2021 ASSESSMENT REPORT

FDN315118 – FOOD AND NUTRITION

General comments:

- Clear and legible handwriting is important as markers found some writing very difficult to read.
- More successful responses showed evidence of reading questions carefully and addressing what the question was asking in their response e.g., whether it be to 'explain' or 'compare.'

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) List two (2) functions of water in the body. **(2 marks)**

Markers were looking for two specific functions of water in the body.

Successful responses included: excretes waste as urine, regulates body temperature, lubricates joints, forms the basis of the body's transport system carrying nutrients to all cells. Students were only awarded half a mark for "hydrates the body".

Generally answered well.

b) Compare the health benefits of drinking tap water rather than drinking sugary soft drinks and caffeinated energy drinks. **(3 marks)**

Markers were looking for a comparison between drinking tap water and soft drinks or energy drinks. Successful responses included specific health benefits rather than just stating what the drinks contained.

Successful responses included:

Tap water supplies 0kj/g so helps to maintain energy balance whereas soft drink can contain added sugar so supplies more kj and increases the risk of weight gain. Tap water often provides fluoride which helps to protect against tooth decay whereas sugary soft drinks can increase the risk of tooth decay.

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Poorly answered by students. Many found it hard to compare the drinks, instead just giving facts about each.

Question 2

a) Explain how a deficiency of carbohydrates may result in constipation. **(2 marks)**

Successful responses included: Fibre is a type of carbohydrate which helps to speed up the passage of food waste, adds bulk to faeces and softens stools. A lack of fibre can therefore lead to constipation.

Most students made the link between carbohydrates and fibre, however, some poorly described how fibre in the diet can result in constipation.

b) Compare the effect of sucrose to that of starch on blood glucose levels after consumption. **(2 marks)**

A successful response included:

Sucrose is a simple sugar (disaccharide) which is quickly released into the blood stream whereas starch a complex carbohydrate (polysaccharide) takes longer to be broken down into glucose so raises blood glucose levels more slowly.

Full marks were also awarded for responses that included food examples: Sucrose is found in foods such as fruit which is a low GI food. Low GI foods release glucose slowly into the blood causing a lower, flatter rise in blood glucose levels e.g., apple GI 38. Starch is found in foods such as rice which has a high GI. High GI foods cause a sharp rise in blood glucose levels e.g., white rice GI 83).

Poorly answered by students. Underpinning knowledge was not always presented in responses and many did not understand how to compare. A lot stated that starch is low GI, which is incorrect. A more successful response was that starch will cause a lower, flatter rise in blood glucose levels compared to sucrose. Some students gave food examples that did not match their statements to do with high and low GI.

Question 3

a) Explain why some food products in Australia are fortified, specifically milk products with vitamin D and bread with folate. **(3 marks)**

Markers were looking for an understanding of the term 'fortified' and a specific reason why these micronutrients are added to foods.

Successful responses included: Australians do not gain enough of some micronutrients, so some foods have added micronutrients to reduce the incidence of rickets in children (vitamin D) and spina bifida in babies (folate).

Generally answered quite poorly. A number of students did not show an understanding of the term 'fortified.'

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b) Compare one (1) cooking method which retains more B vitamins with one (1) cooking method which retains less B vitamins. (2 marks)

Successful responses included: Steaming, microwaving or stir-frying vegetables quickly will retain more water-soluble B vitamins than boiling vegetables. Water soluble vitamins dissolve in water so they are lost when cooking in too much water.

Completed well by some students. Many responses did not include that B vitamins (such as folate) are water soluble and are therefore affected by the cooking in water. More successful responses referred to why B vitamins are lost through the boiling process.

Question 4

a) Choose one of the following non-nutrients: antioxidants, probiotics or phytoestrogens. Identify two (2) health benefits of consumption and two (2) natural food sources of this non-nutrient. (3 marks)

Successful responses included:

Antioxidants act as scavengers of free radicals. They help to neutralise them and prevent them damaging cells. They benefit the body's defence system and may help to postpone or prevent ageing, arthritis, cancer and heart disease. Food sources include fruit, vegetables, wholegrain cereals, tea, red wine.

Probiotics are a bacteria. They may enhance the effectiveness of intestinal bacteria needed for good health. They are believed to aid in conditions such as constipation, diarrhoea and inflammatory bowel disease. Food sources include yoghurt with added probiotic, kefir, salami, sauerkraut.

Phytoestrogens are a plant form of oestrogen. They have chemical properties and function in a similar way to the human hormone oestrogen but the effects are not identical. They may reduce the symptoms of menopause, decrease the risk of heart disease or osteoporosis and the incidence of hormone related cancers e.g., breast, prostate. Food sources include soy products and flaxseed.

Generally well answered. Some students mixed up their information between the different non-nutrients.

