

## Food Knowledge and Skills and Evidence-based Research

### Key Knowledge and Key Skills

#### Key Knowledge 4.1.1

Contexts for gaining food knowledge and skills.

#### Key Skills 4.1.2

The principles of evidence-based research used in the development of the Australian Dietary Guidelines and Australian Guide to Healthy Eating and their application in response to contemporary food fads, trends and diets.

#### Key Skills 4.1.3

Analyse the nutritional efficacy of contemporary food fads, trends and diets.

#### Key Skills 4.1.6

Demonstrate understanding of the healthy eating recommendations of the Australian Guide to Healthy Eating by applying them to food selection, planning and preparation.

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## Terms and Definitions

**Context** refers to the circumstances surrounding or forming an event or situation.

**Food knowledge** can be described as individuals understanding what foods they should eat, why they eat particular foods, and keeping food safe.

**Food skills** can vary between individuals. It generally refers to a person's ability to cook basic meals such as stir-fries to meet their nutritional needs. Still, it may extend to the ability to grow, plan, select, budget, and safely prepare foods from scratch. It could also include the ability of someone to try and accept new foods.

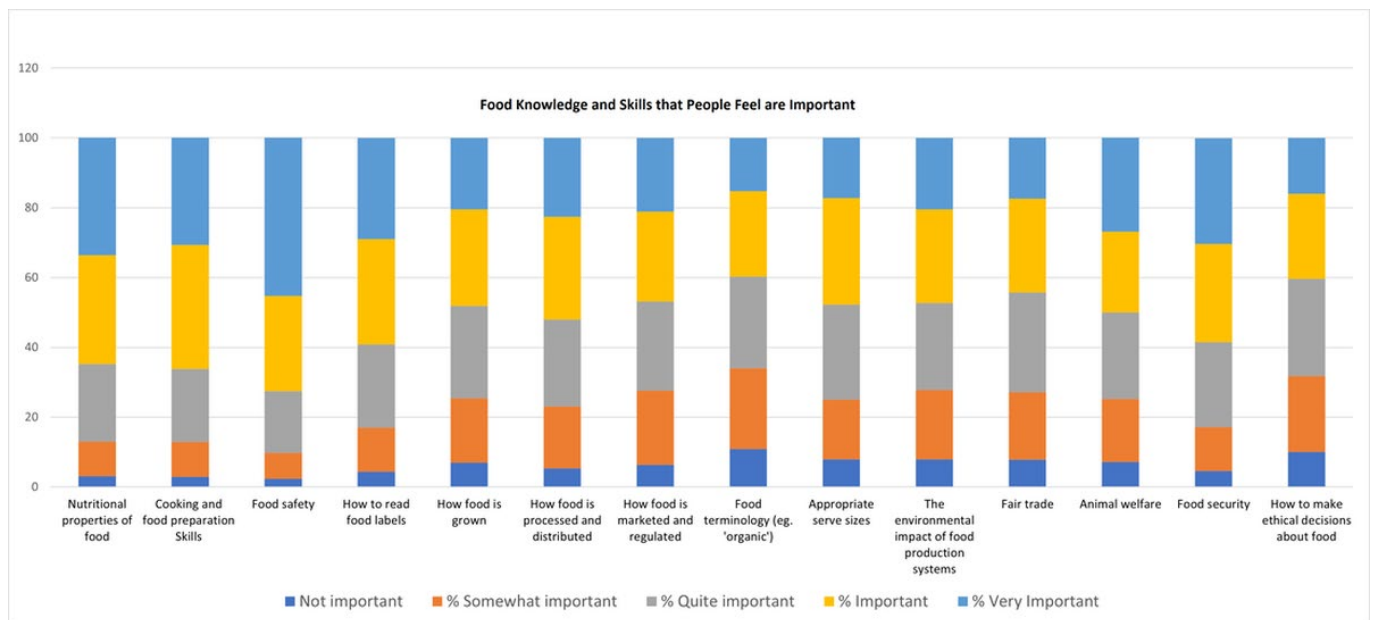
**Nutritional efficacy** refers to the ability of the food fad, trend, or diet to provide nutritional benefit or effect.

