2022 ASSESSMENT REPORT

FDN315118 – FOOD AND NUTRITION

GENERAL COMMENTS:

More successful responses showed evidence of reading questions carefully and correctly addressing all parts of the question.

Section A - Nutrition

Criterion 4: Describe the relationship between nutrition, food and health.

The following are the types of responses required for Section A. Marks have been allocated for variations, depending on the examples used by the students to demonstrate their understanding. Students were expected to give clear responses. Answers must be supported by science-based nutrition research to be accepted as valid e.g. NHMRC, AIHW.

PART 1

QUESTION 1

a) *Explain the difference between energy dense foods and nutrient dense foods, using examples.* **(2 marks)**

Students either explained the difference between the terms or gave the definitions. Both were accepted. Less successful responses didn't fully explain the terms or gave incorrect food examples e.g. incorrectly stated that potato, bread, pasta and rice are energy dense foods.

Successful responses included:

Energy dense foods are low in essential nutrients and high in kilojoules per gram of food e.g. chips and chocolate, whereas nutrient dense foods contain useful amounts of different nutrients without a high kilojoule value e.g. broccoli, apple.

Energy density is the amount of kilojoules per gram of food. The more kilojoules per gram, the greater its energy density e.g. chips and chocolate. Nutrient density is the amount of a nutrient in a food compared to the food's energy value. A nutrient dense food generally contains a range of nutrients and is low in energy e.g. broccoli, apple.

b) *Define the term Basal Metabolic Rate (BMR)* **(2 marks)**

Generally, well answered. More successful responses included examples of metabolic processes.

Successful responses included:

Basal Metabolic Rate is the energy used for metabolic processes in the body other than physical activity e.g. breathing, thinking. It accounts for approximately 50-80% of energy.

Basal Metabolic Rate is the minimum amount of energy needed to keep the body functioning while at rest. For metabolic processes other than physical activity e.g. blood circulation, nerve function.

c) *State two (2) factors which can increase an individual's BMR.* **(1 mark)**

More successful responses gave factors that increase BMR. Less successful responses included gender, age, height and weight. These needed an explanation as to why.

Successful responses included:

Two of the following - larger body size, body composition (more muscle mass), hormones, illness, drugs, exercise, pregnancy/lactation

Males as they tend to have more lean muscle mass and children as it is a period of growth.

QUESTION 2

a) *What are essential amino acids?* **(2 marks)**

Generally, well answered and a successful response included:

Essential amino acids cannot be made by the body and need to be supplied by food. Complete protein foods contain all the essential amino acids e.g. beef, milk.

b) *Apart from providing energy, list two (2) functions of protein in the body.* **(2 marks)**

Generally, not well answered. Less successful responses did not list all the factors below.

A successful response included:

1. For the growth, maintenance and repair of body cells.
2. Produce hormones, enzymes and genes.

c) *Give one (1) example of two (2) foods which provide complementary protein when eaten together.* **(1 mark)**

Generally answered well. Successful responses gave two incomplete protein foods. No marks were awarded if a complete and incomplete protein were given.

Successful responses included:

Baked beans on toast, rice and peas.

QUESTION 3

a) *Explain why a person on a vegan diet is at higher risk of iron deficiency than a person on a diet which includes meat.* **(2 marks)**

A number of students referred to a protein deficiency rather than iron as the question asked.

Successful responses included haem and non-haem iron and food examples. Assumptions such as, 'men eat more meat than women did not score any marks.'

A successful response included:

Iron is found in larger amounts and is more readily absorbed in meat products than in plants. Haem iron is found in meat products such as beef and chicken. Non-haem iron is found in plants such as nuts and legumes.

b) *Why are women at higher risk of iron deficiency than men?* **(1 mark)**

Generally, well answered. Markers were looking for menstruation. Half a mark was awarded for pregnancy or lactation.

A successful response included:

Women lose iron when they lose blood in menstruation.

QUESTION 4

Which two (2) of the following nutrients are recommended to be increased during pregnancy and why? (Vitamin C, calcium, sodium, folate, carbohydrate) **(4 marks)**

Generally, well answered. The nutrients vitamin C, calcium, folate and carbohydrate were accepted.

Successful responses included:

Nutrient: Calcium

Reason: Calcium is required in larger amounts to form the bones of the foetus. If the woman does not consume enough calcium she may be at higher risk of osteoporosis in the future.

Nutrient: Folate

Reason: Folate is needed in higher amounts during pregnancy to prevent neural tube defects e.g. spina bifida in the foetus. It is particularly important in the early stages of pregnancy as this is when the neural tube is formed and closed.

Nutrient: Vitamin C

Reason: Vitamin C is needed in higher amounts during pregnancy as it is important for healthy gums, teeth, bones and small blood vessels. It also helps with iron absorption. Pregnant women need more iron during pregnancy.

Nutrient: Carbohydrate

Reason: Pregnant women require more carbohydrate for energy as it is a period of growth. It is also the body's preferred energy source, needed for organs such as the brain and kidneys.