Question 5

a) Explain the difference between essential and non-essential amino acids (2 marks)

Successful responses included: Essential amino acids cannot be made by the body, so must be obtained from food whereas non-essential amino acids can be produced by the body.

Generally answered well. Some students mistakenly gave the difference between nutrient and non-nutrients. Some gave the number of essential and non-essential amino acids rather than explaining the difference between them.

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b) Identify a health risk of consuming too much protein. **(1 mark)**

Successful responses included: Unused energy is stored on the body as fat which can lead to weight gain overtime and the risk of obesity. Too much protein can strain the liver and kidneys. It can lead to calcium loss and the risk of osteoporosis. It can also increase the risk of gout.

Generally well answered.

Question 6

a) Referring to food sources, suggest why Australians are likely to consume excess sodium and not enough potassium. **(3 marks)**

Markers were looking for food sources of both sodium and potassium.

A successful response:
Australians tend to eat a lot of processed foods and takeaway foods such as pizza which contains a lot of sodium. Australians tend not to eat enough fruit and vegetables which are good sources of potassium and low in salt.

Most students could name food sources of sodium but could not explain why diets may be lacking in potassium. Many students made assumptions such as, "all Australians eat a highly processed diet," which is incorrect. Better to say, "a number of Australians eat a diet high in processed foods."

b) Describe one (1) health consequence resulting from an iodine deficiency. **(2 marks)**

Successful responses include: A lack of iodine can lead to a goitre. This is where the thyroid gland gets larger in an attempt to make more thyroid hormones. Iodine deficiency can also retard brain development in children (1 mark only was given if students just named goitre without an explanation).

Generally well answered. Some students confused iodine deficiency with iron.

PART 2

Question 7

a) Provide two (2) current statistics to show that diet-related conditions are a major concern in Australia. **(2 marks)**

Markers were looking for current Australian statistics.

Successful responses included:

- 2 in 3 Australian adults are considered overweight or obese

- 1 in 4 Australian children are considered overweight or obese
- Heart disease is the leading cause of death in Australia
- Heart disease kills one person every 29 minutes in Australia
- 580,000 Australian adults reported having heart disease in 2017/18
- Type 2 Diabetes is the fastest growing chronic disease in Australia
- 280 Australians develop diabetes each day
- Around 1.8 million Australians have diabetes (85% are Type 2 Diabetes)

Generally well answered. Students need to ensure they are using current statistics.

b) Explain the relationship between energy balance and the development of obesity. Recommend two (2) dietary practices to help maintain a healthy weight. **(4 marks)**

Successful responses included:

If energy intake is greater than energy expenditure (energy imbalance) it can lead to fat being stored on the body. This can lead to weight gain over time and an increased risk of obesity.

Dietary practices to reduce the risk include:

Drinking water as it supplies 0kj/g, limiting alcohol as it is an energy dense drink supplying 29kj/g, eating smaller portions sizes, eating foods high in fibre to give a feeling of fullness e.g., fruit, vegetables, eating a wide variety of nutrient dense foods as these tend to be naturally lower in kj, limiting foods high in fat and sugar eg. chocolate, butter, soft drink.

Generally well answered. Some students did not address the concept of energy imbalance and the link to obesity. Marks were not awarded for non-dietary practices such as physical activity, as the question specifically asked for dietary practices.

c) Explain the relationship between dietary fats and cholesterol, and the development of atherosclerosis. Include three (3) different dietary practices to reduce the risk of heart disease and explain why each is beneficial. **(6 marks)**

Successful responses included:

Saturated and trans fats raise LDL (low density lipoprotein) cholesterol. This is the type of cholesterol that can build up and block arteries. Atherosclerosis is the build-up of fatty deposits in the artery and it typically contains cholesterol. It can lead to heart disease. Unsaturated fats help to lower LDL cholesterol by taking it back to the liver for removal.

Dietary practices included:

- Swapping saturated fat to unsaturated e.g., butter to margarine (saturated fat helps to lower LDL cholesterol)

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- Eating 2 fish meals per week (omega 3 helps to raise HDL cholesterol which helps to prevent heart disease)
- Limit salt intake by eating mainly fresh foods e.g., fruit, vegetables (helps to reduce the risk of high blood pressure, a risk factor for heart disease)

Generally well answered. Physical activity was not accepted as a dietary practice. More successful responses explained the benefits of the dietary practices. Some students gave the same dietary practice but just written differently. The dietary practices needed to be different ones.

d) Explain the importance of a low sugar diet for a person with Type 2 Diabetes, referring to insulin. Include food examples in your answer. **(5 marks)**

Successful responses included:
With Type 2 Diabetes the body becomes resistant to the effects of insulin and/or the pancreas cannot produce enough insulin. This results in high blood glucose levels. Low sugar foods that are low GI release glucose slowly into the blood, causing a lower flatter to rise in blood glucose levels. This helps to maintain steady blood glucose levels e.g., carrots, milk, apples, lentils. Foods high in sugar can cause a spike in blood glucose levels e.g., soft drink.