## Contexts for Gaining Food Knowledge and Skills

### Food Knowledge and Skills

Food knowledge and skill development are essential in today's modern world. Individuals' food knowledge and skills level can have far-reaching implications throughout their lives and those of others around them. Food knowledge equips individuals with the ability to make informed food choices on what to eat, how to eat it, and where to source food from. Individuals with food knowledge and skills understand the positive and negative impact particular foods have on their emotional, mental, physical, and social wellbeing. People who develop their food knowledge and skills understand the importance of safe food practices and the complexity of various environmental and ethical implications of their food choices on the world around them.

The Physical Activity and Research Centre at Deakin University conducted a study in 2011, which found that many people felt food knowledge was essential. The results of the survey are provided below.



(Worsley, 2011)

The results of the survey indicated that people felt the following food knowledge and skills were particularly important:

- cooking and food preparation skills;
- food safety;
- how to read food labels; and
- nutritional properties of food.

Other food knowledge and skills that were identified in the survey related to:

- animal welfare;
- appropriate serving sizes;
- ethical decision-making;
- how food is grown, processed, distributed, marketed, and regulated;
- the environmental impact of food production systems.

It would be interesting to find out what the results would be like now, considering that the role of ethics and the environment in the food system is more prominent in today's society than ever before.

## Context

A context refers to the circumstances surrounding or forming an event or situation. Nowadays, people gain food knowledge and skills in various contexts. In their early years, preschool education, school communities, family, and friends significantly influence a child's food knowledge and skill development. As they age, individuals tend to gain more knowledge and skills from internet sources, apps, news reportage, and the media.

The images below list various contexts where people may gain food knowledge and skills.



*School*



*Family*



*Friends*



*Health care centres*



*Websites and blogs*



*Apps*



*News reportage*



*Instagram*

### Gaining Food Knowledge and Skills: Community and Not-for-Profit Organisations

Some not-for-profit organisations aim to enhance individuals' food knowledge and skills. Nutrition Australia is a non-government, not-for-profit organisation. They provide nutrition-related resources and services to the public. They also deliver and support a range of health programs.

**Click on** the links below to find out more about the projects and campaigns that Nutrition Australia support.

<https://www.healthylife.com.au/>

<https://projectdinnertime.org/>

<https://www.vickidseatwell.health.vic.gov.au/>

<https://www.vegkit.com.au/>

### Gaining Food Knowledge and Skills: Educational Institutions

Food education occurs in preschools, and primary and secondary schools, though in different ways and to different degrees. Schools are ideal environments for providing reliable food education. Food education helps students lead healthy lives. Food education also increases children's awareness of the food system and associated environmental and ethical issues. In 2001, Stephanie Alexander, an Australian cook, food writer, and restaurant owner, began working on a Kitchen Garden Program at Collingwood College in inner city Melbourne. Stephanie was passionate about providing city children with positive food experiences like hers. She also wanted city-dwelling children to experience growing, harvesting, preparing, and eating fresh seasonal food. Stephanie believed that this would help children foster good food habits for life. The program at the College gained a lot of media attention and support from the public. As a result, in 2004, Stephanie established the not-for-profit organisation, The Stephanie Alexander Kitchen Garden Program. This program offers extensive support and advice to schools, mainly primary schools, in developing thriving kitchen garden programs. Various school resources are available, including curriculum documentation and a video demonstrating food preparation and cooking skills. The Stephanie Alexander Kitchen Garden program was introduced to secondary schools in 2020.

