms and tiredness also seen.

Some students used more colloquial terminology to identify symptoms that may be experienced. A range of misspellings were also seen. Where responses could be interpreted, students were credited. Typically, students failed to achieve marks when responses were vague, for example 'feeling ill' was not credited.

Question 2.3

The tabulated format of this question aided completion, with many students identifying specific examples and a clear explanation for each possible cause of food poisoning. Where students combined an example and an explanation, they were credited for each. Overall, the question was well-attempted,

and half of students achieved full marks, demonstrating very good knowledge and understanding of food safety.

For ‘personal hygiene’, the most popular response from students included reference to hands not being washed. Some students further qualified their point by detailing handling raw chicken or visiting the toilet. In many instances, explanations referenced the transfer of bacteria from hands to food being prepared. Some students referred to ‘germs’ rather than bacteria, which was not credited. This should serve as a reminder to centres to ensure that ‘bacteria’ is referred to instead of germs when teaching about food safety.

For ‘food storage’, many students discussed storage in a fridge, namely raw meat being stored above other foods, such as cooked meat and vegetables, leading to juices/blood dripping down. Some responses were too vague to be credited and referenced poor food storage practices without further clarification or without referencing a specific type of food storage. Of the three possible causes, students found it more challenging to offer explanations to examples given for ‘food storage’; although many did reference the growth of bacteria.

A wider range of responses were seen for ‘preparation and cooking of food’, with popular responses referencing uncooked/undercooked food and using the same chopping board to prepare meat and vegetables. Cross-contamination was commonly referenced in the explanation column, and many students correctly identified that food should be cooked to achieve a core temperature of 75 °C so that bacteria is destroyed.

Question 2.4

When answering this question, students typically demonstrated good knowledge and understanding of food safety; however, many students veered away from explaining **how** to use a food temperature probe, and explored **why** one should be used instead. For example, many students explained bacterial activity in the danger zone, which – whilst accurate – was not relevant to the question. This limited the number of marks that could be awarded in line with indicative content on the mark scheme.

In general, students successfully identified that the food temperature probe should be inserted into the centre/middle/thickest part of a food. Many students also correctly identified that food should reach a temperature of 75 °C or higher.

It was surprising to see very few students referencing the cleaning of food temperature probes before/after use. Further marks would also have been awarded if students had explained that food should be cooked for longer if a core temperature of 75 °C is not achieved.

Many students referenced chicken when writing their response. Centres are therefore encouraged to utilise food temperature probes more frequently when completing practical activities to demonstrate that they should not only be used when cooking chicken.

Question 3.1

It was pleasing to see the majority of students attempting this question, with over two-thirds of students achieving three or more marks. In particular, students demonstrated good knowledge and understanding of the functions of the macronutrients. The most common response was ‘energy’ for ‘carbohydrate’, ‘growth’ and/or ‘repair’ for protein, and ‘warmth’/‘insulation’ and ‘protection’ for fat. A small proportion

of students limited the number of marks that they could be awarded by repeating responses, for example by stating ‘energy’ for more than one of the macronutrients. This was despite the question stem stating ‘do not repeat your answers’.

Students found it more challenging to identify functions for the three named micronutrients. However, many students were able to link the function of iron to red blood cells or its role in preventing anaemia, and the function of vitamin D to bone strength and/or the absorption of calcium. A number of students also recognised the role that vitamin D plays in skincare. A common misconception was that vitamin D helps eyesight, highlighting confusion with vitamin A. The function of sodium was poorly understood, highlighting a need for centres to address the positive functions of sodium alongside its links to high blood pressure.

Whilst marks were awarded for one-word responses where knowledge and understanding was clear, centres are encouraged to advise students to write in full sentences wherever possible so that knowledge and understanding is accurately conveyed.

Question 3.2

Question 3.2 garnered a range of responses from students, with the banded levels of responses aiding differentiation when marking. On the whole, students were able to identify examples of protein sources with both high and low biological values. Popular responses were ‘meat’ for HBV sources, and ‘beans’ and/or ‘lentils’ for LBV sources. Some students also correctly identified ‘soya’/‘tofu’ and ‘quinoa’ as sources of HBV protein. Approximately one-quarter of students were placed in the 1–2-mark band, with most having only identified suitable examples of HBV and/or LBV protein sources. Very few students referenced ‘fish’ and/or ‘dairy products’, such as cheese, as examples of HBV protein sources.

It was pleasing to see that many students were able to correctly identify that sources of protein with a high biological value contain all of the essential amino acids, whilst low biological value proteins are missing one or more/some. Many students were also able to discuss the process of protein complementation, with examples – namely beans on toast – supporting their description. However, some students only described the process of combining LBV proteins rather than naming ‘protein complementation’. A smaller proportion of students linked LBV proteins and protein complementation to vegetarian/vegan diets.

Where students were placed in the top mark band, they were able to demonstrate very good knowledge and understanding of all of these points. Approaching one-quarter of students were placed in the 5–6-mark band.

