2023 Nutrition Subject Assessment Advice

Overview

Subject assessment advice, based on the 2023 assessment cycle, gives an overview of how students performed in their school and external assessments in relation to the learning requirements, assessment design criteria, and performance standards set out in the relevant subject outline. They provide information and advice regarding the assessment types, the application of the performance standards in school and external assessments, and the quality of student performance.

Teachers should refer to the subject outline for specifications on content and learning requirements, and to the subject operational information for operational matters and key dates.

School Assessment

Teachers can improve the moderation process and the online process by:

* ensuring that they are making decisions based on the current subject outline and the current performance standards when assessing their students’ work
* providing some evidence to support the grade awarded in tasks, such as a rubric, marking on a SAT or annotations on the student work.

Assessment Type 1: Investigation Folio (30%)

For a 20-credit subject, students conduct one design practical investigation and one investigation with a focus on science as a human endeavour (SHE).

When submitting student work online, it is important to include the relevant task sheet and the highlighted performance standards that correlate with the grade allocated for each task. The development of clear, well-structured, and informative task sheets that allow students to demonstrate knowledge and apply understanding of concepts to real life scenarios is also advised.

Science as a Human Endeavour

SHE investigations were displayed in several ways, including a traditional report structure or an article format. Students selected contemporary topics which were relevant to the Stage 2 Nutrition course.

The more successful responses commonly:

* identified the SHE key concepts and the interaction between science and society, placing them in bold (KA3)
* ensured the discussion of the interaction between nutrition science and society was the focus of the report. Higher level students were able to show evidence of this (KA3) throughout the SHE key concepts
* cited a variety of appropriate, current, and credible academic resources as evidence for statements and/or claims made in the SHE task. An appropriately formatted list of references was provided (KA4)
* summarised the main interactions between nutrition science and society with respect to the chosen topic in the conclusion (IAE3)
* selected a topic or question that offered a range of opportunities to explore the interaction between science and society critically, linking them to the SHE key concept(s) (KA3, KA4)
* showed knowledge and understanding of nutritional terminology and was able to use this in depth, as part of the evidence of the SHE key concepts (KA1).

The less successful responses commonly:

* lacked clarity around which SHE key concepts they were talking about when discussing the interaction between science and society (KA4)
* lacked evidence of the potential influence that science has on society and *vice versa* (KA3)
* selected topics that prevented students from providing a depth of understanding of the interaction between science and society (KA3)
* selected topics that were not relevant to nutrition science, so the background science tended more towards a discussion of chemistry or biology
* provided a report that lacked the research enabling students to demonstrate a deep understanding of the topic and how science and society interacts (KA4)
* described the historical developments of the topic, rather than discussing the interaction between nutrition science and society
* focused more on answering a question posed, rather than exploring the interaction between nutrition science and society.

Design Practical Investigations

Teachers are encouraged to take time at the start of the year to provide guidance and scaffolding for students to be able to successfully analyse and interpret results and apply nutritional theory to their findings, and thus, present correct reports.

The more successful responses commonly:

* provided a considered justification for the choice of independent variable, dependent variable(s), and steps of the procedure that would directly impact the validity and reliability of the data (IAE1)
* considered how factors could be held constant (IAE1)
* managed safety risks and accounted for ethical considerations in the choice of materials and method (IAE1)
* clearly described how the data would be collected, providing a blank results table with appropriate column and row headings (IAE1)
* provided justifications to any changes made to the original design and justified (IAE1)
* presented data graphically in an appropriate format, including but not limited to column/bar graphs, star charts, and scatter plots. Graphs were large enough to clearly see trends and differences. Figure headings or titles were descriptive and included enough information to clearly convey what they were showing (IAE2)
* summarised data using appropriate descriptive statistics, including but not limited to averages, ranges, and medians (IAE2)
* analysed data by identifying clear trends and patterns, often stating percentage differences as an objective measure of any differences (IAE3)
* interpreted data effectively, demonstrating a knowledge of nutrition concepts to explain patterns or trends in the data (IAE3)
* stated a clear conclusion in the context of the hypothesis which was qualified in terms of its limitations (IAE3)
* identified clear evidence of random errors in the data and discussed their impact on the reliability (IAE4)
* identified evidence of systematic errors in the data and discussed their impact on accuracy (IAE4)
* discussed the presence of a control and its impact on the validity of the data (IAE4)
* evaluated the methodology in terms of its impact on the validity, reliability, precision, and accuracy (IAE4)
* demonstrated a clear understanding of the differences between validity, reliability, precision, and accuracy.