### Gaining Food Knowledge and Skills: Local Government

Local governments have a unique opportunity to create and deliver projects that improve the knowledge and skills of people in their local areas. My Smart Garden program is managed by various local councils in Melbourne. It aims to improve people's understanding of how to create sustainable gardens in our changing environment. The program began in 2011 and has evolved into a network of over 4000 household gardens in Melbourne, where

people not only establish habitats for animals but grow food sustainably. The My Smart Garden program provides skill-based resources and workshops where people learn various skills, including how to grow and harvest food in their home gardens.

**Watch** this video about how the Stephanie Alexander program has impacted students' food knowledge and skills:  
[https://youtu.be/sbZ7-gfB\\_Ks](https://youtu.be/sbZ7-gfB_Ks)

**Watch** this video about a couple who attended a My Smart Garden program workshop:  
[https://youtu.be/dINpf3O\\_MsE](https://youtu.be/dINpf3O_MsE)

### **Gaining Food Knowledge and Skills: State and Federal Governments**

The federal and state governments have introduced various policies and support programs that develop people's food knowledge and skills.

The Vic Kids Eat Well program focuses on supporting community centres, outside school hours programs, schools, and sporting clubs to provide healthy drinks and foods. The Victorian Government supports the Vic Kids Eat Well program in conjunction with the Victorian Cancer Council and Nutrition Australia.

The Live Lighter is a campaign funded by the state governments. It began in Western Australia in 2011 and has been adopted by the Australian Capital Territory, Northern Territory, Tasmania, and Victorian governments. These campaigns included topics relating to sugary drinks and cancer, eating too much fat and ordering takeaway food regularly. The Live Lighter campaign initially launched a series of television ads about the impact of fat and sugar on the body. Over the years, they began other campaigns which focused on eating a wide variety of fruits and vegetables, exercise, junk food and sugary drinks, and sustainability.

As part of their campaign, Live Lighter has developed several resources, including the following:

[Click here](#) to view fact sheets about healthy cooking, healthy eating, and shopping for healthy food.

[Click here](#) to view junk food, sugary drinks, and physical activity calculators.

[Click here](#) to view recipes for people to make at home.

[Click here](#) to download free meal plans, which enable people to mix and match recipes to suit their preferences.

## **The Principles of Evidence-Based Research and Food Fads, Trends, and Diets**

### **Contemporary Food Fads and Trends**

A food fad is a food or food product that experiences a quick rise in popularity followed by a sharp decline. A food trend is generally longer lasting and remains a favourite or popular food for a more extended period of time.

Food fads and trends tend to promote specific health benefits such as the ability to cure a disease or assist with a particular health problem. The claims made about many food fads and trends are not always accurate. While some food fads or trends, such as the consumption of home-grown or organic foods, may positively impact health, some food fads and trends do not. Individuals following food fads and trends, in the long term, may cause more harm to their bodies than good. This is because they may restrict their intake of certain foods and promote the consumption of others. They often do so because the food fad or trend they follow has a minor link with specific health benefits such as alleviating a particular health condition or curing a disease.

Popular food fads and trends such as the consumption of bliss balls and vegetable chips may seem like healthy snack foods; however, commercial varieties can contain hidden fat, salt, and sugar.

Examples of other contemporary food fads and trends are pictured below:



*Plant-based meats lack vitamin B12. The only foods that contain vitamin B12 come from animal sources.*



*Plant-based milk does not contain the same nutritional value as milk from mammals. Additional nutrients often need to be added.*



*Excessive quantities of turmeric need to be consumed daily to experience specific health benefits.*



*Consuming cauliflower may help to increase vegetable intake; however, as a replacement for rice, it may decrease carbohydrate intake.*

## Contemporary Fad Diets

Fad diets are diets that promise weight loss or other health advantages. Fad diets often restrict or eliminate essential food groups, recommend a specific kind of food in copious amounts, or reduce kilojoule consumption to dangerous levels. They usually provide short-term results, are challenging to sustain, have rigid rules, and often deprive people of essential nutrients. They are popular because they promise fast weight loss or other perceived benefits. Very few fad diets align with the *Australian Dietary Guidelines* and the *Australian Guide to Healthy Eating*. Those that do are usually supported by extensive scientific research and have been proven successful long term. The Mediterranean and CSIRO Total Wellbeing are examples of diets with scientific backing.

