2021 VCE Food Studies external assessment report

General comments

The 2021 Food Studies examination assessed Units 3 and 4 of the *VCE Food Studies Study Design 2017–2022*. Section A comprised 15 multiple-choice questions worth one mark each. Section B comprised 10 short-answer questions worth a total of 75 marks and one extended-response question worth 10 marks.

In Section B, some students were unable to tailor the content of their responses to the focus of the question, or demonstrate the key skills linked to related areas of study. Many students were unable to read and use the data provided in the question stem. Others relied too heavily on the stimulus, rewriting the information rather than providing their own knowledge in the response.

The following areas require improvement:

- nutritional rationale underpinning the *Australian Dietary Guidelines*
- equity in food access and distribution
- chemical digestion and absorption of proteins
- analysing the nutritional efficacy of a diet in comparison to the *Australian Guide to Healthy Eating*
- applying the principles of research
- criteria to assess the validity of information
- sustainable farming methods.

Specific information

Note: Student responses reproduced in this report have not been corrected for grammar, spelling or factual information.

This report provides sample answers or an indication of what answers may have included. Unless otherwise stated, these are not intended to be exemplary or complete responses.

The statistics in this report may be subject to rounding resulting in a total more or less than 100 per cent.

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Section A – Multiple-choice questions

Question	Correct answer	% A	% B	% C	% D	Comments
1	A	77	1	11	11	
2	D	3	4	4	89	
3	B	2	69	1	27	The quote focuses on the thoughts and feelings a person has regarding food, relating to the emotional role of food.
4	A	89	1	5	4	
5	D	5	11	1	83	
6	C	1	21	38	40	Microwave ovens cook food by generating electromagnetic radiation, this causes the water molecules in food to vibrate rapidly, generating heat. Food can burn in the microwave. The turntable rotates the food to cook it evenly.
7	C	1	10	77	13	
8	B	15	70	2	13	
9	B	1	98	1	1	
10	C	29	4	63	3	
11	D	1	1	40	58	This is a requirement on Australian food labels to inform consumers on where their food is grown, produced, made or packed. The labelling requirement is mandated for food sold in Australia, not on food exported from Australia.
12	A	57	34	7	3	Genetically modified foods can have the ability to increase nutritional value. Increasing crop yield is often an intended outcome of genetically modifying foods, but cannot be guaranteed. Students need to be mindful of definitive statements.
13	A	72	19	7	2	
14	D	28	11	22	40	The question is focusing on a physical change, not chemical. Answers A, B and C all relate to chemical changes as they refer to changes in protein strands. D is the only response indicating a physical change.
15	C	11	18	17	53	The question is focusing on the nutritional rationale underpinning the *Australian Dietary Guidelines*: grouping foods based on their type and nutrient contribution. Statement C refers to the Food Modelling System, which was used to determine the amount of food recommended for consumption based on the nutrient requirements of different population groups. Statements A and B are general statements about the *Australian Guide to Healthy Eating* and do not relate to the nutritional rationale. The *Australian Dietary Guidelines* focus on the general population, not on an individual approach, so Statement D is incorrect.

Section B

Question 1a.

Marks	0	1	2	Average
%	9	29	62	1.5

Responses needed to focus on online cooking sessions as this was represented in the stimulus.

A suitable response could have included one of the following:

- Families may learn new cooking skills, try new ingredients and learn new recipes easily at home through online cooking sessions.
- Watching a demonstration in a live online format may allow people to connect with others and ask questions, developing their food literacy.
- Families may watch together to try new recipes to increase their repertoire of recipes used at home and increase their confidence in cooking at home.
- Food information may be shaped positively by a presenter who is aware of the nutritional content of the meal and passes this on to the family who can continue to include home-cooked meals in their diet.

The following is an example of a high-scoring response.

A live cook-along session might increase food information received by a family, this can increase a family's knowledge on healthy food choices and cooking skills, which will shape the family's food information in a positive way by increasing abilities to prepare and cook a healthy meal.

Question 1b.