*The less successful responses commonly:*

* featured a deconstruction (not requirement in Nutrition) which meant the design was brief and poorly justified (IAE1)
* did not clearly identify the independent and/or dependent variable(s) in the design or how factors would be held constant (IAE1)
* represented data in tables that did not follow scientific conventions, e.g. lacking a descriptive title/figure heading, incorrect units, incorrect number of significant figures, presenting all the raw data without calculating averages if appropriate (IAE2)
* represented data in graphs that did not follow scientific conventions, e.g. lacking a descriptive title/figure heading, incorrect units, incorrect scale on axes, axes not labelled or lacking units (IAE2)
* summarised what the results showed instead of interpreting them using nutritional understanding (IAE3)
* presented conclusions that were inconsistent with the data and did not refer to any limitations of the conclusion (IAE3)
* discussed random and systematic errors without referring to any evidence of them in the data (IAE4)
* confused random and systematic errors. Confused accuracy, validity, reliability, and precision or used these terms interchangeably (IAE3).

Assessment Type 2: Skills and Assessment Tasks (40%)

For a 20-credit subject, students must complete three skills and application tasks, one which must be a case study. The most common skills and application tasks (excluding the case study) were timed tests completed online and a Food Recall assessment. The skills and applications tasks should be designed to enable students to apply their science inquiry skills and demonstrate knowledge and understanding of key nutrition concepts and learning.

Teachers can elicit more successful responses by:

* ensuring that SATS are well-designed and include some science inquiry skills and Science as a Human Endeavour questions. SATs should feature questions that enable them to demonstrate their understanding across all levels, including instructions such as: identify, describe, explain, analyse, evaluate, and discuss (KA1, KA2, KA3, KA4).

*The more successful responses commonly:*

Case Study

* used key information from the case study which was extracted and clearly summarised (KA4)
* accurately presented data about current and recommended macronutrient, micronutrient, water, alcohol intake, and energy balance in graphs and/or tables to compare against nutrient reference values (e.g. RDI, AI, UL) (IAE2)
* followed appropriate scientific conventions in the presentation of data, including units, labels, and titles (IAE2, KA4)
* demonstrated a deep knowledge and understanding of underlying nutrition concepts related to protective and risk factors for diet-related disorders evident (KA1)
* applied nutrition concepts to recommend appropriate dietary and lifestyle changes, considering the case study’s individual needs, e.g. lactose intolerance, vegan diet, living in a remote area, etc. Strong justification of the recommendations was presented (KA2)
* structured the case study response clearly with appropriate sub-headings and effective use of nutrition terminology (KA4)
* included references where appropriate and cited in the correct notation (KA4).

Tests

* provided responses that were clear, concise, and used nutrition terminology accurately (KA4)
* demonstrated a deep knowledge and understanding of nutrition (KA1)
* showed proficiency in applying nutrition concepts to answer unfamiliar and/or complex questions (KA2)
* demonstrated an ability to apply scientific inquiry skills in test settings (IAE2, 3, 4)
* demonstrated a high level of knowledge and understanding of the Science as a Human Endeavour concepts (KA3)
* managed time effectively to attempt every question and give a considered response to each question.

The less successful responses commonly:

Case Study

* repeated the same points several times in the response, which was an ineffective use of the word count
* used terminology inaccurately
* formulated conclusions about the case study that were not supported by the data (IAE3)
* ignored the social and/or cultural profile of the case study when making recommendations (KA2)
* summarised and represented data in (a) tables that lacked clear column or row headings, included incorrect units, non-specific figure headings/titles and/or (b) graphs with inappropriate scales for the data presented (e.g. graphing iron and sodium intake on the same set of axes), or lacking units or appropriate figure headings/titles (IAE2).

Tests

* provided responses that were confused or did not address the focus of the question
* misunderstood the assessment verb (e.g. state, describe, explain, and discuss) which lead to key points or important information being left out of the response
* provided answers that were lengthy and unfocused and had lots of information, at times incorrect, without addressing the key points of the question.