Examples of contemporary fad diets include gluten-free, juicing, keto, paleo, fat-free, and sugar-free diets.

**Watch** this video about the type of things you should look for when trying to identify a fad diet:

<https://youtu.be/8V15Z-yyiVg>

## The Principles of Evidence-Based Research

As discussed earlier in Unit 3, Outcome 1, the three principles of research were used to develop the *Australian Dietary Guidelines* and the *Australian Guide to Healthy Eating*. These three principles of research included:

- Accurate Analysis of Data
- Evidence-based Information
- Recognition of Credible Sources

Refer to Unit 3, Outcome 1, Topic 4 for further information about the principles of research.

### Application of Evidence-Based Research in Response to Contemporary Food Fads, Trends and Diets

Evidence-based research refers to using research that has already been done to inform a new study about a specific topic. It involves making decisions after thoroughly researching a topic and using the best information available rather than relying on others' opinions. Evidence-based research is essential because it eliminates the use of irrelevant or untrustworthy information that is not scientifically based. Examples of evidence-based research include systematic reviews and meta-analyses, randomised trial testing, cohort studies, peer reviews, and case study analysis. Some food fads, trends, and diets can lead to insufficient intake of nutrients in the body and increase the risk of health problems in the long run. Therefore, it is important to seek evidence-based research when determining the validity of food fads, trends, and diets.

Evidence-based research was used to develop the Australian Dietary Guidelines and the Australian Guide to Healthy Eating. For this reason, the Australian Dietary Guidelines and the Australian Guide to Healthy Eating should be used to analyse the nutritional efficacy of contemporary food fads, trends, and diets.

## References

Worsley, P. T. (2011). *Food Knowledge Survey 2011: Preliminary Report*. Retrieved from Deakin University, Centre for Physical Activity and Nutrition Research:  
[https://www.deakin.edu.au/\\_\\_data/assets/pdf\\_file/0020/307028/food-knowledge-survey-report.pdf](https://www.deakin.edu.au/__data/assets/pdf_file/0020/307028/food-knowledge-survey-report.pdf)



## Written Activity One

### Contexts for Gaining Food Knowledge and Skills

A range of contexts in which food knowledge and skill development. Websites are a common context for people to gain food information and skills.

In small groups, select one of the websites below and complete the following analysis.

Share your responses with your class.

- ☐ Dairy Australia: <https://www.dairy.com.au/>
- ☐ Meat and Livestock Australia HealthyMeals Website: <https://www.mlahealthymeals.com.au/>
- ☐ Nutrition Australia: <https://nutritionaustralia.org/>
- ☐ Dietitians Association of Australia: <https://dietitiansaustralia.org.au/>
- ☐ Diabetes Australia: <https://www.diabetesaustralia.com.au/>
- ☐ Live Lighter Campaign: <https://livelighter.com.au/>
- ☐ Rethink your Sugary Drink: <https://www.rethinksugarydrink.org.au/>
- ☐ Tryfor5: <https://www.tryfor5.org.au/>
- ☐ Nutrition Plus: <https://www.nutritionplus.org.au/>

What website did you choose?	
What food knowledge and skills does this website provide?	How does having this food knowledge and skills benefit individuals, families, and the community?