Marks	0	1	2	Average
%	3	24	72	1.7

A suitable response could have included one of the following:

- Families may talk while preparing and eating meals together, which promotes connectedness. May provide opportunities to talk about a range of topics, not just food.
- When trying different foods or recipes together, families may connect over a new experience.
- Cooking and eating special meals together may create shared experiences and traditions for families.
- When families eat together, they may share thoughts and feelings from the day and develop a bond of togetherness.
- It may help to find out how each family member is feeling after the day in a relaxed environment with minimal distraction, linking a family together and creating a bond.

The following is an example of a high-scoring response.

It can as it helps family members develop a sense of belonging and place within the family, as everyone can be engaged in a fun activity such as cooking and share conversation and build relations by eating and sharing good together at the table.

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Question 2a.

Marks	0	1	2	Average
%	20	36	44	1.3

Responses needed to focus on a food-related challenge relevant to the program. A clear link to the program was required.

A suitable response could have included one of the following:

- Many asylum seekers may experience food insecurity when arriving in Australia, so this program provides an opportunity for participants to have access to regular food through producing and cooking weekly.
- Food insecurity: Through participation in the program, participants gain skills in learning how to grow, cook and access locally grown food.
- Participation in the program allows for participants to take home meals that have been prepared as part of the program. This provides food security for the families involved in the program as well as providing new knowledge and skills around food preparation and growing local food.
- Many asylum seekers may be unfamiliar with Australian foods and how to prepare them. By participating in the program, they are building skills, knowledge and experience of cooking with locally grown produce.
- Asylum seekers might be of low socio-economic status. This program provides participants with healthy, fresh foods for their family to consume at no cost.

The following is an example of a high-scoring response.

Food insecurity: These people may not always have physical, social and economic access to sufficient and nutritious food. The program addresses this by providing the access they lack to local produce.

Question 2b.

Marks	0	1	2	3	4	Average
%	15	23	39	14	8	1.8

Students needed to address food access and distribution in their response with reference to the program. Students had difficulty in addressing both elements of the question and many rewrote the stimulus without providing their own insight on the program.

A suitable response could have included one of the following.

Access

- Location of the program being in a region where asylum seekers are living and food security is needed.
- The program focuses on the education of women, developing skills in the garden and the kitchen, and improving their food knowledge/skills/literacy.
- The program allows asylum seekers the chance to access produce that may not be familiar to them, given their different ethnic backgrounds. It provides a safe and respectful environment for the women to feel connected and accepted into their local community, experiencing equity.
- The program ensures that women have easy access to food and the ability to cook this food several times a week.

Distribution

- Food shared with families and other people who are experiencing food insecurity, therefore distributing resources to those in need.

- Distributing locally sourced produce to participants within the program enables the production of meals that are cooked and shared.

The following is an example of a high-scoring response.

Equity is fairness taking into account unfair circumstances of individuals. This program allows for asylum seekers, who are disadvantaged in society, to receive work in farms and kitchens to learn new skills and obtain access to locally sourced culturally appropriate meals in the process. Thus improving their access to food taking into account their prior hardships in accessing quality food and produce. These meals created by the asylum seekers are then also distributed to their families and other families also experiencing food insecurity in attempt to improve their access to food and improve their circumstances, thus promoting equity.

Question 2c.

Marks	0	1	2	Average
%	25	34	41	1.2

A suitable response could have included one of the following:

- Participants are able to produce traditional food and connect with their own food cultures.
- Participants are able to share their cultures and traditional foods with the general public / other people from different cultures, expressing their food customs.
- It gathers a number of women who have something in common to share a lot about themselves over food, in a safe and respectful environment. They can discuss their different backgrounds over the meal they have produced.

The following is an example of a high-scoring response.

This program allows for asylum seekers to express their individual identity by preparing culturally appropriate meals which they can then share, along with their personal stories helping asylum seekers express their individual beliefs, values, likes and dislikes to others in the community through food and stories.

Question 3a.

Marks	0	1	2	3	4	Average
%	48	7	8	12	26	1.6

Students needed to compare the reduced-fat and full-fat milk by referring to the numerical data. Four comparisons were required, with the use of numerical data, to gain full marks.