Operational Advice

Across both Assessment Types for this subject, students can present their responses in oral or multimodal form, where 6 minutes is the equivalent of 1000 words. Students should not speed-up the recording of their videos excessively in an attempt to condense more content into the maximum time limit.

If a video is flagged by markers/moderators as impacted by speed, schools will be requested to provide a transcript and markers/moderators will be advised to mark/moderate based on the evidence in the transcript, only considering evidence up to the maximum word limit (e.g. up to 2000 words for AT3).

If the speed of the recording makes the speech incomprehensible, it affects the accuracy of transcriptions and impacts the ability of markers/moderators to find evidence of student achievement against the performance standards.

External Assessment

Assessment Type 3: E-Examination (20 credits)

The subject outline indicates that Stage 2 science inquiry skills and nutrition understanding from all Stage 2 Nutrition topics will be assessed in the examination.

It also states that questions will:

* include case studies and/or scenarios
* involve application of knowledge and skills to different contexts
* require analysis and interpretation of data or information.

The electronic exam (e-exam) has a time length of 130 minutes, with a total mark of 100 and was made up of two sections.

Section 1

Question 1

1. The more successful responses commonly:
* correctly identified one function of iodine that related to the thyroid gland, such as iodine is involved in thermoregulation or supports thyroid function.

*The less successful responses commonly:*

* stated that a function of iodine is muscle growth, without first stating iodine’s role in cell division.
1. (i) *The more successful responses commonly:*
* correctly showed understanding of the term ‘mandatory’ as meaning: ‘by law’, ‘compulsory’ or ‘must have’ iodine added into the foods
* identified a relevant purpose of mandatory fortification, such as assisting in decreasing the occurrence of iodine deficient disorders (when consumed by the population).

*The less successful responses commonly:*

* repeated parts of the question or did not include in their response ‘by law’ or ‘compulsory.’

(ii) *The more successful responses commonly:*

* correctly identified ‘bread’ or wheat flour-based food products such as pasta.

*The less successful responses commonly:*

* repeated iodised salt from the question
* identified an incorrect food product, such as organic bread or seaweed.
1. (i) *The more successful responses commonly:*
* described the relationship between iodine content and distance from the ocean correctly (iodine decreases as distance from ocean increases)
* used correct data.

*The less successful responses commonly:*

* did not use data.

(ii) *The majority correctly identified Griffith.*

(iii) *The more successful responses commonly:*

* correctly linked that iodine in the soil resulted in low absorption by the plant/crop of iodine and therefore, once consumed the consumer would be low in iodine and become deficient.

*The less successful responses commonly:*

* did not clearly explain the link between crops having low iodine due to the soil having low iodine.
1. The more successful responses commonly:
* correctly identified ‘monoculture’ as a technique leading to erosion hence, impacting soil quality and could clearly show the link to how iodine gets depleted.

*The less successful responses commonly:*

* correctly identified a technique but did not clearly explain how it resulted in less iodine in the soil.

Question 2

1. (i) *The more successful responses commonly:*
* used the correct value of 29.3 kJ/g for energy in alcohol to calculate the energy per serving for beer A as 386.76 kJ (from calculation 29.3 x 13.2).

*The less successful responses commonly:*

* used an incorrect value, such as 29kJ/g in calculation for energy in alcohol.

(ii) *The more successful responses commonly:*

* used Source 1 to correctly calculate the percentage of energy per serving: 386.76/552 x 100 = 70.07 or 70.1%
* used Source 2 to correctly calculate the percentage of energy per serving: 100 - 24.81 - 2.73 - 2.42 = 70.1%.

*The less successful responses commonly:*

* miscalculated the percentage of energy per serving.
1. (i) *The more successful responses commonly:*
* used data from either Source 1 or Source 2 effectively to state that Beer NA contained more carbohydrates than Beer A
* referred to both beers specifically, for example: 8.2 g in Beer A compared to 19.0 g in Beer NA or Beer NA has 10.8 g more than Beer A (Source 1).

*The less successful responses commonly:*

* did not use data to support their comparison of carbohydrates
* did not specifically state that Beer NA had more carbohydrate and just identified the grams in each beer.