## Written Activity Two

### Fad Foods or Trends

**Select** one of the food fads or trends discussed in the articles listed below.

- <https://www.choice.com.au/food-and-drink/nutrition/sugar/articles/sweeteners>
- <https://www.choice.com.au/food-and-drink/dairy/milk/buying-guides/milk-alternatives>

**Answer** the following questions:

1. What are the different varieties of this food fad or trend that are available for purchase?

2. Why might this food fad or trend be increasing in popularity?

3. What kind of evidence-based information was used? How reliable was it?

4. Was the data that was used accurate? Why? Why not?

5. Were the sources of information used in the article credible? Why? Why not?





6. Would you believe the information in this article? Justify your decision.

## Written Activity Three

### Fad Diets

**Select** one of the fad diets at this link: <https://utswmed.org/medblog/diets-best-and-worst/>

**Complete** the SWOT analysis of this fad diet with the Australian Guide to Healthy Eating in the chart below:

Strengths	Weaknesses
 <p>How is this diet similar to the Australian Guide to Healthy Eating?</p> <p>Does the diet promote a wide range of food?</p> <p>Are all five food groups included?</p>	 <p>How is this diet different from the Australian Guide to Healthy Eating?</p> <p>Does the diet restrict the amount of food available?</p>
Opportunities	Threats
 <p>What opportunities might people who follow the diet have?</p> <p>Are they still able to socialise easily when on the diet?</p>	 <p>What problems might arise from going on this diet?</p> <p>How could this diet impact health in the long term?</p>

What kind of evidence-based information would need to be used to determine the validity of this diet?

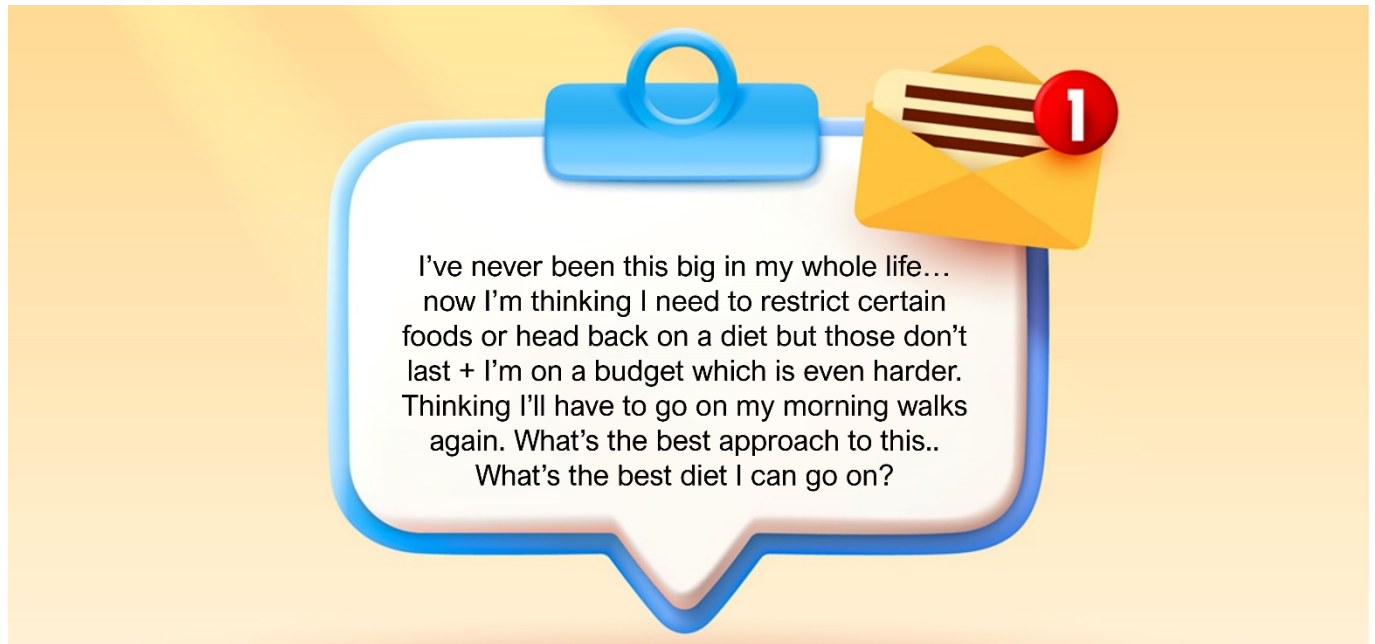
Make a statement about the nutritional efficacy of this diet.