A suitable response could have included four of the following:

- The reduced-fat milk had a slightly brighter colour compared to the full-cream milk, with a rating of 7 compared to 6.
- The reduced-fat milk had a stronger sourness aroma, with a rating of 6, compared to the full-fat milk, which had a rating of 4.
- The full-cream milk tasted significantly sweeter than the reduced-fat milk with a rating of 6 compared to 3.
- The mouthfeel of the reduced-fat milk was considered to be less uniform or consistent, compared to the full-cream milk, with a rating of 2 compared to 6.
- The fattiness/thickness of the full-cream milk was significantly stronger than the reduced-fat milk, with a rating of 6 compared to 2.

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Question 3b.

Marks	0	1	2	3	4	Average
%	40	19	15	11	14	1.4

A suitable response could have included some of the following.

Digestion

- Enzymatic hydrolysis of proteins occurs; protein is broken down into amino acids.
- Pancreatic protease splits proteins into separate amino acids and peptides.

Absorption

- Amino acids are absorbed by villi in the small intestine. The blood capillaries absorb the amino acids into the bloodstream, transporting them to the liver for storage.

The following is an example of a high-scoring response.

When protein molecules enter the small intestine, pancreatic juices are released. This includes pancreatic protease, the enzyme that further breaks down protein molecules into amino acids, their monomers. Once the protein molecules are broken down into small enough units, absorption begins. Nutrient absorption begins in the duodenum, the first part of the small intestine. Amino acids are absorbed into the villi which line the small intestine, and are then transported to cells via the bloodstream.

Question 3c.

Marks	0	1	2	Average
%	13	23	64	1.5

Students needed to provide an example of an appropriate non-dairy lactose-free milk or yoghurt substitute; examples that were not a true dairy substitution were not accepted.

A suitable substitute could have been one of the following:

- oat/soy/almond/coconut/rice ‘milk’
- coconut yoghurt

The following is an example of a high-scoring response.

An alternative is coconut milk or yoghurt. This is suitable as it is a plant-based product and therefore does not contain lactose, a sugar from milk producing animals.

Question 4

Marks	0	1	2	3	4	5	6	Average
%	10	21	30	21	10	5	2	2.3

Students needed to demonstrate an understanding of nutritional efficacy in their response by comparing the proportion of the food groups and how this impacts nutritional intake. A suitable response included comprehensive comparisons between the two diets, discussing the similarities and differences and how these impact nutritional intake and health.

A suitable response could have included one of the following:

- The Planetary Health Diet (PHD) encourages individuals to have half of the plate with fruit and vegetables, which is even more than the recommendations of the *Australian Guide to Healthy Eating* (AGTHE). The research behind the AGTHE shows we need to eat a large proportion of vegetables and, to a lesser extent, fruit for good health.
- The PHD encourages more plant-sourced protein with only a small amount of animal-based protein. The way this has been specified is different to the AGTHE that has these protein sources in the one food group. A reduced intake of saturated fat can come from reducing animal-based protein.
- The proportions of the food groups in the PHD differ from the recommendations of the AGTHE. The PHD has a greater proportion of fruit and vegetables and fewer serves of wholegrains. This differs to the recommendations of the AGTHE, which promotes greater consumption of grain/cereal foods.
- The PHD promotes smaller proportions of dairy foods compared to the recommendations of the AGTHE, which could impact on an individual's calcium consumption.
- The PHD's different categories of food are more specific than the recommendations of the AGTHE. Some people may not be familiar with these terms and may not fully understand what foods they should be eating.
- The PHD specifies unsaturated plant oils and recommends a much larger proportion than the AGTHE, which recommends oils are used in small amounts. Unsaturated plant oils provide good fats that our bodies can use to reduce the risk of chronic illness.

The following is an example of a high-scoring response.

The AGTHE suggests consuming large amounts of wholegrains daily, as the largest portion of the food from the five food groups, whereas the PHD only suggests having less than ¼ of wholegrains for daily intake which is significantly less that the AGTHE and therefore reducing its nutritional efficacy as wholegrains provide the body with many necessary nutrients and energy.

The PHD recommends consuming fruits and vegetables as half of your daily food intake, whereas the AGTHE suggests fruit only being 2 serves a day and vegetables around 2/3 of the diet. This demonstrates a low nutritional efficacy as the PHD is contrasting the AGTHE by having too much fruit which is high in sugar and may lead to weight gain.