Around one-third of students scored 0 marks for this question or left the question blank. This highlights that the structure of proteins needs to be taught more explicitly when covering protein theory from the ‘Food, nutrition and health’ part of the specification.

Question 3.3

The majority of students attempted this question, with very few leaving blank responses or scoring 0 marks. Overall, most students were able to compare and contrast nutritional values provided by both dishes, which suggests that this style of question was reviewed as part of revision activities and exam preparation. As part of their responses, many students explored at least some nutrient functions to support points they were making, with some links made to ingredients included in the dishes. For example, many students identified that wholemeal pasta is a source of fibre, which aids digestion and/or prevents

constipation. Efforts were also made to clarify links between nutrients being discussed and diet-related health conditions, such as coronary heart disease, obesity and high blood pressure; however, there was scope to explore this in further detail. Some students considered the nutritional needs of older people, such as lower energy requirements due to reduced physical activity; however, this is an area that would also have benefited from further exploration.

In general, efforts were made to respond to both the analysis and evaluation components of the question, and positively, a small proportion of students only wrote about one of the two dishes. Overall, few students gained marks in the 9–12-mark band, whilst distribution between the 1-4 and 5-8 marks was relatively even. In general, there was scope throughout responses to make closer links to healthy eating guidelines, as referenced in the question stem. Where this wording is seen, students should know to link to guidelines such as the Eatwell Guide and 5-a-day, amongst others. In addition, some students attempted to suggest how the two dishes could be improved. It is important that centres emphasise the importance of reading questions carefully so that they are answered accurately. Students were not credited for suggesting improvements that could be made to the two named dishes. Instead, they were asked to analyse the suitability of each meal and evaluate which meal is the healthier choice.

Centres are encouraged to build in regular practice of different AO4 questions. As part of this, students should be encouraged to utilise mark schemes to assist them with planning thorough responses. When marking responses, centres and students are encouraged to annotate responses to show where analysis and evaluation points have been credited. This helps to ensure that students are experienced in writing balanced responses.

Question 4.1

This question elicited a range of responses, with the majority of students achieving at least one mark. Pleasingly, approximately one-fifth of students achieved full marks, and approaching one-quarter of students achieved three marks.

Within responses, the most commonly seen advantages made reference to ‘improved yield’ and ‘improved flavour’. Other popular response made links to growing food out of season and/or in extreme weather conditions, and improvements to the nutritional profile of food.

For disadvantages, many students referenced how genetically modifying food is ‘unethical’ with unknown side effects on consumer health. The process was also labelled as ‘expensive’ by a number of students.

Some students limited the number of marks that they could be awarded due to vague reference to sensory properties. Others confused genetically modified food with organic food, with some reference made to pesticides.

Again, centres are encouraged to advise students to write in full sentences wherever possible so that knowledge and understanding is accurately conveyed to aid the awarding of marks.

Question 4.2

This question was more challenging for students to complete, with a small proportion of students placed in the 7–8-mark band, and around one in ten students awarded 5-6 marks. With responses typically lacking detail, the biggest proportion of students achieved 1-2 marks. Disappointingly, nearly one-fifth of students achieved 0 marks.

In general, there was an imbalance between analysis and evaluation. Students typically found it easier to discuss how food and consumer choices can be more sustainable, with good knowledge and understanding shown for the evaluation component of the question. Students discussed the benefits of planning meals, shopping with a list, recycling packaging, composting food waste, using leftovers, buying local produce and buying seasonal foods.

With regards to the analysis component of the question, some students demonstrated good knowledge and understanding of environmental factors that impact food security, such as carbon footprint, natural disasters, and extreme weather conditions resulting from global warming, such as floods and droughts. Some students repeated the definition provided of food security rather than analysing appropriate factors that influence it. A small proportion of students did not understand the term food security, despite the definition provided, with responses focusing on food safety.

A number of students discussed genetically modified food and/or Fairtrade farming as part of their response, neither of which were relevant to the question presented.

Although the question focused on food security, students should have been able to draw on their knowledge and understanding of other areas from the 'Food Provenance' section of the specification to answer this question. The distribution of marks and overall outcomes for this question highlight a need for centres to explore this section of the specification in further detail. This can be aided by making cross-curricular links with other subject areas, such as geography and science, and by keeping abreast of news stories linked to food security and sustainability from around the world.

Question 4.3

This was a well-answered question with students demonstrating good knowledge and understanding of food allergen labelling. Approximately half of students achieved full marks, with most recognising that allergens are emboldened on food packaging to make them easy to identify. Around one-third of students achieved one mark, and this was typically because they only focused on one part of the question – either the how or the why, rather than both.

Question 4.4

Question 4.4 saw high rates of completion amongst students, with two-thirds of students achieving five or six marks. Very few students left the question blank. Overall, students demonstrated good knowledge and understanding of allergens and choosing suitable alternatives.

Students were most confident identifying the ingredient and a suitable alternative for lactose intolerance. Milk was the most commonly referenced ingredient, followed by cream. Soya and oat alternatives were popular substitutes.

