2020 Nutrition Subject Assessment Advice

Overview

Subject assessment advice, based on the 2020 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

Assessment Type 1: Investigations

For a 20-credit subject, students conduct at least three practical investigations with practical reports, and one issues investigation.

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 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. Please note that in 2021 the new subject outline requires students to undertake a design practical investigation. Refer to the new subject outline for details.

When submitting student work online it is important to include the relevant task sheet and highlighted performance standards that correlates with the grade allocated for each task.

The more successful responses commonly:

* included evidence of design often in the form of Practical Task Design pro formas completed by students with evidence of teacher feedback. This allowed for, and provided, direct evidence of student achievement of I1
* demonstrated support of I3 (laboratory performance) and A3 (collaboration) either by student evidence e.g., photos, annotations, written peer/collaborative and self-assessment or by teacher justification through written comments or use of assessment pro formas (see SACE website for examples, Stage 2 Nutrition support materials — subject advice and strategies: Teacher observation notes (individual and collaborative performance), practical skills assessment)
* included clear and insightful evaluations of procedures, random and systematic errors and addressed reliability and validity of results obtained. Students were able to clearly identify the error, the effect on the data and the improvement required
* showed strong analysis of data that inferred meaning in terms of diet/health/nutritional value rather than restating results
* utilised and responded to clear and well scaffolded task sheets that provided students with opportunities to demonstrate higher order thinking and achieve at A band level
* used clear, correct and appropriately sized graphs and tables to display findings of investigations in the results section of the report, accompanied by brief statements of the main patterns and trends in the data:
* were provided with tasks that allowed students to demonstrate knowledge and apply understanding of concepts to real life scenarios
* provided clear links between nutritional theory and the investigation being carried out. This nutritional theory was then referred to in discussions and analysis to connect to aims and outcomes of the investigation. Often research was used and referenced to support findings
* illustrated evidence of critical thinking and problem solving to form evaluation and analysis in the higher-grade bands
* used scientific and subject specific terminology correctly and appropriately.

The less successful responses commonly:

* misunderstood the effects of random errors (precision and reliability) and systematic errors (accuracy and validity)
* did not include investigation design proposals, with teacher feedback, thus limiting evidence of I1
* featured graphs that were poorly formatted and that did not correctly display results/data
* used personal pronouns in analysis and discussion
* did not clearly address all aspects of evaluation, including random and systematic errors and improvements connected to the practical undertaken. If evaluation of errors was evident it tended to be very generic with little reference to improvement of the procedure
* included limited analysis of information. Data was presented but clear connections to nutritional understanding and information was minimal
* provided limited evidence of A3 (collaboration) and I3 (laboratory performance) from the teacher and/or the student, to support the assessment decision
* consisted of discussion that tended to repeat or restate data rather than analysing and/or elaborating on results and connecting to the hypothesis/aim and background nutritional information.

Issues Investigation

Issues investigations were presented two ways with some completed in class under timed, supervised conditions after undertaking research and compiling notes; while others were provided with an extended time period to complete the investigation independently. Several teachers are using the issues investigation as an opportunity to further explore and increase understanding of the option topics, especially option topic 1.

The more successful responses commonly:

* explored alternate arguments and information to reach a conclusion to a question
* included sources analyses which supported and provided evidence of student achievement of I2. By doing this, the students clearly summarised the relevance, bias, and the credibility of a source
* demonstrated students’ critical literacy and knowledge of nutrition by presenting different points of view and then concluding with their own informed decision
* synthesised students’ own arguments from research rather than paraphrasing sources
* refined a question from a broad, contemporary topic that provided scope for multiple points of view to be explored
* used credible, up-to-date sources of information such as journal articles rather than generic web pages
* included a correctly presented bibliography and reference list that included a range of resources.

The less successful responses commonly:

* provided an information report on a topic rather than an exploration of a well formulated question to arrive at a conclusion
* did not adhered to the word count of 1500 words (including the source analysis)
* did not provide source analysis for the investigation
* used limited and/or generic sources of information.

Assessment Type 2: Skills and Application Tasks

Timed tasks under supervision, such as tests and trial examinations were the most common form of assessment undertaken, however there were a variety of diet analysis and diet plans related to diet disorders. It is important that teachers prepare skills and applications tasks that provide a range of well-structured and clear questions that provide opportunities for analysis, demonstration of knowledge and understanding, problem solving and application of knowledge to real life scenarios, to provide students with the opportunity to apply knowledge and show higher order thinking required at A band level (KU1 and KU2) i.e., more questions worth 3–4 marks.