(ii) *The more successful responses commonly:*

* correctly identified that the general public is not always aware that alcohol significantly contributes to kilojoules/calories (e.g. 29.3 kJ/g) to the total energy in alcoholic beverages
* correctly referred to consumers making informed decisions and that a Nutrition Information Panel may be misleading
* identified that giving the value of energy is enough to highlight the significant energy content of alcohol rather than referring to additional nutrient information
* identified the link between alcohol consumption and the increased risk of dietary disorders.

*The less successful responses commonly:*

* misunderstood the question or the position of the OPC with regard to Nutrition Information Panels on alcoholic beverages
* made the assumption that the OPC would want the nutrition labels limited to ensure alcoholic beer was still consumed as they felt it might deter people from purchasing alcohol and reduce alcohol sales
* were not able to clearly explain that introducing Nutrition Information Panels on alcoholic beverages could confuse members of the public and may be misleading.

Question 3

1. The more successful responses commonly:
* identified that using the phrase ‘organically farmed’ on Can A is a marketing tool used by the manufacturer and consequently discussed that consumers may assumed they are healthier and are more likely to purchase it
* identified and discussed another appropriate marketing tool such as using a colourful label (attractive) or the colour green to represent sustainability.

*The less successful responses commonly:*

* identified the weight of the can as a marketing technique
* stated a marketing tool not on the label of Can A.
1. The more successful responses commonly:
* identified the correct ingredients of Can A (salt) and Can B (ascorbic acid or antioxidant) and clearly discussed how this ingredient in each can prolonged shelf life.

*The less successful responses commonly:*

* used the same explanation for the two different ingredients identified
* suggested that water was a preservative
* stated that salt reduced pH.
1. (i) *The more successful responses commonly:*
* correctly identified Can B as the more suitable choice
* used the per 100 g data to compare sodium content between the cans; for example, 33 mg per 100 g for Can A is less than 311 mg per 100 g for Can B.

*The less successful responses commonly:*

* did not use data to justify their answer
* used incorrect data, such as the per serving size data, but the two cans have different serving sizes.

(ii) *The more successful responses commonly:*

* identified one correct function of sodium in the human body.

*The less successful responses commonly:*

* stated a function of a mineral other than sodium
* stated a function of sodium as a preservative rather than a function in the body.

(iii) *The more successful responses commonly:*

* correctly identified ‘hypertension’ as an effect of a high salt diet and correctly explained how the excess salt increased water retention, increasing blood volume and therefore, blood pressure
* identified a different suitable effect, such as stroke or CVD and provided a suitable explanation.

*The less successful responses commonly:*

* lacked explanation of how a diet high in sodium could increase blood pressure
* some described the consequences of hypertension and did not provide relevant information.

Question 4

1. (i) *The more successful responses commonly:*
* identified blood glucose analysis tests or another suitable diagnostic tool.

*The less successful responses commonly:*

* identified a diagnostic tool not relevant for diagnosing diabetes.

(ii) *The more successful responses commonly:*

* clearly discussed that unhealthy food is cheaper and therefore, people are more likely to consume this and increase their fat and sugar consumption
* described how increased fat and sugar consumption can increase the risk of type 2 diabetes developing.

*The less successful responses commonly:*

* referred to the cost of medication (e.g. insulin) instead of groceries
* did not link increased purchase of cheap/junk food with health implications.
1. *The more successful responses commonly:*
* explained in detail how simple sugars increase the risk with a clear and logical order. For example, glucose is quickly absorbed, rapidly increasing blood glucose levels, pancreas releases insulin to regulate blood glucose; insulin resistance can develop and less insulin release from the pancreas can occur due to an overworked pancreas
* demonstrated a good understanding of glycaemic index (GI) and that the sugars in the question are high GI foods.

*The less successful responses commonly:*

* lacked depth of explanation
* outlined that sugars are easy to break down but did not link to insulin spikes and over time the possibility of insulin resistance
* compared the structures of monosaccharides and polysaccharides but missed discussing the impact on blood glucose levels and/or linking to insulin.
1. *The more successful responses commonly:*
* clearly identified that insulin is a protein and that proteins are digested in the digestive system
* clearly explained the process of protein digestion and that after digestion the insulin would not be effective as it would have been broken down into its monomers (amino acids).

*The less successful responses commonly:*

* discussed that if it was introduced orally, it would be absorbed too quickly and have a negative effect
* focused on the word ‘autoimmune’ in the stem of the question and explained that the insulin would be identified as foreign, and therefore, attacked by the immune system
* discussed that digestion will reduce effectiveness of insulin (implying that there is still some insulin absorbed)
* did not explain in enough detail to achieve full marks.