Discuss the nutritional efficacy of this diet with the Australian Guide to Healthy Eating.

## Written Activity Four

### Fad Diet Forum Post

**Read** the forum post below and advise what the poster should do.



**Provide** some advice on how the forum poster should find the best diet.

In your answer, refer to the three principles of evidence-based research used in the development of the Australian Dietary Guidelines and the Australian Guide to Healthy Eating and how they can be applied to contemporary fad diets.

## Practical Activity One

### As Sweet As Sugar

The use of sweeteners in food products is increasing.

#### Task 1

Working in groups of four, **make** one quantity of cupcakes each using the sugars listed below.

Note that you may need to change the quantity of sweetener required; refer to the ratio substitutions listed.

Student One	Student Two	Student Three	Student Four
Caster Sugar	Splenda	Xylitol	Stevia or Monk Fruit
100g caster sugar = 100g sugar	100g caster sugar = 10g Splenda	100g caster sugar = 100g xylitol	100g caster sugar = 35g stevia powder 100g caster sugar = 100g Monk Fruit
Cupcake Recipe			
<b>Ingredients:</b> <input type="checkbox"/> 80g butter <input type="checkbox"/> 85g caster sugar <input type="checkbox"/> 2 ½ ml vanilla extract <input type="checkbox"/> 90g beaten eggs <input type="checkbox"/> 125g self-raising flour <input type="checkbox"/> 125 ml milk <input type="checkbox"/> 10-20 ml milk, extra <input type="checkbox"/> Pinch salt			
<b>Method:</b> 1. <b>Preheat</b> oven to 180°C. <b>Line</b> 1 x 12-hole muffin tray with paper cases. 2. Using an electric beater, <b>cream</b> butter, and sugar until light and fluffy. 3. <b>Add</b> the eggs and 50g of self-raising flour. Stir gently. 4. <b>Add</b> the remaining ingredients and <b>mix</b> until the mixture is smooth and creamy. 5. Using two spoons, <b>spoon</b> the mixture into the patty cases to about two-thirds full. 6. <b>Bake</b> for 15 to 20 minutes or until they are golden brown, have risen, and spring back when lightly touched. 7. <b>Cool</b> on cake cooler.			

#### Task 2

#### Sensory Analysis

**Conduct** a sensory analysis of each cupcake made using the different types of sweeteners.

**Complete** the table below by placing a tick in the column that best describes how you feel about the taste of the cupcakes.

Sweetener	Too Sweet	A little too sweet	Just the right amount of sweetness	Not sweet enough	Hardly sweet at all
Caster Sugar					
Splenda					
Xylitol					
Stevia Powder or Monk Fruit					

### Task 3

#### Discussion

1. Which cupcake did you find the sweetest? Which cupcake did you find the least sweet?

2. Would you be likely to use sweeteners in your baking? Why? Why not?

### Task 4

**Conduct** some research to analyse how the nutritional efficacy of this food fad and trend aligns with the Australian Guide to Healthy Eating.

**Answer** the following questions:

1. What are the advantages and disadvantages of using sugar replacements?

2. What kinds of foods are sugar replacements usually used in?

3. How does the use of sugar replacements align with the nutritional efficacy of the Australian Guide to Healthy Eating and the Australian Dietary Guidelines?

## Practical Activity Two

### Fad Diets

#### Task 1

**Select** one of the recipes below from the fad diets listed:

- Paleo Diet  
<https://www.taste.com.au/recipes/chicken-cauliflower-fried-rice/7866abf9-352a-4276-8031-38e87dd87dfd>
- Keto Diet  
<https://www.taste.com.au/recipes/keto-bacon-chicken-kiev-recipe/3ttqf7ld>

#### Task 1

Working in groups of two, **make** half a quantity of one of the recipes listed.