QUESTION 5

a) *State one (1) symptom of iodine deficiency.* **(1 mark)**

Generally, not well answered.

Successful responses included one of the following:

Goitre, enlarged thyroid gland, stunted physical or mental growth in children

b) *Name one (1) rich food source of iodine.* **(1 mark)**

Generally, not well answered. If a plant food was named, it also needed to include when the soil is not iodine deficient for full marks.

Successful responses included foods such as:

Seafood, plant food grown in soil that is not iodine deficient, iodised salt, bread

c) *Explain the interrelationship of Vitamin D and one (1) other micronutrient in forming bones.* **(2 marks)**

Most students were able to name up calcium. Markers were looking for an explanation of the relationship for full marks.

A successful response included:

Vitamin D is needed for the body to absorb and use calcium and phosphorus which are needed to form strong bones and teeth. They deposit mineral in our bones and teeth which is known as ossification.

QUESTION 6

Choose one (1) of the following non-nutrients: **(3 marks)**

- Antioxidants
- Probiotics
- Phytoestrogens

Identify two (2) health benefits of consumption and two (2) natural food sources of this non-nutrient.

Generally, not well answered. Students often stated that they do prevent a range of conditions, but as there is still a lot of research being done on non-nutrients it is more that they may prevent certain conditions. Markers were looking for an outline of a non-nutrient that included two health benefits and two natural food sources.

Successful responses included:

Antioxidants act as scavengers of substances in the body called free radicals, which cause damage to cells. They help the body's defence system and may help prevent or postpone cancer, heart disease, ageing and arthritis. Fruit, vegetables and wholegrain cereals are good food sources.

Probiotics are a bacteria when consumed in sufficient quantities may benefit digestion and the digestive system. They may help with disorders such as diarrhoea, constipation and inflammatory bowel disease (IBD). Food sources include yoghurt with added probiotics, sauerkraut, kefir and kimchi.

Phytoestrogens are plant forms of oestrogen but the effects are not identical. They may reduce the symptoms of menopause, may prevent osteoporosis and heart disease. Food sources include soy products and flaxseed.

PART 2

QUESTION 7

a) *Identify three (3) dietary reasons for the high incidence of obesity in Australian children.*

(3 marks)

Generally, not well answered. Very brief answers were given. Eating too much saturated fat was a common answer but a better answer would have been a diet high in fat as all fat is energy dense. Many students talked about how a diet high in saturated fat raises LDL cholesterol which is correct but not appropriate for this question. It is more about how fat can lead to energy imbalance and weight gain.

Reasons such as a lack of exercise or advertising influences were not awarded any marks as these are more lifestyle reasons. Diets high in sodium was not accepted unless it was explained that these foods tend to be high in fat as well.

Markers were looking for dietary reasons that referred to nutrients such as fat, sugar and fibre, discretionary or energy dense foods and other dietary factors such as portion size.

Successful responses included:

A diet high in fat as this is the most energy dense nutrient supplying 37kj/g. This can lead to energy imbalance and weight gain. Foods such as commercial pizza, fried chips and chocolate.

A diet high in sugar as this can add extra kilojoules to the diet which can lead to energy imbalance e.g. soft drink, lollies, biscuits.

A diet low in fibre, so may be lacking a feeling of fullness, which can prevent overeating e.g. a lack of fruit, vegetables and wholegrain cereals.

A diet high in discretionary foods as these tend to be high in fat and sugar which can lead to consuming more kilojoules than what the body is using e.g. meat pies, ice-cream.

Big portion sizes adds more kilojoules to the diet, which could lead to energy imbalance and weight gain. For example, eating 5 pieces of pizza rather than 2.

b) *Explain how a diet that is high in animal fat may contribute to the development of heart disease. Include food examples in your answer.* **(4 marks)**

Generally, well answered. Markers were looking for the use of terms; saturated fat, LDL cholesterol, arteries, atherosclerosis, heart disease and food examples.

A successful response included:

Animal fat is generally saturated fat. This fat raises LDL cholesterol which is the type that can build up in the arteries. This is known as atherosclerosis and can result in narrowing and hardening of the arteries. This can hinder blood flow and lead to heart disease. Foods high in animal fat include sausages, butter and commercial burgers.

c) *Explain how each of the following strategies may be effective in reducing a person's risk of developing heart disease.* **(6 marks)**

Most students could identify nutrients these foods were high in. An accurate explanation of how they could help reduce the risk of heart disease was needed for full marks. Some students incorrectly referred to Type 2 diabetes rather than heart disease.

- *Increasing the consumption of wholegrain cereal products such as oats*

  Successful responses included:

  Soluble fibre helps to lower cholesterol and reduce the risk of heart disease. Fibre also gives a feeling of fullness to help prevent overeating. Obesity is a risk factor for heart disease.

- *Limiting the consumption of anchovies, feta cheese, salami and potato crisps*

  Successful responses included:

These foods are high in sodium which can lead to high blood pressure. This can damage the inside of the arteries providing a place for cholesterol to build up and increase the risk of heart disease.

These foods are high in saturated fat which can raise LDL cholesterol. This can build up and block arteries leading to heart disease.