Question 5

1. (i) *The more successful responses commonly:*
* correctly identified yoghurt or kombucha from the source.

*The less successful responses commonly:*

* did not choose an item from the source
* identified more than one option, which is fine if both options are correct but marks can be lost for contradictory answers (one being incorrect).

(ii) *The more successful responses commonly:*

* identified that probiotics contain/supply bacteria
* stated that probiotics introduce bacteria into the gut.

*The less successful responses commonly:*

* confused probiotics with prebiotics in terms of their nature and function.
1. (i) *The more successful responses commonly:*
* correctly identified a plant-based food from the source (e.g. banana or strawberries).

*The less successful responses commonly:*

* did not choose an item from the source
* identified yoghurt or kombucha confusing probiotic and prebiotic sources
* identified more than one option, which is fine if both options are correct, but marks can be lost for contradictory answers (one being incorrect).

(ii) *The more successful responses commonly:*

* explained that prebiotics provide nutrients to gut microbes, increasing the reproduction/population size of microbes.

*The less successful responses commonly:*

* did not explain how prebiotics increased microbe diversity and/or lacked the depth required to achieve both marks.
1. *The more successful responses commonly:*
* correctly identified vitamin K and associated function of blood clotting
* correctly identified short chain fatty acids and associated function of nourishing gut lining, preventing inflammation, etc.

*The less successful responses commonly:*

* correctly identified a nutrient the microbiome synthesises but did not provide a function or stated an incorrect function of the nutrient identified
* identified a food item instead of a nutrient (sometime from the Source).
1. (i) *The more successful responses commonly:*
* correctly identified an oily fish (salmon or sardines) from the Source.

*The less successful responses commonly:*

* stated a plant-based source
* just stated ‘fish’
* identified fortified margarine or just margarine, which is not in the Source.

(ii) *The more successful responses commonly:*

* correctly explained that Vitamin D is required for calcium absorption, which is required for bone growth/bone remodelling.

*The less successful responses commonly:*

* only stated that Vitamin D increases bone development, which is repeating some information in the question and lacking explanation.
1. *The more successful responses commonly:*
* correctly identified one factor from the source (e.g. menopause) and clearly explained how this could increase Angie’s risk of developing osteoporosis (e.g. decreased oestrogen, increasing bone loss).

*The less successful responses commonly:*

* paraphrased the question ‘Angie is a 58-year-old post-menopausal woman’ and did not provide any information not in the question and Source
* did not identify and explain a physiological factor from the Source (e.g. diet, genetics)
* did not explain the identified physiological factor in enough detail to achieve the full 3 marks.

Section 2

Question 6

1. *The more successful responses commonly:*
* correctly identified that the labelling of the muesli bars is the independent variable of the investigation.

*The less successful responses commonly:*

* incorrectly identified the different types of muesli bars as the independent variable (which was a factor that was controlled) in this experiment
* did not recognise from the source that the muesli bars were identical (controlled) and therefore, not the independent variable
* incorrectly identified muesli bars as the independent variable in 6 (a) and then correctly identified the packaging/labelling of the muesli bars as the independent variable in the next question 6 (b) (i).
1. (i) *The more successful responses commonly:*
* correctly identified that the type of muesli bar is a factor being controlled to ensure valid results are obtained and the aim of the experiment can be achieved
* correctly identified that the taste of the muesli bars are the same, and the results obtained would be influenced by the labelling
* displayed a strong understanding of how only the independent variable can be changed to obtain valid data and make valid conclusions
* used relevant practical terminology.

*The less successful responses commonly:*

* did not identify that having the same type of muesli bar for all three samples is a factor being controlled so that the taste of the muesli bars is not influencing the results
* repeated the question and used the word ‘identical’ (found in question) in the explanation rather than using different terminology such as ‘controlled variable’
* used incorrect and/or contradictory practical terminology
* lacked depth in their explanation.

(ii) *The more successful responses commonly:*

* correctly identified that the sensory booths would reduce communication between participants and that this would increase reliability of the results
* explained that reduced communication would prevent participants influencing other participant’s scores, increasing precision
* used relevant practical terminology.