The PHD also suggests very small amounts of animal sourced protein, dairy foods, starchy vegetables which is also not in line with the AGTHE. These factors decrease the PHD nutritional efficacy as animal proteins contain all essential amino acids which helps grow and repair body tissues, dairy foods supply calcium and more protein and starchy vegetables supply fibre which helps the digestive system.

However, the PHD does have some benefits as it suggests low added sugar and unsaturated plant oils which is supported by the AGTHE with the use in small amounts and discretionary food sections.

Overall, the nutritional efficacy of the PHD is low as it contradicts the AGTHE on many factors (food groups) and therefore could cause unhealthy diets, weight gain and dietary related diseases such as obesity, type 2 diabetes and cardiovascular disease.

Question 5

Marks	0	1	2	3	4	5	6	Average
%	38	2	7	12	6	8	27	2.8

A suitable response could have included two of the following:

- Education: People may not understand how to read food labels or ingredient lists to determine the sugar content in food products, so purchase foods they believe are healthy but contain added sugars, contributing to continued sugar consumption.

- Income: Food products high in added sugar may be often on sale or cheap to purchase. Consumers with a low income may still purchase these products due to price, contributing to continued sugar consumption.
- Location: Depending on geographic location, some areas may have reduced access to fresh foods, with foods higher in sugar being more readily accessible, contributing to continued sugar consumption.
- Available time: Convenience foods, such as processed takeaways, may have higher amounts of added sugars. People who lack available time to prepare food may be more inclined to use these products, contributing to their continued sugar consumption.
- Accommodation: Living in small spaces with less room for refrigerated storage may result in increased purchases of shelf-stable products or those not requiring refrigeration, which are often high in added sugar.

Question 6

Marks	0	1	2	3	4	5	6	Average
%	34	13	19	12	12	5	5	1.9

Students needed to select one consideration to focus their entire response on.

A suitable response could have included the following.

Environmental sustainability:

- Opportunity
  - Using cell-based meat may decrease the impact that large cattle have on the environment.
  - Decrease methane emissions, which have a direct impact on the ozone layer and global warming.
  - Protection of fresh water sources.
  - Controlled manufacturing promotes food security, as production is reliable, stable and independent of environmental variables.
  - Supports the reduction of greenhouse gas emissions.
- Challenge
  - Sustainability gains are uncertain.
  - Questioning and researching if there are demands on the environment, such as water production and residential waste.
- Proposed solution
  - Education about the benefits and opportunity to the environment that cell-based meat can offer will potentially increase production and consumption.

Ethical decision making:

- Opportunity
  - Animals are not raised and slaughtered for human consumption.
  - Reduces the demand on meat, potentially decreasing intensive farming practices, which can be seen as unethical.
- Challenge
  - Changing consumers' perceptions around this type of food production.
  - Still using cells from animals, therefore this is not purely plant-based.
  - Ethical concerns for primary food producers as farmers may lose income/employment.
- Proposed solution
  - Education about the benefits and opportunity that cell-based meat can offer may potentially increase the production and consumption for ethically concerned consumers.

  - Supporting farmers to change practices that may enable them to farm other crops, such as pulses/legumes, which have high sustainability gains with low technological requirements, therefore they continue to earn an income.

Technological requirements:

- Opportunity
  - Controlled manufacturing processes promote food security as production may be reliable, stable and independent of environmental variables such as climate change.
  - New job opportunities in food research, development and marketing, and innovation of new foods that utilise cell-based meats.
- Challenge
  - Technological requirements can be costly; increased cost of cell-based meats may be unappealing to consumers.
  - High technological requirements require specialised knowledge, so the workforce may require new training.
- Proposed solution
  - Government to fund research and the development of this product in order to reduce the cost of production.

The following is an example of a high-scoring response.

Technological requirements

Opportunity: Technological requirements could provide employment opportunities as an area of economic growth which could improve the livelihoods of many individuals as a greater number of researchers are needed

Challenge: The ability to upscale cell-based meat production is limited by its high technological requirements as it is not viable to make cell-based meats commercially on a large scale if expensive technology and equipment is needed

Proposed solution: Government could fund research into simplifying the process of producing cell-based meats so that it can be a viable solution in areas where access to technology is low

Question 7a.

Marks	0	1	2	3	4	5	Average
%	6	15	31	29	13	6	2.5

In order for students to be awarded full marks, explicit information from the nutrition information panels was required with accurate links to the prevention of obesity. Numerical data was required when comparing the two panels. Discussion of sodium was not relevant as it does not have a direct link to the prevention of obesity.