The more successful responses commonly:

* communicated effectively through the provision of thorough and organised answers incorporating nutritional concepts
* were able to show competency answering questions requiring lower order thinking skills such as ‘describe’, and ‘discuss’ to higher order thinking such as ‘apply’ and ‘critique’
* applied knowledge to evaluate and solve problems
* used clear, subject specific terminology
* explained answers in depth and specific to the question asked
* included a range of support materials (for example, the Australian Guide to Healthy Eating (AGHE) graphs and info graphics) to assist student achievement through interpretation, analysis and application of information
* occurred when opportunity was provided for assessment across a range of performance standards. For example, provision was made for application of concepts, interpreting and analysing data rather than only demonstrating knowledge and understanding.

The less successful responses commonly:

* did not follow the explicit directions of a question (analyse, describe, determine, state etc.)
* provided limited or generalised information or only answered part of the question
* were unable to demonstrate higher order thinking due to question design
* did not elaborate or justify answers
* occurred when students were not clear as to which specific features were being assessed in a task/question
* contained limited or poor use of nutritional terminology.

Assessment Type 3: E–Examination (20 credits)

The exam has a time length of 120-minutes. The exam was presented in 2 parts. Part 1 is short-answer and analytical questions which equate to 100 marks. Part 2 is the extended response which students choose the topic they have studied Option Topic 1 or Option Topic 2, this part is worth 20 marks, giving the total exam mark of 120 marks. The extended response and option topics will no longer have a place in future exams as per the new 2021 Stage 1 and 2 Nutrition Subject Outline.

Part 1: Short-answer and Analytical Questions

Part 1: Section A

Question 1

(a) The more successful responses commonly:

• identify protein (majority of responses)

• identified fat (small number of responses).

The less successful responses commonly:

• identifying carbohydrates as well as micronutrients.

(b) The more successful responses commonly:

• identified fibre as a benefit of wholegrain roll; most students were also able to elaborate with benefit of producing soft bulky stools and some made further connection with reducing constipation and diverticular disease.

The less successful responses commonly:

• incorrectly discussed absorption of nutrients and satiety in benefits

• misinterpreted the question and explained the digestion of carbohydrates.

(c) The more successful responses commonly:

• identified calcium as a significant nutrient

• included Vitamin C, Vitamin A (some responses)

• explained the function of the micronutrients well

• identified cheese or glass of milk, or vegan choices such as tofu or leafy greens (e.g. spinach) as examples of food modification for the bread roll.

Question 2

(a) The more successful responses commonly:

• were able to able to state all three trends correctly, e.g. boys show an increased rate of being overweight as their age increases.

The less successful responses commonly:

• tended to bundle obesity and overweight as a trend

• pick out one off data as a trend.

(b) The more successful responses commonly:

• referred to the two sources stating “the older children are the less physical activity they do, resulting in weight gain” in their conclusion.

The less successful responses commonly:

• did not refer to both sets of data.

(c) The more successful responses commonly:

• were able to relate food and drink which suited an individual as per their energy expenditure in which their energy intake is balanced with their energy output

• referred to energy dense foods as being high in kilojoules and mainly high in fat and sugar

• were able to identify that nutrient dense foods contain high levels of micronutrients and fibre

• identified diabetes and cardiovascular disease (the most popular responses) and justified well in reference to the role of diet.

The less successful responses commonly:

• created answers were nonspecific and tended to provide a general discussion about the types of food and drinks that could be consumed or nutrient dense and energy dense foods

• discussed variations in energy needs depending on particular age/physical activity.

Question 3

(a) The more successful responses commonly:

• discussed positive energy balance leads to storage of adipose tissue.

The less successful responses commonly:

• were too brief in their response and not referring to energy balance

• had strategies too similar or paraphrased strategy 1 for strategy 2.

(b) The more successful responses commonly:

• identified two different strategies to reduce high consumptions of food.

The less successful responses commonly:

• had strategies too similar or paraphrased strategy 1 for strategy 2.

(c) The more successful responses commonly:

• were able to explain the benefit to the consumers using data from the sources available; that being that the manipulation of the serving sizes by the manufacturer (referring to the weight and kilojoule content) would be perceived as healthier by the consumer resulting in consumer purchases and therefore a sale and financial benefit to the manufacturer to achieve 3 marks

• calculated the correct amount in grams and therefore percentage

• discussed the importance of images in understanding serving sizes as opposed to grams and made links to reducing portion size and therefore reducing energy intake.