- *Increasing the consumption of grilled fish*

  Successful responses included:

  Grilling the fish may mean less use of saturated fat for cooking. This would mean less risk of high cholesterol which is a risk factor for heart disease.

  Grilled fish is a good source of omega 3 (polyunsaturated fat), which raises HDL cholesterol. HDL helps to remove cholesterol from the body via the liver which helps to prevent heart disease.

d) *Explain how each of the following strategies may be effective in managing Type 2 diabetes* **(4 marks)**

- *Reducing carbohydrate foods high in disaccharides and replacing with high fibre carbohydrate foods*

  Markers were looking for the use of terms such as high and low GI foods or simple and complex carbohydrates, blood glucose levels and insulin.

  Successful responses included:

  Foods high in disaccharides can be high GI and release glucose quickly into the blood causing a sharp spike in blood glucose levels. This can be hard for people with Type 2 diabetes to manage due to a lack of effective insulin. High fibre carbohydrate foods cause a lower rise in blood glucose levels which is easier to manage.

  Disaccharides are simple sugars that cause a sharp rise in blood glucose levels which are hard to manage for people with Type 2 Diabetes. They either don't produce enough insulin or what they do is ineffective. High fibre foods are more complex carbohydrates which release glucose more slowly into the blood which is easier to manage.

- *Limiting consumption of fatty foods*

  Some students incorrectly referred to heart disease rather than Type 2 diabetes. More successful responses talked about fat being a barrier to insulin. Less successful responses made incorrect assumptions that all fatty food is high in sugar.

A successful response included:

A diet high in fatty foods can lead to fat being stored on the body. Fat can act as a barrier to insulin reducing its effectiveness in controlling blood glucose levels. Limiting fatty food consumption can help prevent this.

e) *Name one (1) health promotion organisation and outline their role in the prevention of diet related disease.* **(3 marks)**

Generally answered well. More successful responses referred to health promotions such as LiveLighter, the Australian Dietary Guidelines, the Heart Foundation, Diabetes Australia, the Health Star Rating and Live Well Tasmania. Responses that referred to meal delivery programs such as Lite and Easy were not accepted.

A successful response included:

The Heart Foundation funds research into the disease. They aim to raise awareness and educate people on how to prevent the disease. Their website includes statistics, key symptoms and healthy lifestyle tips to prevent the disease e.g. heart healthy recipes, information for primary schools on Jump Rope for Heart.

Section B – Diet Analysis

Criterion 5: Analyse diets using Nutrient Reference Values and recognised food selection tools

PART 1

QUESTION 8

a) *Compare Tom's energy intake with the recommended intake and determine the long-term outcome if this continues.* **(2 marks)**

Generally, well answered. Most students included the EER, Tom's energy intake, a comparison and long-term outcome.

A successful response included:

Tom's EER is 14,210kj but his actual energy intake is 134% of this, meaning he is over his EER by 34%. If this continued, he would likely become obese (already overweight BMI 29).

b) *Refer to the ratio energy graph. How does Tom's fat intake compare to the acceptable macronutrient distribution range (AMDR)?* **(2 marks)**

Many students may have misread the question and included the AMDR and intake for all three macronutrients. This did not score extra points. Full marks were given to those who explained Tom was within the range but at the upper end of it.

A successful response included:

The AMDR for fat is 20-35%. Tom's is 32% which is in the range but at the upper end of this.

c) *Refer to the ratio fats pie chart. How should Tom's fat intake be adapted to comply with nutrition recommendations?* **(2 marks)**

Generally, well answered. Markers were looking for reference to all three fats.

A successful response included:

The recommended fat ratios are 33% saturated, 33% polyunsaturated and 33% monounsaturated. Tom's are 46% saturated and 40% monounsaturated (both above the rec.) so he needs to reduce these. His polyunsaturated is 14% (under the rec.), so he needs to increase this.

d) *Refer to the ratio energy graph and Tom's daily food intake. Discuss the amount and the type of carbohydrates Tom consumes. Suggest how this can be adapted to comply with nutrition recommendations.* **(3 marks)**

Generally, not well answered. Most students referred to the ratio energy graph and the AMDR but missed the second part about identifying how he could modify his diet.

More successful responses referred to Tom's carbohydrate foods being from discretionary choices containing high fat and sugar components with low fibre. Some students correctly indicated that these are high GI foods.

A successful response included:

50% of Tom's energy intake is from carbohydrates, which is with the AMDR range of 45-65%. Tom's carbohydrate foods are mainly discretionary foods high in fat and sugar and low in fibre e.g. doughnuts, garlic bread and cornflakes. He could swap to a wholegrain breakfast cereal such as porridge or Weetbix and wholegrain bread and snack on celery or carrot sticks.

e) *Assess Tom's water intake and list two (2) symptoms he is likely to experience from this level of intake.* **(3 marks)**

Most students could identify that Tom was not meeting the requirements for water. Markers were also looking for reference to the AI or recommended number of cups per day (8-10) when assessing his water intake. Dehydration was not accepted as an answer but good responses mentioned that Tom would experience symptoms of

dehydration (statement not required for full marks though) such as faint, headaches, dizziness, dark coloured urine and constipation.