*The less successful responses commonly:*

* did not understand the purpose of the sensory booths
* only discussed the decrease in communication and did not link back to the effect on reliability
* did not explain the type of effect on reliability and just stated: “….would affect reliability.”
* incorrectly stated that the sensory booths would increase communication and decrease reliability
* stated two or more effects but did not explain one of the effects stated to achieve the second mark
* used incorrect and/or contradictory practical terminology.
1. *The more successful responses commonly:*
* identified a relevant recommendation to a marketing manager of a food company that could be justified using the investigation in the sources
* used data from the investigation (Source 3) to support their recommendation (as instructed in the question)
* justified the recommendation of the marketing strategy, such as increasing sales, profit, consumer acceptance, etc.

*The less successful responses commonly:*

* did not use data from the investigation (Source 3) to support their recommendation (as instructed in the question)
* did not state and/or justify their recommendation to the marketing manager as instructed in the question
* identified a marketing strategy that was unrelated to the investigation (such as colour and attractive font on labelling)
* discussed food labelling requirements (such as Nutrition Information Panels, ingredients list, etc.), which was not relevant to the question
* did not provide enough information to achieve the four marks for this question and required more than one or two sentences.

Question 7

1. *The more successful responses commonly:*
* correctly identified one psychological factor that could not be controlled (e.g. past experiences)
* correctly linked the identified psychological factor to an increase/decrease in the precision/reliability/validity of the results and correctly explained why
* used relevant practical terminology.

*The less successful responses commonly:*

* did not identify a psychological factor and identified a different factor that may not be able to be controlled, such as taste, sex, number of taste buds, etc. (generally physiological)
* focused on individual’s personal preferences, such as liking/disliking double chocolate chip muffins and did not identify a psychological factor that this could have derived from
* did not explain how the identified factor that may not be able to be controlled could affect the results collected
* used incorrect and/or contradictory practical terminology.
1. *The more successful responses commonly:*
* identified that the ideal score on a ‘just right scale’ is 3 and not the highest value of 5 on the scale (see Sources)
* identified muffin J as the muffin the company should manufacturer which made it easier to provide two relevant justifications
* used correct data to support at least one of the two justifications provided.

*The less successful responses commonly:*

* identified muffin K or L as the muffin the company should manufacture, which made it harder to provide two relevant justifications backed by the data provided
* involved the ’just right scale’ being misinterpreted and used 5 as the ideal score (instead of 3)
* used the total marks (e.g. 17 for J) instead of the average (e.g. 3.4 for J) for the ideal/highest score (total marks assume that the higher total score is the ideal value but the just right scale used in this investigation has an ideal value of 3, so the average is required to make valid conclusions)
* did not use data to support either of the two justifications
* provided the same answer twice (e.g. using data from the table in Source 2 and then the radar graph in Source 3, but it was the same point).
1. *The more successful responses commonly:*
* correctly identified one limitation of the method provided in the sources, such as only female teenagers used as participants
* correctly explained how the identified limitation of the method reduces the ability of the results of this investigation to be applied to the whole population
* used relevant practical terminology.

*The less successful responses commonly:*

* did not identify a limitation of the method and instead identified a random error
* did not use information from the sources to identify and explain one limitation of the investigation’s method
* identified and explained a limitation of the results obtained instead of a limitation of the investigation’s method
* did not explain how the identified limitation would affect the validity of the investigation and did not make the connection that the current method/results cannot be applied to the general population
* used incorrect and/or contradictory practical terminology.

Question 8

1. (i) *The more successful responses commonly:*
* identified that breakfast foods are generally a good source of fibre, provided an example, and linked skipping breakfast to reduced fibre intake
* explained how the consumption of soluble or insoluble fibre can reduce the risk of constipation occurring
* explained how the reduced consumption of food can reduce gut motility and increase the risk of constipation occurring
* identified that skipping breakfast reduces fluid intake because breakfast foods often include fluids and explained how reduced fluid intake can increase risk of constipation occurring.

*The less successful responses commonly:*

* did not link skipping breakfast to a reduced intake of fibre or water
* did not explain how decreased fibre/water can increase the risk of constipation and instead just stated it
* described what constipation is instead of explaining how consuming fibre can reduce the risk of constipation
* were short and did not include enough information to be awarded the 3 marks allocated.

(ii) *The more successful responses commonly:*

* identified a lifestyle strategy, such as exercise, and provided a relevant explanation.