Generally well answered. Some students did not refer to food examples.

e) Explain three (3) reasons why eating a high fibre diet can be of benefit in preventing diet related conditions. **(3 marks)**

Successful responses included:

- Fibre helps to provide a feeling of fullness which can prevent overeating and the risk of obesity.
- Soluble fibre helps to lower cholesterol and prevent heart disease.
- Fibre helps to slow the absorption of glucose which helps to prevent Type 2 Diabetes.

Generally not well answered. Most students could give functions of fibre but not explain how they help prevent diet related conditions.

Section B – Diet Analysis

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

PART 1

Question 8

a) Which category is Sarah's BMI in? **(1 mark)**

Healthy or normal weight

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Some students stated that Sarah's BMI could be found under table under 'Sarah's Profile'. Markers were looking for the BMI categories identified by the National Health and Medical Research Council (2013)

b) Based on Sarah's EER and her actual energy intake, what two health consequences would you predict if today's intake becomes normal? **(2 marks)**

A successful response included:

Sarah's EER is 8,368 kJ/day. On the recorded day her intake was 1,247 kJ less than her EER. If this continues she may lose weight (consuming less than required) and feel symptoms of fatigue. Sarah may also be at risk of micronutrient deficiencies (e.g., iron, calcium).

It was important that students used two different examples of health consequences in their response. Students needed to use data in their answer to score full points. Some stated that Sarah may develop anorexia. While Sarah consumed below her EER, her energy intake was not severely restricted. In the context of the question this could be assumed to be an unlikely health consequence. Anorexia nervosa is a complex condition that affects both their physical and mental health.

c) Discuss how Sarah's macronutrient energy ratios compare with the recommended AMDR. **(3 marks)**

A successful response included:

- Carbohydrates – AMDR = 45% - 65%. Sarah 60%. This falls within the range.
- Fat – AMDR = 20 – 35%. Sarah 29%. This falls within the range.
- Protein – AMDR = 15 – 25%. Sarah 8%. This falls under the range. Sarah needs to increase the proportion of energy from coming from protein

For full points, students needed to state whether Sarah was above, below or within the range for each macronutrient. They needed to use data in their response and demonstrate they understood AMDR range for each macronutrient, by stating that Sarah needed to increase the proportion of energy from protein.

d) Assess Sarah's energy intake from fat and her fat ratio graph. What recommendations would you make to Sarah about her fat intake? **(3 marks)**

A successful response included:

Sarah is within the AMDR range for fat (29% kJ). Recommended fat ratios are 33% saturated, 33% polyunsaturated and 33% monounsaturated. She is getting 43% energy from saturated (above recommendation), 16% from polyunsaturated fat (below recommendation) and 41% from monounsaturated fat (above recommendation). She should reduce the proportion of fat coming from saturated sources and increase the proportion of fats from saturated sources.

Many students did not assess Sarah's energy intake from fat and instead just discussed fat ratios. It was important to carefully read the question, rather assuming what the required response was.

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e) Name two minerals Sarah is under consuming and describe the main functions of each deficiency. (5 marks)

Examples:

- **Mineral 1 – Iron** (0.5 marks)
  - Main functions: (2 marks)
    Iron is important in forming haemoglobin (in the red blood cells) that carry oxygen from the lungs to the rest of the body. Iron is also necessary for forming myoglobin and many enzymes

    Iron is needed to form red blood cells and prevent tiredness and anaemia (reduced number of red blood cells). Symptoms include pale skin and tiredness. It is also a component of enzymes

- **Mineral 2 – Calcium** (0.5 marks)
  - Main functions (2 marks)
    Calcium is deposited in the bones and teeth and strengthens them. It is also used in muscle contraction and relaxation so is important for healthy heart function. It also aids in blood clotting

    Calcium helps to prevent osteoporosis (porous brittle bones that can break easily)

    Calcium and iron were obvious choices. Some students correctly identify potassium, iodine or phosphorus and were clearly able to describe the main functions as these minerals are part of the Food and Nutrition syllabus. Other students chose minerals such as zinc and magnesium and struggled to describe the functions, only scoring 0.5 for this response.

f) Explain why Sarah's intake of folate and iodine are adequate, using food examples. (2 marks)

- Sarah is eating some food (bread) which is fortified with iodine and folate rather than natural food sources high in micronutrients
- She is consuming apples and bananas which also supply folate
- There is a small amount of iodine in the sushi

For full marks it was important for students to recognise that the bread was fortified with iodine and folate. The fortification of bread should be examined when students are examining the micronutrients.