#### Task 2

**Conduct** some research to analyse how the nutritional efficacy of this fad diet aligns with the Australian Guide to Healthy Eating.

**Answer** the following questions:

1. Describe this fad diet.

2. What foods are people who follow this diet permitted to eat?

3. What foods are people who follow this diet not permitted to eat?

4. How does this fad diet align with the nutritional efficacy of the Australian Guide to Healthy Eating?

5. How does this fad diet align with the nutritional efficacy of the Australian Dietary Guidelines?

## Summary Activity

<b>What was the main idea about this key knowledge and key skill?</b>	
<b>Identify a range of food knowledge and skills.</b>	
<b>List the principles of evidence-based research.</b>	<b>Briefly outline what each involves.</b>
<b>Explain how to evaluate the nutritional efficacy of contemporary food fads, trends, and diets.</b>	



## Exam Preparation

### Section A - Multiple Choice Questions (5 marks)

#### Question 1

The Principles of Research used in the development of the Australian Dietary Guidelines were:

- a. Credible sources, evidence-based literature, and accurate analysis of data.
- b. Credible sources, evidence-based information, and accurate analysis of data.
- c. Credible resources, evidence-based data, and accurate analysis of data.
- d. Credible resources, evidence-based data, and meta-analysis.

#### Question 2

Identify the most likely context where a young person can develop their food knowledge and skills:

- a. Social media platforms, like Instagram.
- b. Food education and healthy meal preparation classes at school.
- c. The home.
- d. At their gym.

#### Question 3

The term nutritional efficacy refers to:

- a. The nutritional benefit or effect a food fad, trend, or diet provides.
- b. The amount of nutrients in a meal.
- c. How effective a diet is in helping someone lose weight.
- d. Factors that impact how efficient one's diet is.

#### Question 4

When evaluating the nutritional efficacy of a weight-loss diet, it is important to:

- a. Ensure that the food in the diet promotes high consumption of all three macronutrients.
- b. Check that the person advertising the diet has experienced success on the same diet.
- c. Ensure the diet meets the recommendations of the Australian Guide to Healthy Eating and promotes regular exercise.
- d. None of the above.

#### Question 5

Which evidence-based research should be used when evaluating the credibility of a drink that claims it flushes fat from the body overnight?

- a. peer reviews,
- b. meta-analysis,
- c. scientific testing,
- d. all of the above.



- b. Explain why the young couple should consider evidence-based principles to assess the credibility of a weight-loss diet.

(3 marks)

## Exam Preparation

### Section A - Multiple Choice Questions (5 marks)

#### Question 1

The Principles of Research used in the development of the Australian Dietary Guidelines were:

- a. Credible sources, evidence-based literature, and accurate analysis of data.
- b. Credible sources, evidence-based information, and accurate analysis of data.
- c. Credible resources, evidence-based data, and accurate analysis of data.
- d. Credible resources, evidence-based data, and meta-analysis.

The answer is B. This is the exact wording from the VCAA Study Design.

#### Question 2

Identify the most likely context where a young person can develop their food knowledge and skills:

- a. Social media platforms, like Instagram.
- b. Food education and healthy meal preparation classes at school.
- c. The home.
- d. At their gym.

The answer is not A. Social media platforms are not always monitored and can promote false information.  
 The answer is B. Food education and healthy meal preparation classes at school are the most likely place to gain food knowledge and skills.  
 The answer is not C. The home may be a place to gain food knowledge and skills for some individuals but not for everyone.  
 The answer is not D. Gyms do not always promote healthy eating habits. It is best to seek advice from a dietitian.

#### Question 3

The term nutritional efficacy refers to:

- a. The nutritional benefit or effect a food fad, trend, or diet provides.
- b. The amount of nutrients in a meal.
- c. How effective a diet is in helping someone lose weight.
- e. Factors that impact how efficient one's diet is.