The less successful responses commonly:

• either gave a generalised answer that had no links to course content or incorrectly discussed the manufacturer’s role in assisting the consumer to select the right food for their needs

• did not use the data, despite the questions clearly stating, “using data from these …”.

Question 4

(a) The more successful responses commonly:

• most students calculated the BMR correctly.

(b) The more successful responses commonly:

• identified that loss of weight (mass) would contribute to lower BMR

• referred to reduction in muscle mass from weight loss would reduce BMR

• included that the body conserves energy after weight loss.

The less successful responses commonly:

• only stated that weight loss refers to a decrease in BMR.

(c) The more successful responses commonly:

• were able to state that this would cause nutrient deficiencies, and this was followed by explanations of impact on health

• were able to correctly refer to a permanent decrease in BMR, therefore individuals would not use as many kilojoules and therefore excess kilojoules would be stored as triglycerides etc.

The less successful responses commonly:

• provided a discussion of a particular diet e.g. keto that excluded 1 or 2 food groups

• explained that weight gain would occur due to reverting back to previous food habits/lifestyle

• identified changes to BMR as a result of the body conserving energy

• showed misconceptions with students discussing the body having the ability to ‘bank’ nutrients that had been depleted for future use.

Question 5

(a) The more successful responses commonly:

• were linked to convenience and health

• identified a clear advantage and provided valid and relevant elaborations.

The less successful responses commonly:

• incorrectly suggested that it would be a cheaper alternative to takeaway and that the meals would be tailored to the individual’s nutritional requirements.

(b) The more successful responses commonly:

• stated two distinct functions and then explained this clearly and concisely

• were around reducing light, oxygen, moisture to reduce microbial activity.

The less successful responses commonly:

• incorrectly discussed recycling as an advantage of using cardboard

• referred to the principle of protection for both functions and therefore not awarded all marks.

(c) The more successful responses commonly:

• clearly explained one strategy well but the second not so

• were centred on transporting in a refrigerated truck below temperature danger zone

• identified strategies to stop cross contamination were also mentioned, particularly with separating meat and dairy and raw meat with fruit and vegetables.

The less successful responses commonly:

• identified vacuum packaging as a strategy but did not elaborate on how this would assist in the transporting of the specific foods

• mentioned canning, freezing or drying foods which did not refer to the transport of meat and dairy

• provided a common incorrect answer; ‘to contact consumers and ensure they were home for delivery’.

Part 1: Section B

Question 6

(a) The more successful responses commonly:

• explained the concept of no packaging required to separate the food products

• referred to consumers saving money due to not having to purchase separate containers or packaging such as sandwich bags. Further responses included buying bulk rather than snack size individually wrapped.

The less successful responses commonly:

• may not have been familiar with the concept of nude food and misinterpreted it as meaning the lunch box was ‘nude’ as in exposed with no lid on it

• gave irrelevant answers in relation to benefiting the environment rather than focusing on money.

(b) The more successful responses commonly:

• included that plastic containers are not renewable and do not decompose and therefore remain intact in landfill, taking up space

• correctly referred to the non-breakdown of plastics and the effect on the environment including the oceans and impact on animals.

The less successful responses commonly:

• restated the question in stating that plastic can harm the environment, without stating the why.

(c) The more successful responses commonly:

• correctly referred to ham, cheese, yoghurt, or egg

• referred to danger zone temperatures and links with bacterial growth

• referred to the inclusion of an ice pack, or refrigeration in student fridge (as per the practice in some kindergartens) to limit time spent in danger zone to reduce bacterial growth.

The less successful responses commonly:

• restated their response as per part (c)(i).

Question 7

(a) The more successful responses commonly:

• were able to connect low GI foods with the slow release of glucose into the bloody gradually causing a slow rise and fall of blood glucose levels.

The less successful responses commonly:

• incorrectly responded with energy levels related to High GI rather than low GI

• compared high GI and low Gi and focused on insulin.

(b) The more successful responses commonly:

• were answered well indicating students had a good understanding on how to identify an independent variable from the data given

• answered this question well and showed a good understanding of what factors need to be controlled in an experiment

• successful explanations had to include their valid controlled variable and the effect on the GI levels.

The less successful responses commonly:

• selected part of the independent variable of time cooked or GI = showing poor understanding of difference between independent/dependant and control variables

• were unable to explain how the control variable changed the GI, only suggesting it would increase/decrease it without reason.

(c) The more successful responses commonly:

• used data and identifying a correct pattern and then an explanation regarding GI effect due to different cooking methods.