A suitable response could have included some of the following:

- Bread sample 2 has a great amount of the nutrients (protein, fat and fibre) required for satiety. This can lead to a feeling of fullness; therefore, less food may be eaten. Ensuring appropriate energy intake is the most effective way to prevent obesity in adults.
- Fibre supports a healthy digestive system. It is the better choice for an adult for the prevention of obesity.
- Protein is required for repair of the body and to maintain good health. Excess protein can lead to excess kilojoules being stored as fat.

- Sample 2 is slightly higher in fat; although high fat consumption can contribute to weight gain as it is energy dense, the difference between the two breads is not significant. Fat can contribute to satiety which can reduce overeating therefore preventing weight gain and obesity.
- Kilojoule intake is important for the prevention of obesity; if kilojoule intake and output do not balance it can contribute to obesity. The amount of energy/kilojoules is not made known on either label, so adults would have to use other information to make their choice.
- A serve of sample 2 is slightly larger than sample 1, so it may be more energy dense. Adults are no longer growing and require less energy than when they were younger.

The following is an example of a high-scoring response.

To compare the two the quantity per 100g will be used as this is the most accurate as the serving sizes differ between the two breads. Sliced bread number 2 is the better choice for a 40-year-old wanting to prevent obesity as it contains more protein per 100g of 10.7g compared to bread 1 with 8.9g. Bread 2 also contains more dietary fibre, total of 9.9g per 100g compared to bread 1 with 3.6g per 100g. Both fibre and protein aid in feelings of fullness, preventing overconsumption of food, helping to prevent weight gain and therefore obesity. It contains less carbohydrates, 39g per 100g and less sugars 3g per 100g compared to bread 1 with 46.5g per 100g carbohydrates and 4g per 100g of sugars which should be limited to prevent weight gain, also making bread 2 the best choice for the 40-year-old adult wanting to prevent obesity.

Question 7b.

Marks	0	1	2	3	Average
%	29	12	22	37	1.7

A suitable response could have included some of the following:

- Both sliced breads state that one serve is two slices of bread; this doubles the *Australian Dietary Guidelines'* recommendation of one serve.
- The quantity per serve of the two bread slices are different: sliced bread 1 is 75g, while sliced bread 2 is 80g.
- Adults could be eating two slices of bread thinking it is one serve, when in fact it is two serves of grain foods. This could lead to overconsumption of food.

The following is an example of a high-scoring response.

The recommended serving sizes of sliced bread 1 and 2 both exceed the recommended serve of bread from the Australian Dietary Guidelines (ADG). Slice bread 1 states that one serve is 75 grams (2 slices) and sliced bread 2 states that 1 serve is 80 grams (2 slices) whilst the recommendations from the ADGs is one slice at 40 grams. This information on the nutrition information panels can thus lead to people believing they are only consuming one serving but are actually overconsuming the product.

Question 8a.

Marks	0	1	2	3	4	5	6	Average
%	35	20	18	13	7	4	3	1.7

A suitable response could have included the following:

- Recognition of credible sources

  - The authors of this study would have ensured their research and information provided for their study was provided by credible sources, federal government agencies or dietitians and cited their sources when needed.
- Evidence-based information
  - This study is based on accurate and reliable data and scientific study procedures. Information being sourced for the study comes from scientific evidence.
  - Evidence being collected in the study is ethically and efficiently collected and recorded to ensure the study is conclusive and based on the best possible information.
- Accurate analysis of data
  - This study used control and non-control groups and rigorous research methodologies to compare the groups in the study.
  - This study was conducted over time and included follow-up data collection three months after the initial taste-exposure, showing a more rigorous study was conducted.

The following is an example of a high-scoring response.

Recognition of credible sources: Credible sources would have been used through the study being sourced from a reputable, reliable study / organisation / school such as a University or scholarly institution.

Evidence-based information: Evidence based information would have been used through the study, recording accurate, well detailed information and statistics, and basing their findings off reliable quantitative data

Accurate analysis of data: The data would have been analysed without any biases or preconceptions, analysing the effects of the variables and the experimental group in comparison to the control group

Question 8b.