A successful response included:

'Tom's water intake is 88% AI which is below the recommendation. He may experience symptoms such as thirst and fatigue.

f) *Compare Tom's fibre intake with the NRV.* **(1 mark)**

Generally answered well. Less successful responses included the 1% of energy coming from fibre and did not correctly refer to Tom's AI for fibre. More successful responses gave the daily fibre recommendation for men.

A successful response included:

Tom's fibre intake is only 81% of the Adequate Intake (AI) meaning it is below the NRV. It is recommended that men consume 30g of fibre per day.

g) *Explain two (2) ways that soluble fibre can help prevent constipation.* **(4 marks)**

Generally, not well answered. Some students just listed a brief response rather than giving an explanation.

Successful responses included:

- Soluble fibre creates a gel in the intestines which helps to soften stools.
- Soluble fibre adds bulk to faeces which helps it to pass through the digestive tract.
- Soluble fibre absorbs water allowing faeces to be passed easier when enough water is consumed.

h) *Suggest two (2) foods Tom could add to his diet to increase his intake of insoluble fibre.* **(2 marks)**

Generally answered well. Most foods containing fibre, contain both soluble and insoluble fibre so a range of foods were accepted. More successful responses named specific fruit and vegetables.

Successful responses included foods such as:

Wholegrain cereals, legumes, oats, nuts, seeds, bran, the skin of fruit and vegetables e.g. apples and potatoes

i) i. *Which micronutrients is Tom consuming at a level likely to cause adverse health effects?* **(1 mark)**

Answered well with the correct response being sodium (UL 198%)

ii. *Identify two (2) adverse health effects of consuming an excess of the above micronutrient.* **(2 marks)**

Generally answered well with successful responses including two health effects such as:

Thirst, high blood pressure, Type 2 diabetes, heart disease, osteoporosis, oedema

iii. *List two (2) foods in Tom's diet which contain large amounts of the above micronutrient.* **(2 marks)**

Answered well with successful responses including two foods such as:

Garlic bread, vegemite, cheese, shape biscuits, cornflakes, bread

j) *Tom is deficient in vitamin C. Explain why eating a salad would be a more effective way to add vitamin C to his diet than eating a plate of boiled vegetables.* **(2 marks)**

Generally answered well. For full marks students were required to refer to vitamin C being a water- soluble vitamin.

A successful response included:

Vitamin C is a water-soluble vitamin which is lost when food is cooked in water, with high cooking temperatures and cooking for a long time. This means that boiled vegetables (water, high temp) are more likely to lose vitamin C than a salad that is not cooked.

PART 2

QUESTION 9

a) *Explain why the Australian Dietary Guidelines (ADG) for Australians are a more reliable source of nutrition advice than a diet Tom might find on the internet.* **(3 marks)**

A mix of responses from students. More successful responses included that the ADG were developed from scientific research as opposed to a diet on the internet that may be based on a person's opinion.

Successful responses included:

The Australian Dietary Guidelines were developed based on scientific knowledge researched by a reliable source. Diets on the internet may not be based on research and may promote dangerous eating habits e.g. advice such as a diet with no solid foods, omitting food group/s or very low kilojoule.

b) The *Australian Dietary Guidelines (ADG) guideline 2 states: 'Enjoy a wide variety of nutritious foods from all food groups.' As part of this guideline, it is recommended that individuals eat plenty of vegetables, including different types and colours.*

i. *How many serves of vegetables should Tom be consuming daily?* **(1 mark)**

Tom is 18 years old, so the recommendation is 5.5 serves per day. Markers also accepted 6 serves per day as students in this course are generally only expected to remember the number of serves for an adult (19-50 years).

ii. *Suggest four (4) ways Tom could introduce or swap more fruit and vegetables into his daily food intake* **(4 marks)**

Well answered by students. More successful responses gave a detailed swap with specific food/ingredients. Responses lacking specifics scored half marks e.g. just 'salad.' For full marks, students needed to include fruit and vegetable suggestions.

Successful responses included:

Swap the cornflakes to muesli topped with chopped banana and raspberries.

Add grated vegetables to the lasagne such as zucchini and carrot.

Place lettuce, tomato and cucumber in the sandwich instead of vegemite.

Swap the doughnut for a fresh fruit salad with watermelon, orange, kiwi and strawberries.

iii. *List three (3) health benefits for Tom from eating more vegetables.* **(3 marks)**

Generally answered well. Markers were looking for some detail in the response and the link to a health benefit.

Successful response included:

Vegetables are naturally low in kilojoules which helps prevent energy imbalance and weight gain.

They are a good source of fibre which helps to create a feeling of fullness. This can prevent overeating and weight gain.

Vegetables don't contain added sugar which can help to prevent tooth decay.

c) *Tom consumes too many discretionary foods. Explain why discretionary food is not an essential component of the dietary guidelines recommended by the Australian Government.*

(3 marks)

Markers were looking for an explanation of what discretionary foods are and why they are not an essential component of the dietary guidelines.