Mandatory folic acid and iodine fortification of bread resulted in increased levels of folic acid and iodine in the food supply, increased folic acid and iodine intakes, a decreased rate of neural tube defects in Australia, and improved iodine status in the general populations in Australia and New Zealand (AIHW, 2016)

g) Identify 4 symptoms likely to result from Sarah's water intake. (2 marks)

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- Examples of symptoms included: headaches, fatigue, dark-coloured urine, thirst, lethargy, mood changes and slow responses, dry nasal passages, dry or cracked lips, weakness, constipation, kidney stones.

Most students answered this question well. It was important to give 4 different symptoms for full marks.

h) List the sources of complete and incomplete proteins in Sarah's diet. **(2 marks)**

- Complete: none
- Incomplete: bread, noodles

Markers also accepted chocolate and sushi as a complete source of protein. If students referred to sushi they needed to state that the vegetarian sushi contained tofu, soy etc.

Sushi was also accepted as an incomplete source of protein (rice). Many students also named apple (0.4g per 100g) and banana (1.1g per 100g) as an example. The grams in protein in these food examples was considered minimal, therefore these were not accepted. While the following examples are not relevant to Sarah's diet, Nutrition the Inside Story (2020) lists baked beans, breakfast cereal, peas, potato, rice and spaghetti as incomplete protein foods.

i) Compare Sarah's protein intake with the recommended NRV. **(2 marks)**

Successful responses included:

- Sarah's intake is only 83% of the RDI
- Only 8% of her energy intake is from protein rather than 15-25%
- NRV 46g females per day

Most students were able to supply two different pieces of data even through the question did not specify this was required.

j) Sarah is eating a vegetarian diet. Suggest 2 additions of plant sourced proteins to improve her intake of complete protein. **(2 marks)**

Successful responses included:

- Quinoa or soybean foods are sources of complete protein. Add tofu to her noodles.
- Two complementary proteins - grains and legumes together e.g., baked beans on toast

While complementary proteins do not need to be eaten at the same meal, it was important for students to state the combination of incomplete proteins (e.g., lentils and rice) to score full marks. Many students identified leafy green vegetables as a source of protein, they are a good source of iron rather than protein.

k) Which foods in Sarah's diet provide the most sodium? **(1 mark)**

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- Noodles (flavour sachet), bread and margarine
- *As the sushi was vegetarian and sauces (e.g., soy sauce) wasn't mentioned in the dietary intake, sushi wasn't considered to be high in sodium.*

l) List 1 short term and 1 long term consequence of an excessive sodium intake. **(2 marks)**

- Short term consequence: (1 mark) thirst, headaches, the body excretes water and calcium
- Long term consequence: (1 mark) hypertension (high blood pressure), heart disease, type 2 diabetes, osteoporosis (sodium promotes calcium loss), fluid retention.

Most students answered this question well.

m) Which foods in Sarah's diet provide the most fibre? **(1 mark)**

- Sushi (nori), apple, banana, noodles, bread

n) List one short term and one long term consequence of an inadequate fibre intake. **(2 marks)**

- Short term: **(1 mark)** constipation
- Long term: **(1 mark)** diverticular disease, colon/bowel cancer, weight gain, high cholesterol, type 2 diabetes, heart disease

A number of students named diarrhoea as a short-term consequence of a low fibre diet. While fibre is needed to provide bulk to faeces, research shows a low fibre diet is more likely to cause constipation and diverticular disease than diarrhoea. It was important for students to name the specific type of cancer if they used this as a long-term solution e.g., bowel cancer.

PART 2

Question 9

a) Sarah is attempting to eat an ovo-lacto vegetarian diet (not vegan) by removing sources of meat from her diet. Complete the table below to show which food groups from the Australian Guide to Healthy Eating Sarah is lacking and to recommend dietary changes for a healthy vegetarian diet. **(9 marks)**

Australian Guide to Healthy Eating food groups Sarah's diet is lacking	Recommend 2 specific dietary changes in each food group to achieve a healthy vegetarian diet
1. Vegetables and legumes/beans	• Add sliced snow peas, corn and capsicum to her noodles for dinner • Snack on carrot sticks with hummus in the evening.
2. Milk, cheese and alternatives	• Add a handful of almonds (high calcium) for a snack • Smoothie with 1 cup low fat milk, raspberries and blackberries.
3. Lean meats, fish, eggs, nuts, tofu, legumes	• Add a poached egg to her toast for breakfast • Add tofu or chickpeas to the noodles.

Students could also have chosen to identify

Grain (cereal) foods, mostly wholegrain – Specific dietary changes could include: exchanging the white bread for wholegrain bread, fried rice made with brown rice instead of noodles or having muesli for breakfast.

A number of students incorrectly identified fruit as a food group that Sarah was lacking. Sarah consumed an apple and banana; therefore, she had consumed the recommended two serves of fruit.

In some cases, students were unable to correctly identify the food groups. Instead, they named nutrients such as protein, fat or carbohydrates. While the markers gave points for the dietary changes if they fitted into the implied category, it is important for students to be able to correctly identify the food groups.