The less successful responses commonly:

• did not refer to data

• were able to refer to data and describe the change in GI but without an explanation and therefore did not achieve the full three marks.

(d) The more successful responses commonly:

• correctly stated two errors in the graph.

(e) The more successful responses commonly:

• referred to systematic errors such as incorrect calibration of timer or equipment measuring the GI in which accuracy is reduced.

The less successful responses commonly:

• did not have a correct understanding of what a systematic error is to answer this correctly.

• were not able to use their practical skills to show how systematic errors affected the data and many discussed reliability instead of accuracy (or spoke about both together).

(f) The more successful responses commonly:

• referred to the Glycaemic Index and the amount of carbohydrate present

• referred to the different amounts of carbohydrate present in varying sizes of the potato would result in varying GL calculations.

The less successful responses commonly:

• did not show their knowledge and understanding of Glycaemic Load in reference to the presence of carbohydrates and the varying sizes.

Question 8

(a) The more successful responses commonly:

• referred to individuals with low calcium intake not requiring peak bone mass density and this then resulting in the increases risks of developing osteoporosis.

The less successful responses commonly:

• did not reference peak bone mass.

(b) The more successful responses commonly:

• linked the increased EAR range to that of the rapid growth in puberty

• referenced the data range of 800–1050mg.

The less successful responses commonly:

• provided no reference to the data linking the age group to the EAR.

(c) The more successful responses commonly:

• correctly identified a food alternative to dairy e.g. spinach.

The less successful responses commonly:

• identified milks when the asks for a food

• gave a dairy food despite the questions seeking an alternative.

(d) The more successful responses commonly:

• identified caffeine and alcohol and were able to explain with reference to frequent urination

• correctly identified the factor but did not give an explanation.

The less successful responses commonly:

• referred to lactose intolerance which was incorrect.

Question 9

(a) The more successful responses commonly:

• used correct figures and identifying that the result was double

• correctly identified the increased intake of processed foods.

The less successful responses commonly:

• did not refer to data.

(b) The more successful responses commonly:

• were able to recall a correct benefit of sodium e.g. fluid balance.

(c) The more successful responses commonly:

• referred to increased salt consumption resulting in reduced water loss and therefore increased blood fluid leads to greater blood pressure.

The less successful responses commonly:

• showed confusion for some students referring to high blood pressure and then hypertension when they are the same thing

• referred to salt consumption and blocked arteries.

(d) The more successful responses commonly:

• identified the food type and then referred to data which applied to the first disorder (usually high blood pressure) and then referred to data which applied to the second disorder (either diverticulitis, CVD, or diabetes)

• correctly identified the nut cluster or cinnamon muesli as the healthier option and justified using the data relevant.

The less successful responses commonly:

• did not refer to data

• only referred to one disorder rather than both.

Question 10

(a) The more successful responses commonly:

• were able to state a function or iron correctly.

The less successful responses commonly:

• confused terminology e.g. referred to iron as creating red blood cells.

(b) The more successful responses commonly:

• linked the age bracket to menstruation and blood loss

• linked Vitamin C with increasing iron absorption and therefore also stating a food combination of non-haem iron foods and vitamin C rich foods.

The less successful responses commonly:

• confused complete proteins with achieving iron intake.

(c) The more successful responses commonly:

• were specific with red meat

• identified Haem iron.

Part 2: Extended Response

Question 11: Option Topic 1 Global Nutrition and Ecological Sustainability

The term sustainable food supply and its importance for the future of communities.

Most successful answers:

* a lot of students discussed ‘food security’, which was a small part of the question
* discussed the notion of food security and sustainability by discussing how sustainable food supplies alleviated environment stress or stopped draining natural resources
* gave examples of farming practices which have less impact of the biodiversity of the environment.

Less successful answers:

* did not understand or misinterpreted the term ‘sustainable.’ Most students understood the importance of providing food for a growing population but did not make clear connections to the environment/sustainability
* described a sustainable food supply only in the context of it being a healthy and nutritious.

Two ways that GMF can increase the world’s food supply

Most successful answers:

* crops that are resistant to harsh weather conditions will increase crop yield e.g. drought
* GM crops can be pest resistant.

Less successful answers:

* identify the purpose of GM crops e.g. resistant to pests or tolerant to drought but did not always explain how it increased food supply.

Two ways in which current food crop production in Australia can have a negative impact on the environment.