A successful response included:

Discretionary foods are not essential in the diet. They are energy dense and high in saturated fat, added sugar, added salt and low in fibre. A diet high in these can increase the risk of diet related conditions such as obesity, Type 2 diabetes and heart disease. They can also replace other nutrient dense foods.

d) *The Australian Dietary Guidelines (ADG) guideline 3 recommends to "limit intake of foods containing saturated fat, added salt, added sugars and alcohol." Provide three (3) ways Tom can adjust the lasagne recipe below in order to comply with guideline 3.* **(6 marks)**

Generally, well answered. Some students made swaps that did not correlate with guideline 3 and therefore could not justify the swap.

More successful responses addressed salt, sugar and saturated fat consumption in their changes, rather than just one or two of these. They also justified the change with detail. Naming up specific food swaps scored higher than just giving a general food e.g. swapping cheddar cheese to ricotta cheese scored higher than just saying swap to a low-fat cheese.

Successful responses included:

Provide three ways Tom can adjust the lasagne recipe in order to comply with guideline 3	Explain how each change meets guideline 3.
Swap the tin of tomato soup for fresh tomatoes.	Tinned soup often contains large amounts of salt and sugar for flavour. Swapping for fresh tomatoes would reduce the salt and sugar content.
Swap the cheddar cheese for ricotta.	Cheddar cheese is a lot higher in saturated fat than ricotta cheese so this swap would reduce the saturated fat content of the lasagne.
Remove the beef mince and replace it with a grated carrot and zucchini.	Beef mince is a major source of saturated fat so removing this and replacing it with vegetables would reduce the amount of saturated fat in the dish.

Section C – Food Issues

Criterion 2: Communicate ideas and information in a variety of forms

- The strongest responses followed the structure of introduction, body paragraphs and a conclusion. Students clearly and accurately explained their ideas and information and conveyed their ideas in a logical manner by working through each part of the question in order.
- Use of topic sentences helped indicate to the marker which part of the question was being addressed and made the essay far easier to follow.
- Correct use of formal language and specialised terminology is an essential element of criterion 2. Many students did not use, or mixed-up, specialised terminology. For example, listing 'sustainability' as a pillar when they meant to use the terminology 'stability'.
- A number of responses lacked capital letters at the start of sentences.
- Handwriting remains an issue with some writing being very difficult to read.
- Students are strongly recommended to write in blue or black pen as pencil was very faded and difficult to decipher.

Criterion 8: Identify and analyse food related issues.

QUESTION 10

Explain the term 'food security'.

The term 'explain' requires students to provide detailed information to show their understanding of an issue. Listing a definition of food security was not enough to 'explain' the concept.

The strongest responses:

- Gave the complete and exact FAO definition: "when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life."
- Accurately named and outlined the pillars (3, 4 or 5 pillar models were all accepted).

Discuss barriers to food security and why some groups of people are at higher risk of food insecurity during a Pandemic.

- Successful responses discussed at least two barriers in detail and used current examples and data to support their response.
- Common barriers included, but were not limited to natural disasters, war/conflict, climate change, poverty, gender inequality, rising food prices, food waste and population growth.
- The strongest responses clearly articulated a wide range of ways that the barrier prevents food security and linked this to the pillars. For example, natural disasters impact food availability by causing crop and livestock losses, undermine accessibility by causing damage to roads and other means of access to markets, or compromise utilisation due to the risks of water-borne illness and contamination resulting from floods or earthquakes.
- Students need to be clear about what is a 'barrier' and what is a 'pillar'; these were often incorrectly interchanged.
- Specific groups at higher risk of food insecurity needed to be identified, such as low-income earners, women, small scale agricultural producers, rural and remote populations, children or Aboriginal and Torres Strait Islanders.
- Accurate, evidence-based reasons needed to be given for why they are at increased risk such as increased cost of transport and logistics or limited number of food outlets in remote areas. Few students did this well, with many relying on generalisations.
- Successful responses recognised that impacts of the pandemic such as loss of income / employment, supply chain disruptions and reduced availability (therefore cost) of food made these already vulnerable populations even more susceptible to food insecurity.
- Students should note that the term 'people in developing countries' is too broad a group to consider 'at risk'.

Identify and evaluate two (2) interventions, programs or initiatives that are designed to address food insecurity, explaining the strategies used to achieve their aims. Draw one (1) example from a developing country and one (1) from Australia.

- A range of programs were discussed. Australian programs included, but were not limited to Foodbank, OzHarvest, 24 Carrot Gardens and community food hubs whilst examples from developing countries included amongst others; World Food Programme, Farmer Managed Natural Regeneration and Ready-to-use therapeutic food (e.g. Plumpy'Nut).
- The strongest responses gave detailed and accurate explanations of the strategies used (for example when discussing the World Food Programme noting the wide range of

approaches to food security including emergency food relief, school feeding programs, natural resource management and agricultural training, early warning systems and emergency preparedness/response planning).