Marks	0	1	2	3	4	5	6	Average
%	26	20	22	16	9	4	3	1.9

A suitable response could have included the following:

- Purpose: To share findings of a study based on food familiarisation through picture books and how this helps parents introduce vegetables into pre-schoolers' diets.
- Context: Recent publication, published in 2018 in a reputable journal source, *Appetite*, to increase understanding of exposure to fruit and vegetables in daily activities, such as reading, can help enjoyment of the foods at meal times.
- Language used: Technical and professional information that provides a clear explanation as to how exposure to the focus food in a picture book increases the consumption of the fruit and vegetable by a toddler.

The following is an example of a high-scoring response.

Purpose: Aims to educate parents on ways to improve the nutritional content of their children's meals to foster good food habits for life. Is objective and informative with no hidden narratives, increasing credibility and validity.

Context: Presentation of an academic study and is not a hidden marketing play. Data is current and relevant (2018), adding validity to the piece.

Language used: Information and factual language, easy to understand to inform readers without an author bias. Adding validity to the information.

Question 8c.

Marks	0	1	2	3	Average
%	34	6	20	40	1.7

A suitable response could have identified one of the following behaviours and an explanation of how the behaviour can increase children's intake of fruits and vegetables.

Modelling

- Parents eating fruits and vegetables in front of their children, being a role model by demonstrating healthy food behaviours.

Repetition

- Parents consistently offering and eating fruits and vegetables with their children to create a pattern of healthy eating.
- Continuously providing fruits and vegetables to children over many meals, creating a consistent pattern of consumption.

The following is an example of a high-scoring response.

Modelling: is another key behaviour principle. Children are more likely to want to eat foods they see their parents consuming and enjoying. Through this, parents are able to establish healthy diet patters for the children. If a child sees their parents increased consumption of fruits and vegetables, they will want to 'follow along' and so, their own intake of fruit and vegetables will increase.

Question 9

Marks	0	1	2	3	4	Average
%	38	15	16	11	20	1.6

A suitable response could have included the following:

- A nutrient content claim is a claim made by a manufacturer about the amount of a nutrient, energy or biologically active substance that can be found in a particular food item. For example, low in fat.
- General-level health claims refer to a nutrient or substance in a food or the food itself, and its effect on health. For example, calcium is good for bones and teeth.

When providing an example of a general-level health claim, no mark was awarded for reference to a serious disease or a biomarker of a serious disease or condition.

The following is an example of a high-scoring response.

A nutrient content claim is a statement about a nutrient or substance and its appearance or existence in a food product, often pictured on a label, for example 'low in sugar'. While a general-level health claim refers to a statement about a nutrient or substance, and its relationship with a factor of health, but not disease, for example 'calcium in milk can strengthen bones'.

Question 10a.

Marks	0	1	2	Average
%	40	32	27	0.9

A suitable response could have included one of the following:

- The snack is portion-controlled, reducing risks of overconsumption.
- Easy and convenient way to incorporate fruit and vegetables into your everyday diet.
- Incorporating fruit and vegetables into your diet as a snack will help you consume your recommended serves and may reduce the consumption of discretionary foods.

The following is an example of a high-scoring response.

It is as it involves fruit and vegetables, which is recommended by the ADGs in Guideline 2, which recommends an intake of a wide variety of nutritious foods from the five food groups. Fruits and vegetables are high in nutrients such as fibre as well as vitamins and must be consumed daily to encourage healthy food behaviour.

Question 10b.

Marks	0	1	2	Average
%	23	39	38	1.2

A suitable response could have included one of the following:

- Fruit can be associated with fond memories, such as enjoying a mango on a hot summer's day.
- Fruit can be associated with celebrations, holidays and feelings of pleasure, evoking joy in the consumer.

The following is an example of a high-scoring response.

Fruit can be a comfort food as it may spark memories with friends or family allowing them to feel safe or connected. It is often consumed when sharing food on a hot summer's day, encouraging individuals to feel happy whilst eating it. It is also quite sweet due to the natural sugars which can make the individual feel like they're having a treat, making them feel joy and happiness.

Question 10c.