*The less successful responses commonly:*

* identified and explained a dietary strategy (e.g. increase fibre or water) instead of a lifestyle strategy
* stated a strategy without an accompanying explanation
* provided an incorrect/irrelevant explanation.
1. *The more successful responses commonly:*
* clearly explained in detail how soluble fibre binds to water, increasing the volume in the stomach and can help prevent overeating, reducing energy intake.

*The less successful responses commonly:*

* focused on how fibre consumption prevents constipation
* discussed insoluble fibre instead of soluble fibre
* repeated information that had already been provided in question 8 (a) (i)
* did not clearly explain one way a diet high in soluble fibre could help lose weight and instead identified multiple ways without detailed explanations.
1. (i) *The more successful responses commonly:*
* discussed one way that society has had an impact in accelerating the research and development of FibreX. For example, correctly identifying that there is a significant proportion of Australians (70%) who do not consume enough fibre, which has influenced research and development into new fibre additives and highlights that there is a market for the product.

*The less successful responses commonly:*

* only made the link that 70% of Australians do not consume enough fibre influencing the development of FibreX and did not discuss a second point
* did not identify that the question asked for the impact of society on science and discussed how FibreX affects society instead
* repeated information provided in the source and stem of the question instead of providing new ideas/theory
* provided a SHE key concept, such as communication and collaboration instead of providing relevant information to answer the question on influence (or did not link back to influence).

(ii) *The more successful responses commonly:*

* correctly discussed one positive or negative impact that the application of FibreX could have on the health system. For example, increased fibre consumption through FibreX application in the food industry could help prevent some diet-related diseases (e.g. diverticular disease) decreasing the strain on the health system and government funding can be diverted to other public needs (e.g. transport infrastructure or education).

*The less successful responses commonly:*

* identified one way that the application of FibreX in the food industry could affect the health system but did not discuss how
* focused on how the application of FibreX could affect the food industry rather than the health system
* repeated information provided in the source and stem of the question instead of providing new ideas/information
* did not provide a discussion and instead provided short descriptions
* provided answers that were not linked back to society, but rather to the individual.

Question 9

*The more successful responses commonly:*

* identified salmonella as the most likely type of bacteria causing the food poisoning
* identified the chicken dish as the most likely source of the salmonella food poisoning, making it easier to use the Sources to discuss multiple relevant pieces of evidence used to make the conclusion
* identified a logical explanation for the change in the fridge’s temperature (Source 5), such as loss of power to the fridge
* used data to explain that the increase in the fridge’s temperature exposed the ingredients inside the fridge to temperatures within the danger zone for a long period of time
* identified a relevant alternative storage method for the chosen ingredient and correctly explained in detail how this storage method preserves the ingredient
* clearly stated that salts/electrolytes are lost during vomiting/diarrhoea and are not replaced by drinking plain water
* explained a function of a salt/electrolyte relevant to relieving symptoms of food poisoning
* provided a lot of detail with accurate information.

*The less successful responses commonly:*

* did not identify salmonella and the chicken dish as the most correct cause of the food poisoning cases making it harder to obtain the full marks for those sections
* did not discuss multiple relevant pieces of evidence used to make their conclusion(s) and generally only provided one reason
* did not provide a possible explanation for the change in the fridge’s temperature (Source 5)
* did not use data when discussing the shape of the graph (Source 5)
* incorrectly stated that the fridge’s temperature changed because of the change in the outdoor temperature across the day without identifying that the fridge would have to be turned off and/or the fridge door left open for this to occur
* did not identify that the foods in the fridge were in the danger zone for a long period of time
* did not correctly explain how the chosen alternative storage method preserved the ingredient or provide enough formal detail
* identified a preservation method for their identified ingredient instead of an alternative suitable storage method
* lacked a comparison of the benefit of drinking fluids containing added salts with plain water
* did not identify that salts (e.g. sodium) are lost from the body during vomiting/diarrhoea (symptoms of food poisoning) or explain a correct function of a salt in the body that is relevant to relieving symptoms of food poisoning (e.g. sodium and water/solute balance)
* focussed on how the salt water would reduce water availability to bacteria in the body instead of how the electrolytes needed replacing and explaining their importance (functions) in the body
* had little information presented in the answer and was very short
* overlooked parts of the question.