Markers were also looking for more specific examples than 'add vegetables to her noodles'. Students need to give more specific examples e.g., add ½ cup of corn to the noodles.

It was good to see that many students were also able to identify the correct number of serves for the food groups even though the question did not ask for this information.

b) Why are different colours and types of vegetables encouraged to be consumed in ADG number 2? (2 marks)

A successful response included:

Vegetables are rich in many macro and micronutrients as well as a good source of antioxidants. Carrots are rich in Vitamin A (antioxidant) and some folate. Leafy green

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vegetables and red capsicum are a good source of Vitamin C. They help to prevent a range of diet related diseases.

This question proved challenging to a number of students. Many just rewrote the question. Good answers gave specific examples of the nutrients contained in vegetables, then linked this to a reduced risk of developing a diet related disease.

c) Why are lean meats and reduced fat dairy products specified for Australian adults under ADG3? **(2 marks)**

Most Australians eat too much fat, particularly saturated fat found in these animal products which increases LDL cholesterol. LDL cholesterol is associated with atherosclerosis. Lean meat and low-fat dairy contain less energy; therefore, it is easier for people to maintain energy balance. Australians need to reduce their intake to lower their risk of obesity and heart disease.

Better answers used terminology such as LDL cholesterol, atherosclerosis, energy balance.

d) What are discretionary foods and why are they considered to be 'energy dense'? **(2 marks)**

Discretionary foods (e.g., chips and chocolate) are those high in saturated fat, added salt, sugar and/or alcohol. They are considered energy dense as are generally high in kJ and low in essential nutrients and increase the risk of gaining weight and developing a diet related disease such as type 2 diabetes and heart disease.

It was good to see that a number of students were able to define energy density. They also knew the risk nutrients contained in these foods.

Section C – Food Issues

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

- Most students conveyed their ideas in a logical manner, working through each section of the question.
- Paragraphs were used effectively to organise written responses. Some students put multiple strategies in the one paragraph, making it very long. It would have been better organised to have one strategy per paragraph.
- Better responses clearly and accurately explained their ideas and information. Grammar, spelling and punctuation were correct.
- Terminology was generally used well with better responses accurately defining key terms such as 'ecological sustainability' and 'food security.' Students that scored more highly, incorporated the 'pillars' of food security in their response to Question 11.
- A number of students used emotional language such as, 'massive,' 'gigantic,' 'alarming' and informal language such as 'kids.' These should be avoided in formal writing.

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- Students scored more highly by making links to the question. For example, linking barriers to food producers, processors and consumers. In Question 11, explaining why barriers such as the use of chemicals, monocropping, food wastage or diets high in meat are ecologically unsustainable.
- Some handwriting was very difficult to read. Students need to ensure their writing is clear and legible.

Criterion 8: Identify and analyse food related issues.

Question 10

Identify why there is a global concern about ecological sustainability. Include statistical evidence.

Successful responses explained why there is a global concern about ecological sustainability, gave a definition and outlined the stages of the food system. Students spoke about factors such as the world's growing population, the need for food production to increase, use of resources and generation of waste by the food system and consumers, environmental impact of producing food, ecological footprint and biocapacity deficit etc. Most students were able to give three statistics.

"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…"

Stages of the food system:

- Producing – primary food production of crops and animals from agriculture and fishing.
- Processing and packaging – secondary food processing of food into a whole variety of different food products.
- Distributing and retailing – including transportation, marketing and selling to the consumer.
- Consuming and disposing of waste – buying, preparing, consuming of food and disposing of waste products.

Less successful responses included long introductions and conclusions that didn't value add to the response. A number of students didn't address why there is a global concern about ecological sustainability.

Explain one barrier to sustainability at each level of the food system – food production, food processing and consumer practices

Successful responses used a separate paragraph for each barrier and linked it to the appropriate level of the food system. They also included statistics. Food production barriers included things such as: use of fossil fuels, use of artificial chemicals, cattle farming, overfishing, water use, land degradation and food wastage. Food processing barriers included: food packaging, food miles and food wastage. Consumer practices included: diets high in meat, food wastage, and demand for food variety.

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Describe and evaluate a range of interventions, programs or initiatives that are designed to address the ecological sustainability of food systems. Identify the application of technology, education and/or government policy in your discussion.

Successful responses were able to describe and evaluate specific interventions, programs or initiatives for each barrier. Strategies were described in detail and evaluated by giving advantages and possible disadvantages.

Less successful responses did not include possible disadvantages when evaluating strategies.

Question 11

Identify why there is a global concern about food security. Include statistical evidence.

Successful responses gave an accurate definition of food security.

Food security is, "…. 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" (FAO, 2009).