- Students also recognised the application of technology, education, aid, sustainable food systems and government policy when discussing programs.
- As in previous years, many students did not evaluate their strategies by giving detailed consideration of the advantages, disadvantages/limitations and overall feasibility which limited their criterion 8 rating.
- Teachers should continue to emphasise to students the meaning of the term 'evaluate'.

QUESTION 11

Many students struggled to adapt their knowledge to this question and instead relied upon pre-written essays which did not address each part of the question, limiting their rating.

Explain the term 'ecological sustainability'.

Successful responses used a clear and accurate definition which referred to the environment, the way that resources are used and the impact on future generations / other species. Some of the most suitable definitions were:

- "Ecological sustainability refers to the capacity of the biosphere to meet the needs of the current generation without hindering future generations from being able to meet their needs."
- "Ecological sustainability means that, based on a long-term perspective, we conserve the productivity of the waters, the soil and the ecosystem, and reduce our impact on the natural environment and people's health to a level that the natural environment and humanity can handle."
- "Ecological sustainability is about the capacity of the environment to continue to support our lives and the lives of other living creatures into the future."

Some students also realised the importance of linking the term 'ecological sustainability' to the food system, showing how they are related and mentioning the stages of the food system.

Discuss the environmental issues that affect the sustainability of one (1) of the following types of food production: growing crops, or raising livestock, or fishing. Describe one (1) strategy that has been designed or is being developed to address these issues.

- Students were expected to discuss a range of issues associated with one of the types of production. Successful responses used sophisticated terminology to describe the environmental/other impacts and used data to support their response. For example:

- Growing crops: chemical use leading to polluted runoff and eutrophication or soil acidification, land-clearing causing biodiversity and habitat loss, monoculture diminishing soil microbiology, use of heavy machinery/fossil fuels leading to carbon emissions, strict retail cosmetic specifications causing food waste at the production level before it even leaves the farm.
- Raising livestock: land-clearing for pasture leading to loss of topsoil and habitat, excessive water use diminishing freshwater supplies and environmental flows, methane emissions from ruminant livestock contributing to global warming, energy/water/transport costs associated with grain-fed livestock and solid wastes produced in feedlots.
- Fishing: overfishing leading to collapse of fish-stocks, by-catch causing deaths of threatened and non-target species, oil spills, aquaculture impacts (build-up of organic faecal material below fish pens, escape of exotic species, transmission of diseases to native species, use of wild fish stocks for feed).

- Some students also validly interpreted this question from a food security perspective and discussed issues which will impact the ability of producers to continue to supply the food system into the future. Examples included the impact of climate change and natural disasters on crop production.

Identify and evaluate three (3) ways consumers can support ecological sustainability in their choice and use of food products.

- Successful responses gave a detailed justification of the reason that these actions would support sustainability (few students were able to do this well). For example, explaining in detail the impact of food miles when suggesting that consumers should purchase local produce.
- Examples included: reducing meat intake, reducing food waste, buying local/seasonal produce, composting, minimising plastic packaging and following the Planetary Health diet.

Again, very few students evaluated by including both advantages and disadvantages of the strategy/consumer action to determine feasibility.

Section D – Food Sociology

Criterion 2: Communicate ideas and information in a variety of forms

Criterion 6: Analyse factors affecting food choice

PART 1

QUESTION 12

a) *Explain two (2) ways food packaging can influence an individual's specific food choice.*
(2 marks for each response) **(4 marks)**

Generally answered well. Students did not score twice for having the same reason e.g., bright colours and dull colours on packaging. They also needed to include an example of a specific food choice or examples such as loose produce in environmentally friendly packaging (e.g., apples in cardboard packaging).

Successful responses included:

- Words like 'low-calorie' and 'low-fat' can influence someone to purchase food regardless of other ingredients it may contain. e.g., fat free marshmallows (still filled with sugar).
- Visual imagery like healthy athletic people on the front of food packaging can influence someone to purchase a food. e.g., fat-loss shakes showing a slim woman.
- Individuals may have a habit of choosing a particular brand of crackers, simply because they recognise the packaging and always choose that colourful brand e.g., Sakata rice crackers.
- Food packaging can also influence food choices based on age, for example young children may be drawn to bright and colourful packaging (e.g., Tiny Teddy Biscuits) versus an elderly person who will buy the same type of cracker every time, no matter what new options there are as they trust the brand (e.g. Salada Original Crackers).

QUESTION 13

*Explain **one** reason why the Australian diet has become more varied in the past 50 years. Include examples to illustrate your answer.* **(3 marks)**

Markers looked for understanding of factors e.g., social/cultural and examples to illustrate a student's understanding.

Most students talked about cultural change - Australia now being multicultural which is reflected in restaurants and now the foods we eat at home.

Social media, advertising and technology was also used as a reason for change – fad diets/superfoods and the foods associated are now commonplace.

If using the increase of vegetarians and vegans due to beliefs, it was important that students used food examples that highlighted the variety in the diet such as increasing plant-based proteins like quinoa or soy products like tofu. Many students discussed food examples that restricted the variety in the diet such as not eating meat and animal-based products like eggs.