Most successful answers:

* monocrop production e.g. wheat, bananas
* eutrophication — from fertilisers and water contamination
* heavy machinery used during food production
* over watering — particularly crops grown in wrong climate
* deforestation due to clearing of land because of large scale farming practices with a link also to use of machinery and release of fossil fuels.

Less successful answers:

* detailed the environmental impact of food miles or cattle production, which did not link to ‘food crop’ production
* showed that students did not read the question carefully to ensure their responses are appropriately tailored. Many students clearly articulated an environmental response, but they were not always relevant to food crop production.

Two programs run by non-government organisations and how they help to achieve a sustainable food supply.

Most successful answers:

* identified food waste programs such as The Odd Bunch, Stephanie Alexander Garden etc and organisations like Food Bank and Oz Harvest were popular responses
* identified education, but students needed to be more specific. These responses did not show depth of knowledge, because they were too general at times.

Less successful answers:

* did not always answer with a program run by an NGO. A lot of students classified Meals on Wheels as NGO
* did not always explain how the program would support a sustainable food supply
* attempted to ‘double dip’ here e.g. two programs that both linked to food waste.

Question 12: Option Topic 2 Global Hunger

Two impacts of climate disasters on farming land and yields, resulting in food shortages in a local community.

More successful answers:

* Identified droughts and floods - with a general response about crops being destroyed or yield decreased and thus food shortages
* were able to refer to impact on soil or nutrients.

Less successful answers:

* did not linked the identified disaster to farming land and yields. e.g. many students discussed farmers not being able to work and earn an income
* discuss damaged equipment without linking to harvest/yields
* referenced lack of food and malnutrition.

Two economic factors affecting local communities to access food after a climate related disaster

More successful answers:

* identified farmers loss of income = less money to buy food - no crops to sell/trade, no crops therefore no food for families and community to eat
* stated community’s decreased capacity to trade
* explained increased costs of transport — difficulties trading or accessing food due to transport and roads being destroyed.
* explained increased food prices — due to limited amounts or range of foods available the cost of food would go up and therefore limit access for communities who already suffer from poverty
* discussed unequal distribution of funds by the Government — Governments being corrupt/in debt therefore not assisting communities with food aid or rebuilding farmlands
* discussed cash crops therefore not a range of foods available or income when these crops are destroyed.

Less successful answers:

* did not understood the term ‘economic’ and thus responses were not always relevant
* gave an answer of SES of a community did not show a thorough understanding of the question. Students needed to link this with the individual’s capacity to access food.

Two strategies regarding water quality and availability that could be used to reduce the impact of food shortages during a climate related disaster

More successful answers:

* water filtration — decrease waterborne diseases
* water availability/Infrastructure such as wells, pumps, and tippy taps, water catchments — increased availability — closer to communities — connect these ideas to increasing food production opportunities due to greater water access
* W.A.S.H
* water quality — education about how to remove contaminants such as boiling water, washing hands, cooking, bathing, use of separate toilets — all then connected to limiting water borne diseases and thus improving the health of people so they can contribute to food production.

Less successful answers:

* did not always link the strategy to reduced food shortages
* identified ‘dehydrated’ farmers, but answers were not always related back to minimizing food shortages during a climate disaster.

Two strategies that may reduce the overall impact of food shortages during a climate related disaster.

More successful answers:

* AusAID — address food shortages in the short term and helps the community to recover/rebuild
* infrastructure such as food storage facilities were common responses — storing or preserving foods in preparation for disaster to reduce potential shortages, building infrastructure that can withstand climate disasters Suggestions of freezers and fridges showed some knowledge of food preservation but were not necessarily appropriate to the context of developing countries
* food preservation. Again, students demonstrated some knowledge in their responses, but they were not necessarily relevant to the context of the topic
* NGO providing food aid to allow communities to gain energy to help rebuild after a disaster
* microfinancing/revolving loans
* education about how to farm more effectively e.g. appropriate crop selection, irrigation, use of GMO’s.

Less successful answers:

* discussed development aid, however, students did not seem to understand this would have taken the community time to implement. This therefore would not have helped overcome food shortages in the short term
* family planning, contraception, immunisations — no connection to food shortages during a climate disaster.

Option Topic: Extended Response — General Feedback

Students should be recommended to:

* Write in separate paragraphs for each dot point rather than in one long continuous paragraph for all four dot points.
* Not waste time rewriting information from the question that is not essential to their answer that is do not paraphrase the question at the beginning of each dot point.
* Only discuss as many points as the question requires. That is, do not discuss 3 when it is only asking for 1.
* Not repeat information from previous dot points again.
* Relate their answers back to food security or sustainability.