Some students also listed and defined the pillars of food security which also demonstrated understanding of food security. Three, four or five pillar models were accepted. The five-pillar model includes: availability (having a sufficient supply of food for all people at all times), accessibility (physical and economic access to food at all times). acceptability (access to culturally acceptable food which is produced and obtained in ways that don't compromise people's dignity, self-respect or human rights), adequacy (access to food that is nutritious, safe and produced in environmentally sustainable ways) and stability (reliability of food supply).

Successful responses clearly explained why there is a global concern about food security. Good examples included: the growing world population, lack of access to food, poverty, unaffordability of healthy diets, war and conflict, climate change, natural disasters and the effect of food insecurity on children. Accurate statistics were used as evidence.

Less successful responses did not cover why there is a global concern about food security and lacked statistics.

Explain why ecologically unsustainable practices by food producers, processors and consumers are a barrier to food security.

Successful responses clearly identified barriers and explained how they are ecologically unsustainable and how they are a barrier to food security. Some students explained a different barrier for food producers, processors and consumers. This included barriers such as the use of fossil fuels, artificial chemicals, monocropping, land degradation, cattle farming, overfishing (food producers), use of plastics in food packaging, excessive packaging, use of fossil fuels, food miles (processors), diets high in meat and food wastage (consumers). Some students linked food wastage to food producers, processors and consumers which was also acceptable.

Less successful responses did not link barriers to producers, processors and consumers and missed explaining how it is ecologically unsustainable and a barrier to food security.

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Describe and evaluate how three (3) of the following strategies are being used to improve food security in developing countries and/or Australia: sustainable food systems, technology, education, aid, government policy.

Successful responses talked about specific strategies in either developing countries and/or Australia. Strategies were described and evaluated which included advantages and possible disadvantages.

Strategies included: Sustainable farming practices such as low impact farming (no-till farming, pasture cropping, crop rotation, organic food production, sustainable fishing), programs such as FMNR (Farmer Managed Natural Regeneration). Technology based strategies such as sensory technology, drones, mobile phones, GM technology. Education programs included NEPP (Nutrition Education and Promotion Project) in Cambodia, Love Food Hate Waste. Government Policy included NDC (Natural Disaster Committee) in Cambodia, FTF (Feed the Future). Aid based strategies included Food Bank, Oz Harvest, Second Bite, WFP School Meals, Food for Assets.

Less successful responses just talked about education, technology or aid in general terms without describing a specific program. They also lacked evaluation of strategies. Most students gave advantages of their strategies but missed possible disadvantages. This is an important part of the evaluation.

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) Describe how attitudes and experiences can enhance the variety in an individual's diet. Provide an example to support your answer. **(3 marks)**

- To gain 3 marks both attitudes and experiences needed to be discussed, along with an example.
- The strongest responses explained that an open or willing attitude towards trying unfamiliar foods combined with a positive experience of that food will increase the chances of a person trying a greater variety of foods and thus increase the variety of foods eaten.
- Good examples included travelling to other countries, trying their foods and then incorporating these into the individual's regular diet. For example, if you travel to Asia you may come back seeking the flavours of your holiday- going to Thai restaurants and using lemon grass and, lime, chilli and fish sauce in the dishes you prepare at home.
- Experiences such as having a friend from another culture e.g.: eating at an Israeli friend's house may mean greater exposure to new foods/tastes and ingredients so you could be likely to adopt some into this into your diet such as tahini.

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- Many students didn't interpret the question accurately and used examples which actually decreased the variety of the diet. Students gave answers about bad experiences which put them off eating a certain food (e.g., being forced to eat brussels sprouts when little or getting food poisoning after eating undercooked chicken, thus avoiding them) which was incorrect and scored no marks.

b) Discuss how a child may gain a preference for energy dense foods despite having health-conscious parents. Provide an example to support your answer. **(3 marks)**

- Successful responses used course terminology by naming and discussing specific factors studied in the course such as peer influence, advertising and marketing, sensory reactions (taste, colour) or availability.
- Examples of energy dense foods should have been provided together with a thorough explanation of the reason and an example.
- Successful responses include:
- Energy dense food is often high in sodium and sugar which makes it very palatable. Given the sensitive tastebuds of children, they may prefer these tastes over healthy foods like bitter green vegetables or sour grapefruit.
- Children may see the attractive and colourful marketing of Coco Pops and when staying at a friend's house select this for breakfast even though it is a discretionary /energy dense food not allowed at home. The child may love the 'fun' character on the box and enjoy the sugary taste when eating it (sensory appeal).
- A number of students used generalisations such as 'you want what you can't have' or that 'children just want to rebel against parents' and eat unhealthy food which attracted limited marks.