Successful responses included:

- Migration of various cultural groups brought new ingredients and dishes to restaurants, supermarkets, and homes. (e.g., The bakery 50 years ago may have had white and brown block loaves of bread. Now there is a wide variety of bread for sale, e.g. Italian focaccia, Turkish bread, etc.).
- Over the last 50 years technology and appliances have developed and created new foods. With the freezer being invented, frozen meals were produced such as frozen vegetables and macaroni and cheese. New inventions have allowed for cooking to be easier and more achievable (e.g., microwave oven). The fridge allowed for different foods to be stored for longer periods of time in the kitchen (e.g., milk and butter).
- As people increase their travelling experiences due to the accessibility and low cost of travel, people are being exposed to more cultures and their food. When in another country, it is likely a person will be more willing to try diverse cultural foods, and on return to Australia, may incorporate these foods into their diet. For example, if a person travels to France, they are likely to try French foods such as eclairs or escargot and will be more likely to consume them when home in Australia.

QUESTION 14

*Describe how **one** existing nutrition-related health promotion strategy aims to have a positive impact on food selection.* **(3 marks)**

Students may describe a different existing nutrition-related health promotion strategy they studied in Unit 4 (a work requirement) such as Veg It Up, Tryfor5, Eat the Rainbow etc.

Descriptions ranged from brief to detailed. Better answers explained how the strategy has a positive impact on food selection and included food sociology terminology such as 'improves knowledge' and 'creates healthier habits.' Students could score full marks without using this sociology terminology.

A few students discussed strategies related to criterion 8 Food Issues e.g. The Odd Bunch, Oz Harvest, Food Co-ops. These answers were accepted if students described how they

have a positive impact on food choice using food sociology terminology, however they did not score full marks as they are not a specific nutrition-related health promotion.

Successful responses included:

- The Health Star Rating promotion is a strategy that aims to compare similar foods based on their nutritional value. It is a 'front of package' visual representation of 0.5 - 5 stars; 1 being low nutritional value and 5 being high nutritional value. This has a positive impact on food selection as individuals who are unaware of nutrition can improve their knowledge and make simple healthier decisions based on the rating of the products.
- The Stephanie Alexander Kitchen Garden Program teaches children what foods are healthy and in season and shows students how to make tasty meals from freshly grown seasonal ingredients (skills and knowledge). This can impact on children's food choices in the future as they value healthy food and know the importance of eating fruits and vegetables (education).
- Move Well Eat Well is an ongoing program that is designed to keep children in schools active and eating healthy foods. With six healthy messages, this gives schools the chance to teach students how to eat a healthier diet, drink water and stay active. It is hoped raising children using these strategies, it will encourage more positive food choices.

PART 2

QUESTION 15 – SCENARIO **(35 marks)**

Criterion 2

General Comments

Responses which rated highest on criterion 2 included:

- The wording of the question helped students structure their response into small paragraphs per sub-factor.
- High level of accuracy in spelling, grammar, sentence structure and punctuation
- Correct and frequent use of terminology (e.g., psychological, physiological, nutritional requirement, habit etc.)
- A clear and logical structure to the scenario response, with the best using headings, sub-headings and spaces/paragraphs between factors and highlighting key terminology
- Sophisticated language and complete sentences
- Some students wrote extended essay-type answers, these still scored well if paragraphed logically and used the terminology, definitions etc.

- Introductions, conclusions and summarising the lifestyle of each subject in the scenario was not necessary and likely a waste of time as it reduced time spent analysing the scenario without adding content

Criterion 6

General Comments

All markers were provided with a marking template tool to allocate points for criterion 6.

For example:

Food Sociology – 2022 External Exam - 3 examples per character TASC ID: _____

	Subfactor 0.5	Explanation 0 – 2	Food example 0.5	Total
Physiological Factors Cy – 11 years old. Attends a local primary school and plays several sports. He is lactose intolerant and does not like food with strong aromas.				
• Hunger				
• Appetite				
• Satiety				
• Nutritional requirements – age				
• Nutritional requirements – gender				
• Nutritional Requirements – body size				
• Nutritional requirements – level of activity				
• Nutritional requirements – health status				
• Sensory reactions – appearance				
• Sensory reactions – shape				
• Sensory reactions – turgor/texture				
• Sensory reactions – aroma				
• sensory reaction - flavour				
• food sensitivities – allergies and intolerances				

Successful responses:

- Identified the correct sub-factor for the main factor they were discussing. For example, for Anna, students identified 'employment status and income' as an 'economic' factor.
- Evaluated the sub-factor by defining, explaining, and justifying it in relation to the factors influencing food choices.
- Linked the sub-factor to a food or range of foods that the individuals may select.

Common errors/approaches that reduced ratings for criterion 6 included:

- Whilst most students were able to identify some sub-factors applicable to each person, many struggled to evaluate the sub-factor and gave responses which were far too brief.
- Some students reworded the scenario instead of explaining the factors that affected each of the family members. These answers did not score well.
- Some students gave dietary modification advice. These answers were not relevant to this section and did not score well. The question did not ask for a meal plan.