The answer is A. Nutritional efficacy refers to the efficiency of a diet, i.e., how beneficial it is.  
 The answer is not B.  
 The answer is not C. This term does not always relate to weight loss  
 The answer is not D.

#### Question 4

When evaluating the nutritional efficacy of a weight-loss diet, it is important to:

- a. Ensure that the food in the diet promotes high consumption of all three macronutrients.
- b. Check that the person advertising the diet has experienced success on the same diet.
- c. [Ensure the diet meets the recommendations of the Australian Guide to Healthy Eating and promotes regular exercise.](#)
- d. None of the above.

The answer is not A. Diets need to promote adequate consumption of macronutrients, not large amounts.  
The answer is not B. The person promoting the diet is likely to say they have had success on the diet even if they have not.  
[The answer is C. A weight loss diet that meets the recommendations of the AGtHE and promotes exercise is considered effective.](#)  
The answer is not D.

#### Question 5

Which evidence-based research should be used when evaluating the credibility of a drink that claims it flushes fat from the body overnight?

- a. peer reviews,
- b. meta-analysis,
- c. scientific testing,
- d. all of the above.

[The answer is D.](#)

## Section B – Short Answer Responses (10 marks)

### Question 1 (3 marks)

Provide three examples of contexts where an elderly adult can gain food information and skills. (2 marks)

For three marks, the student needed to identify three contexts where an elderly adult could gain food information and skills.

Any three of the following responses were accepted:

- Nutritionist
- Doctor
- Government website about nutrition
- The Eat for Health Website
- Dietician

### Question 2 (7 marks)

A young couple is considering which meal advertised in a weight-loss program would help them lose weight.

Meal One	Meal Two
Stir-fried chicken with mushrooms, beans, carrots, and red capsicum, served with brown rice and low-salt soy sauce.	Crispy pastry filled with chicken, onion, and bacon pie.

- a. Analyse the nutritional efficacy of the meals with the Australian Guide to Healthy Eating and select the meal that best meets the couple's needs. 4 marks

For two marks, the student needed to compare the similarities and differences between the two meals in relationship with the Australian Guide to Healthy Eating.

For full marks, the student needed to show they understood the term nutritional efficacy by comparing the nutritional value of the two meals with the Australian Guide to Healthy Eating and selecting the meal that would help them lose weight.

Meal One contains four different coloured and types of vegetables, which the Australian Guide to Healthy Eating (AGHE) endorses, compared to meal two, which has only one vegetable.

Meal Two contains pastry from the discretionary or eat only sometimes section of the Australian Guide to Healthy Eating. In contrast, soy sauce is the only food that comes from the eat only sometimes section of the AGHE in meal one. The meal states this is low-salt soy sauce which the Australian Dietary Guidelines recommend.

The meal that aligned the most with the AGHE was Meal One. This meal was the most nutritional benefit for someone wanting to lose weight. It contains vegetables and brown rice that contribute to satiety and help fill someone up. Hence, they are unlikely to snack on foods high in fat and sugar. Meal two is unlikely to fill them up for a long time because it does not contain a high-fiber cereal or a range of vegetables. This may lead them to hunger later and consume snack foods high in fat and sugar.

- b. Explain why the young couple should consider evidence-based principles to assess the credibility of a weight-loss diet. (3 marks)

For two marks, the student needed to explain why evidence-based principles were the best information for assessing weight-loss diets.

Weight-loss diets that have undergone evidence-based information would have been subjected to rigorous scientific testing and research. For this reason, a diet that meets evidence-based principles is likely to be reliable.

For full marks, the student needed to include some examples of evidence-based principles.

Any of the following examples were accepted.

- peer reviews,
- controlled randomised testing,
- systematic reviews of research topics,
- meta-analysis, and
- food pattern modelling.