Question 13

How does food availability affect an individual's food choice? Provide an example to support your answer. **(2 marks)**

- Availability relates to the variety and quantity of foods/beverages available for individuals to select from. Availability is strongly linked with geographic location, the type of marketplace and seasonality of food.
- Good answers explained that due to seasonal availability, the type of marketplace or geographic location, some foods may not be available and therefore individuals may need to select another option.
- For full marks the example needed to be explicit, e.g., 'in the ski resort town no strawberries were for sale at the one small shop so I had to buy tinned cherries instead' or 'During Tasmanian winter many tropical fruits are unavailable so people might choose apples instead'.
- Other good responses may have discussed distribution of takeaway/fast food outlets and noted that if these were in high density and proximity to a person, they are more likely to purchase these foods out of ease instead of travelling further to obtain nutritious ingredients for a meal.

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- Many students confused affordability with availability or were not able to clearly articulate the link between availability and affordability (i.e., as the availability of food decreases, the price increases, thus people may be forced to choose alternatives- tinned peaches instead of fresh).
- Another common error was stating that people on low income have less food available, however it needs to be understood there is still food available, but they cannot afford it.
- Many responses were too simplistic and just stated 'if a food is not available you can't have it'

Question 14

Explain why a person may choose to eat dessert despite experiencing satiety. **(2 marks)**

- The main response expected was appetite – the desire for food even when full.
- For full marks, students needed to explain rather than just state the factor. Strong answers provided definitions of appetite and/or sensory reactions and clearly showed why dessert was likely to stimulate appetite (due to its sweet taste and tempting appearance).
- Other possible explanations included peer influence (everyone else was ordering one and wanting to fit in or not feel different and left out), culture or social interactions (not wanting to be rude to a host who has made dessert for everyone at a dinner party) and habit (the person has a learned behaviour of eating dessert every night after dinner which is reinforced by the positive experience of sweet tasting foods)
- Appetite was frequently misspelt

PART 2

Question 15 – Scenario **(35 marks)**

- Successful responses:
  - stated the main factor and sub-factor influencing food choice
  - evaluated the sub-factor by defining, explaining and justifying it in relation to the individual's lifestyle
  - linked the sub-factor to a food or range of foods from the provided diet
  - explicitly noted and discussed interrelationships between factors and linked to food choices
  - may have extended by giving examples of other foods that the individuals were likely to consume (e.g., acknowledge that Ani has black tea and coffee but say he also might buy almond milk due to his lactose intolerance)
  - Noted the more subtle aspects of the food intake (for example, that Bo seemed to follow a vegetarian diet)

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- Common errors / approaches that reduced ratings for Criterion 6 included:
    - Many students provided modifications to the food students were eating or suggested more nutritious alternatives and practices such as 'meal prepping' rather than analysing why they were eating that food. Some also mentioned health consequences. This did not gain any marks. Perhaps this was partly due to the diet analysis reference in the question.
    - Many students didn't use the food sources provided and instead offered other likely food choices based off the lifestyle information. This impacted overall marks as the question primarily required links to the individual's food intake.
    - Unnecessarily repeating information from the scenario without linking it to any food choice factors (e.g., Bo is an 18-year-old student who lives at home and walks to school every day).
    - Using unrealistic examples for the provided age group. For example, at 18 it is unlikely that Bo gets a red apple because it reminds them of red lollies.
    - Whilst most students were able to identify some sub-factors, many struggled to evaluate them and gave responses which were far too brief e.g., 'Peer influence – Cim will eat the donuts because his friends do' as compared to articulating why someone is compelled to eat the same as their friends (to fit in/feel accepted/meet expectations of the group).
    - Some students analysed behaviours rather than food choices (e.g., stating that walking to college is a habit to improve self-concept).
    - Interrelationships between factors was largely not addressed and very few students did this well. Students needed to explicitly show the interrelationship by naming the sub-factors, discussing how they are connected and how they contribute together to food choices.
- Strong examples included, but were not limited to:

ANI

Economic: Resources- time, skill and food preparation equipment

Ani leads a very busy lifestyle and due to studying full time, working and needing to travel one hour to college she lacks time to prepare foods for herself. She may need to choose foods which are quick, convenient and easy to eat on the go, for example going through the McDonalds drive-through each morning on her way to school. Living on her own, she may also lack food preparation skills and knowledge of a range of healthy, quick meals. Possibly, she has limited food preparation equipment and storage facilities where she lives, such as no oven or stove and so resorts to cheap convenience foods such as the microwaved frozen meal which only require heating and little skill to prepare.

Physiological: Food Sensitivities – Allergies and intolerances

Ani is lactose intolerant which does not involve the immune system like allergies, instead being a chemical response to substances in the food which causes an adverse reaction. If Ani consumes dairy it will likely cause abdominal discomfort. This would explain why Ani has a black coffee and no cheese on her egg and bacon muffin. Ani may also consume almond or soy-milk at times.
Other relevant factors for Ani:

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- Social – Lifestyle and Work Pattern (Household Structure)
- Psychological – Emotions
- Social – Food Marketing and advertising
- Economic – Employment Status & Income

BO

Social: Culture

Culture is often reflected and experienced through foods and meals. Having an Indian family origin, Bo's family likely include many traditional Indian dishes, such as the lentil curry and naan bread and the vegetable pancake. This would help them feel connected to their culture and may be foods that his mother grew up eating. His mother likely has the time and resources/skill to prepare these meals.