Anna – *Evaluate the likely impact of three (**3**) different **economic** factors on Anna's selection of food. Include examples of how these **economic** factors may lead to specific food choices.*

Lots of students used the term 'food accessibility' instead of 'availability' (no marks were awarded for this use of terminology, but still scored if their explanation was correct).

Good answers explained why availability (marketplace) was an issue – transport costs, access to seasonal food, no competition etc.

Time was raised by several students with good answers stating she was a single parent, transporting children etc. and did not have time to cook so bought quick options.

Successful responses included:

Anna – Economic

- Food availability is often related to geographical location and what is available in the area. Anna is affected by this economic factor as she lives in a small rural town with only one store. This relates to food affordability as food will be stocked at a higher price so she may only afford cheap discretionary foods like chips and lollies or frozen meals like oven-baked fish for dinner.
- Economic status and income are an economic factor that relates to how often someone works and how much they earn. There is no mention of Anna working so she is quite possibly unemployed living off Centrelink payments. This may mean she bulk-buys food such as pasta and rice for fried rice or bolognaise with either close to use-by vegetables or past best-before date vegetables for dinner.

Bea – *Evaluate the likely impact of **three (3)** different **social** factors on Bea's selection of food. Include examples of how these **social** factors may lead to specific food choices.*

The question used the term social media, therefore a lot of students referred to social media and not advertising/marketing. Students needed to use the correct sub-factor.

Hospitality/peers/tradition were all used for reasons why Bea might eat Asian food.

Definitions of terms was required for full marks e.g. What is peer pressure?

Successful responses included:

Bea – Social

- Culture and traditions are another social factor influencing Bea. It relates to what is often eaten by a particular culture and how they enjoy their food. As Bea stays at her friend's house who cooks Asian food quite often, her friend may be Asian so to be like her, she cooks and eats the same food. This means Bea may eat fried rice or fried chicken with her friend as they are of Asian heritage and easy to cook.

- Lifestyle and work patterns can influence the type of food they eat and the amount of preparation time they have. As Bea travels an hour to school each day, she may have to prepare foods that are easy to eat. She may choose to eat overnight oats or chia pudding as she could take them on the bus

Cy – *Evaluate the likely impact of **three (3)** different **physiological** factors on Cy's selection of food. Include examples of how these **physiological** factors may lead to specific food choices.*

Terminology (Aroma/Hunger/Age etc.) was not explained well enough to score full marks by a lot of students.

Too many students simply said, "Cy is lactose intolerant so he can't have dairy" or "Cy doesn't like foods with a strong aroma so avoids food that smells."

Successful responses included:

Cy – Physiological

- Nutritional requirements: nutritional requirements influence food choices by presenting a set of specific needs to sustain wellbeing and health. Cy plays several sports, so will use a lot of energy and requires quick-burning carbohydrates to fuel his energy. He might choose foods, such as white bread and jam or Nutrigrain cereal with soy milk.

- Sensitivities – intolerances: an intolerance is a chemical reaction in the body that has mild consequences a few hours after consumption and can include symptoms of bloating, diarrhoea and gas. Cy has a lactose intolerance so he should avoid foods with lactose. This may mean he chooses calcium-fortified plant milks/lactose free milk but as they are quite expensive, he might avoid dairy altogether and have fruit juices as a beverage with his cereal.

Don – *Evaluate the likely impact of three (3) different psychological factors on Don's selection of food. Include examples of how these psychological factors may lead to specific food choices.*

Once again very few students defined what the term means (e.g., value, habit).

Don – Psychological

- Attitudes and experiences shape the choices we make with food by influencing elements of what we once experienced to be true and the belief or reality that they remain true or intrinsic to us. Don is 80 years old and experienced a life where luxuries were not as common as they are today. He may have been alive during conflict and war and has ingrained in him the desire to purchase just the basics or the fear of running out of money. This may make him choose low-cost foods such as pasta and shelf stable options like canned meats such as spam.

- Values are a set of morals that we live by that make us feel intrinsically good in character and believe will benefit society and humanity. Don values the environment and is aware of the impact of food waste. He attempts to reduce his ecological footprint by raising his own chickens. Don may be more likely to participate in a plant-based diet as excessive meat production contributes to climate change. He may choose nutritious and affordable options such as beans and legumes, as well as consuming his own eggs from the chickens and vegetables like peas, carrots and lettuce.

Interrelationships:

Although the question did not ask students to specifically talk about interrelationships, marks were awarded for descriptions using interrelationships if students had not scored the maximum amount for the person/category.

For example:

Food availability – The places where people can buy foods like the marketplace affects the availability of food. Anna, living in a small rural town, may not have access to a large supermarket or specialty stores like bakeries and butchers. In the small grocery store, Anna may not be able to buy fresh, organic produce or fresh meat or eggs. Often in rural grocery stores, even if they stock fresh foods like tomatoes, they are often damaged or bruised due to long transit time, which may prevent Anna from buying them (physiological – appearance of food). Therefore, she may choose to buy more packaged foods like canned tomato soup and boxed cereals.