Marks	0	1	2	3	4	Average
%	22	18	31	14	15	1.8

A suitable response could have included some of the following:

- Negative environmental impact
  - Product will require extra food processing and refrigeration, increasing electricity use and greenhouse gas emissions.
  - Packaging of the product may end up in landfill, contributing to greenhouse gas emissions.
- Positive environmental impact
  - Food may not be wasted, as it is already prepared and ready to consume, decreasing food sent to landfill.
  - Imperfect fruit can be used and not wasted / sent to landfill, reducing greenhouse gas emissions.
  - Could be more likely to consume less-aesthetically appealing / imperfect fruit in this manner, creating less food waste and fewer greenhouse gas emissions.

The following is an example of a high-scoring response.

This product can have a positive impact on the environment as it has already been premade to achieve recommendations, it reduces the likelihood of food wastage to occur. This can limit its contribution to landfill, thereby minimising the amount of greenhouse gasses released into the air. However, it can also cause negative impacts as the packaging appears to be plastic, this causes gases to be produced when it

is thrown out it has the potential to end up in the ocean where it can impact biodiversity. It doesn't breakdown, causing greenhouse gas emissions. It may also impact electricity use as it is stored in the fridge until needed. This may cause a rise in electricity hindering the environment.

Question 11

Marks	0	1	2	3	4	5	6	7	8	9	10	Average
%	23	21	20	13	8	5	3	2	2	1	1	2.3

Responses could have included some of the following information that relates to each of the three dot points in the stem.

- Biodiversity
  - The variety of living organisms and their ecosystems.
  - Need to understand the need for all the different plants and living organisms and the relationship between these to create a successful garden.
  - Introducing students to indigenous plants allows students to understand connections between ecosystems and how they work.
  - Looking at 30 different indigenous plants will help to discuss/learn about biodiversity and how those different plants can attract/use different organisms to survive.
- Environmental sustainability
  - Through the program, students can discuss what sustainability is by showing practical ways of how soil and plants work and how they can be grown and nurtured for future generations.
  - Students can discuss the issues faced by Australia currently, including salinity, use of chemicals, soil acidification and use of water.
  - Organic farming
  - Maintaining/Protecting soil health.
  - Reducing impact of resource use and contribution to climate change.
- Methods in farming
  - Looking at crop choice and why it is important to choose specific crops for the climate and soil.
  - Looking at indigenous plants will help with discussion about why we use plants that thrive in our environment.
  - Organic/Low-impact farming (no-till / crop rotation).
  - Methods of farming can be connected to environmental sustainability.

The following is an example of a high-scoring response.

Biodiversity refers to the variety of species of plants, animals and other organisms within an ecosystem. The Indigenous garden program helps to develop knowledge of the need for biodiversity through the range of plants, more than 30 different species is, in the 'Indigenous garden'. Along with the knowledge from the local university and First Nations People, the students are encouraged to understand the role of bees and birds as pollinators, worms as decomposes and a range of plants in soil health as being vital to maintaining a balanced ecosystem. The program runs in a primary school and is interactive, promoting curiosity in children to understand the various aspects of horticulture and how their food comes from 'paddock to plate'.

In addition, the program encourages improved understanding of environment sustainability through Indigenous connections with the land who lived harmoniously with the land without damaging it for hundreds and thousands of years. For example, First Nations Australians did not use chemical fertilisers which, when overused, contribute to soil acidification due to elevated levels of nitrogen in the soil. Similarly, use of herbicides and pesticides did not exist in First Nations horticulture, preventing chemical run-off which can pollute waterways and simultaneously promoting biodiversity by preventing non-pest

insects and plant species from being killed by non-specific pesticides. Land management by First Nations Australians instead involves sustainable practices which demonstrate improved understanding of the land such as the need to leave deep-rooted native plants to prevent dryland salinity when the water table rises to the soil surface containing dissolved salts.

Furthermore, the methods of farming which the local Wurundjeri group have practiced for many years can be taught to students through the garden program. Low-impact farming methods such as no-till farming can be understood as the children can be taught and shown how roots in the soil hold the dirt together to prevent soil erosion, especially of fertile topsoil. Similarly, planting a range of edible native plants such as Warrigal greens and saltbush teaches children about the value of having a variety of plants as they put different nutrients into the soil and, in the case of saltbush, can be drought-resistant, sustainable alternatives to conventional pastures used by farmers today.

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