Psychological: Beliefs

Beliefs are opinions or convictions which are not necessarily based on positive scientific proof. They are usually strongly associated with culture and religion. As Bo has an Indian family origin, it is quite possible he is a Hindu. In the Hindu religion it is believed that cows are a sacred or holy animal so most Hindu people do not consume beef products or believe that all animals should be respected and not killed for food. Bo seems to follow a vegetarian diet due to his beliefs. Choices which reflect Bo's beliefs include the tofu burger and vegetarian curry made from lentils.

Economic: employment status and income or affordability

Bo does not have a job and as he lives with his stay-at-home mum and three siblings their family income is probably quite low, meaning they may have a small budget for food. Instead of eating out, most of the food is homemade which reduces costs, and includes cheaper items such as the 2-minute noodles (potentially in bulk) and simple cheap fruits like apples.

Other relevant factors for Bo:

- Psychological – values
- Physiological – sensory reactions (taste)
- Social – lifestyle and work pattern (household structure)

CIM

Social: Tradition

Traditions refer to events which are repeated at certain times of the year. It is a tradition in Australia to have a birthday cake with candles and lots of discretionary food at parties to celebrate. Given that Cim had a slice of birthday cake, it was possibly due to birthday celebration for a family member.

Social- Social Interaction / Peer Influence:

Peer influence is the strongest during childhood and adolescence as people have a strong desire to be accepted / fit in with peers by choosing the same foods. Although Cim usually seems to eat

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quite nutritious food, for morning tea the donuts and hot chocolate are likely due to the influence of his friends that he was with. He may not want to feel left out if they were all ordering donuts, or as part of catching up (social interactions) they chose the venue, and he could only pick from the food available at that café.

Psychological – Self-Concept:

Self-concept is how we view ourselves, especially in relation to our appearance and worth. Cim's self-concept could be influenced by other people he sees at the gym or by people he admires in social media like fitness influencers. He may wish to have a bigger/stronger physique and would likely select foods that he thinks will help him to achieve this appearance. For example, high-protein meals such as the protein shakes and the steak for dinner or low-fat products like the muesli.

Other relevant factors for Cim:

- Physiological – Nutritional requirements
- Economic – employment status and income
- Economic – resources (time)
- Social – marketing and advertising
- Psychological – attitudes and experiences (perceived status of food)

Interrelationships examples:

Economic – Employment status and income interrelating with affordability and Psychological-attitudes

The cost of food and a family's budget impacts the quantity, quality and type of products purchased.

Cim has two parents who work professional jobs, which likely provides a high income. Cim's parents can therefore afford food that is more expensive, such as steak and prawns. It is possible that they also prefer to purchase these foods because of their high perceived status which reflects their attitude toward food.

Psychological – emotions and Physiological - sensory reactions (taste)

Ani lives alone and has a busy and potentially stressful life which may cause her to seek comfort food (psychological) to relieve some of these emotions, leading her to choose a lactose-free chocolate. She probably enjoys the sensory appeal of its sweet flavour and smooth texture and the sugar in it causes a dopamine release which temporarily provides comfort if she is lonely or stressed.

Social - Household structure, Economic – food affordability, Psychological - beliefs or values

Bo eats lentil curry provide by mother as she is the main cook (household structure) who chooses this out of economics (cost of food) as it has cheap ingredients, and this also fits with her culture as lentil curry dahl is a traditional dish of India. It is a vegetarian dish which fits in with her religious belief (possibly Hindu) of viewing all life as sacred which is also a value that the family may hold.

Physiological - Nutritional requirements and Hunger, Social – Lifestyle and Work Pattern (Interests) and Psychological – Values

Cim appears to value his health as he works out at the gym daily and chooses healthy foods which support these values such as low-fat muesli, juice and bananas. The work out would increase both his energy requirements and hunger, which explains why he eats a larger quantity of food- two salad rolls for lunch and the two bananas for a snack and the protein shake, which help him achieve satiety.

Criterion 2: General Comments:

Responses which rated the highest in Criterion 2 included:

- Highly level of accuracy in spelling, grammar, sentence structure and punctuation.
- Correct and frequent use of terminology (e.g., Physiological, Psychological, 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.
- Sophisticated language and complete sentences.
- 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.
- Students who wrote their responses in very long paragraphs tended to rate lower for Criterion 2 as they lacked clarity and moved rapidly from one sub-factor to the next. This often corresponded with lower Criterion 6 marks as they did not include enough detail for each sub-factor.
- Physiological and psychological were frequently misspelt

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