Some students were not awarded marks for their response to the gluten intolerance part of the question having identified 'gelling agent' as the ingredient containing gluten. However, most students were able to suggest that self-raising flour should be substituted for gluten-free flour. In some instances, students referenced specific gluten-free alternatives, such as rice flour. One misconception was that wholemeal flour is a gluten-free alternative.

In general, students confidently identified almond extract and flaked almonds as being unsuitable for nut allergy sufferers. Vanilla extract was a common substitution, and topping suggestions ranged from fruit, to grated chocolate to crumbled biscuits. In some cases, students were not awarded marks due to alternative ingredient suggestions being too vague to credit. This was mostly seen with alternative ingredients for flaked almonds.

Question 5.1

Approaching half of students achieved full marks for this question, with approximately one-quarter of students achieving three marks. A range of reasons were identified to explain why food is cooked; however, the most popular responses referred to sensory features, particularly linked to enhancing flavour, texture and appearance. Food safety was also a common theme in responses, with students referencing the killing of bacteria. In some instances, students limited the number of marks they could be awarded by writing similar responses, for example by referencing the killing of bacteria and preventing food poisoning.

Less common responses made reference to improving shelf life and enabling chemical reactions, like activating raising agents in a cake.

Again, marks were awarded for one-word responses where knowledge and understanding was clear; however, centres are encouraged to advise students to write in full sentences so that knowledge and understanding is clearly conveyed and to reduce the risk of marks being compromised.

Question 5.2

The topic of radiation presented a greater level of challenge for students; however, it was positive to see many students attempting this question. Positively, a number of students identified cooking methods that use radiation, such as toasting, grilling, barbecuing and microwaving, the latter of which emerged as the most popular response. A good proportion of students also referenced the emitting of infra-red rays and/or the transfer of heat/thermal energy.

Approaching one-quarter of students achieved at least one mark for this question, namely because they were able to identify a suitable cooking method. In many circumstances, the option for students to include labelled diagrams in their responses also aided the awarding of marks.

Common misconceptions were seen with students confusing radiation with conduction and/or convection. Other students limited the number of marks they could be awarded due to a lack of technical terminology. Overall, approaching one in ten students achieved full marks, highlighting the level of challenge.

Question 6.1

Questions 6.1 was not as well-answered with students finding it difficult to identify two specific functions for the cake-making ingredients identified.

The biggest proportion of students (around one-quarter) achieved two marks for this question. Typically, students were most confident identifying that self-raising flour is used to help the cake rise and butter is used to add flavour. Students found it most difficult to identify functions for eggs, although some were

able to correctly identify ‘coagulation’ and/or make links to moisture. Links to moisture were also made as a function for butter, and some students identified that flour forms the structure of cake.

Common misconceptions involved students referencing the shortening process when identifying functions of butter. ‘Binding’ was also referenced in a number of answers, particularly for butter and eggs. In some instances, students appeared to confuse the question with Question 3.1, referencing nutrients provided by ingredients, rather than functions of the ingredients in cake-making.

Given that the majority of students will have made cake-based products in school, outcomes for this question emphasises a need for centres to integrate food science theory into practical lessons on a more routine basis, reflecting on the functions of different ingredients used, as well as processes.

Question 6.2

Students typically find questions asking them to explain food science terms more complicated, and this trend was seen with this question. Approaching half of students achieved one or two marks, and this was typically for identifying that caramelisation causes a cake to go golden brown and/or taste sweeter.

Students who achieved further marks recognised that caramelisation occurs when sugar is heated, and/or explained how the sugar will eventually turn black and bitter. A small number of students demonstrated very good knowledge and understanding by referencing how sugar molecules break up, causing water to evaporate. Very few students recognised that caramelisation occurs between 160 °C and 170 °C. Some students confused caramelisation with the process of gelatinisation, making reference to starch molecules rather than sugar.

Question 6.3

This was a more successfully answered question about food science, with approaching half of students achieving full marks, and nearly one-third of students achieving three marks.

Students presented a range of reasons for each of the problems. For the ‘cake has not risen’, the most popular responses linked to there being no raising agent added, an insufficient cooking time, and a low oven temperature. Some students inaccurately referenced the use of yeast or insufficient kneading and/or proving, highlighting confusion with bread-making.

For the ‘cake has a dry texture’, the most popular responses linked to overcooking, a high oven temperature, too much flour, too little butter, and/or too little egg.

Some responses were too vague to be credited. Therefore, centres are advised to encourage students to fully expand their responses to demonstrate clear knowledge and understanding.

Overall, Question 6.3 enabled the end of the written examination to be accessible to students. It is important to note that the written examination for GCSE Food Preparation and Nutrition does not increase with difficulty as students progress through the paper.

Concluding Comments

Centres and students should be praised for the outcomes achieved for this written examination. Outcomes are comparable with those that were seen in 2019 and 2023. Centres are reminded that there

is a CPD webinar available in the autumn term with further analysis of the paper and teaching and learning strategies to support the delivery of the specification.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the [Results Statistics](#) page of the AQA Website.