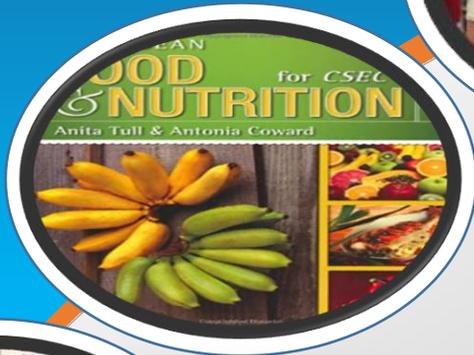




**CARIBBEAN
EXAMINATIONS
COUNCIL**

**FOOD, NUTRITION AND
HEALTH**



**Subject Report
with
Exemplars**

May/June 2023

CARIBBEAN EXAMINATIONS COUNCIL

**REPORT ON CANDIDATES' WORK IN THE
CARIBBEAN SECONDARY EDUCATION CERTIFICATE[®]
EXAMINATION**

MAY/JUNE 2023

**FOOD NUTRITION AND HEALTH
GENERAL PROFICIENCY**

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INTRODUCTION

This guide has been compiled using candidates' responses to the 2023 May/June examination in CSEC Food Nutrition and Health.

In 2023, approximately 10 172 candidates sat the Food Nutrition and Health General Proficiency examination.

The examination took the form of two externally marked papers which were structured as follows.

- Paper 01: Multiple Choice — This paper consisted of 60 items worth one mark each.
- Paper 02: Structured Essay — This paper consisted of six compulsory questions worth 16 marks each. Paper 02 tested two profiles: Knowledge (candidates' ability to recall information) and Use of Knowledge (the ability to use such information in a variety of contexts).

Paper 03, or the School-Based Assessment (SBA), consisted of three practical assignments and a student portfolio. This paper was worth 60 marks.

PAPER 01 — MULTIPLE CHOICE

The mean score on Paper 01 was 42.55 and the standard deviation 10.74. Candidates performed very well.

Question 1

This question was designed to test Section 1 of the syllabus: Diet and Health. The following topics were covered.

- Diet
- Diet — Health-related problems and their impact
- Vulnerable groups in the community and their nutritional problems

Candidate’s Response to Part (a) (i)

1. (a) Define EACH of the following terms.

(i) Diet

The typical foods an individual eats daily or on a day-to-day basis.

Examiner’s Comments

The candidate scored full marks. The candidate highlighted a relation between diet and the daily intake of food.

Candidate’s Response to Part (a) (ii)

(ii) Health

Health is a state of physical, social and mental well-being and not merely the absence of a disease.

(4 marks)

Examiner’s Comments

The candidate’s response was identical to the expected response so he/she was awarded full marks.

Candidate's Response to Part (b) (i)

(b) (i) State TWO nutrition-related health problems which are common in the Caribbean.

Diabetes
Hypertension

(2 marks)

Examiner's Comments

The candidate stated two nutritional-related health problems which are common in the Caribbean.

Candidate's Response to Part (b) (ii)

(ii) Explain TWO **negative** impacts that nutrition-related health problems may have on the Caribbean.

① It may lower the available disposable income since money will have to be spent on healthcare treatment.
② It would lower the human resource capacity due to a lack of productivity and could negatively impact the region's economy.

(4 marks)

Examiner's Comments

The candidate correctly explained two negative impacts — available disposable income, and inadequate human resources and lack of productivity — and their effect on the Caribbean.

Candidate's Response to Part (c) (i)

(c) Explain ONE way in which EACH of the following factors can threaten the food security of children.

(i) Socioeconomic status

The low socioeconomic status of children and their families may prevent them from being able to purchase foods that are of good quality and will provide the necessary nutrients for the growing child thus causing them to develop deficiency diseases.

(3 marks)

Examiner's Comments

The candidate correctly explained how socioeconomic status can threaten the food security of children by highlighting that families with a lower socioeconomic status may be unable to purchase good quality goods. The candidate explained that this leads to the children of such families not receiving necessary nutrients which causes the children to develop deficiency diseases. The candidate was awarded full marks.

Candidate's Response to Part (c) (ii)

(ii) Infectious diseases

When there is an outbreak of infectious diseases, persons will not want to be in contact with another person. Parents will not be able to purchase food for their child or children and this can affect the child's access to food.

(3 marks)

Examiner's Comments

The candidate was awarded full marks for providing a correct response. The candidate indicated that infectious diseases could threaten the food security of children when there is isolation, poor purchasing power and limited access to nutritious foods.

Recommendations

Candidates should focus more on the key words in a definition. They should also take time to read questions carefully so that they provide an appropriate response. For example, in Part 1 (b) (ii), candidates were required to explain two negative impacts that nutrition-related health problems may have on the Caribbean. However, the most common responses were related to the health problems of individuals.

Question 2

This question tested Section 2 of the syllabus: Nutrition and Health. The question specifically tested the following.

- Principles of nutrition
- Health conditions associated with improper intake of carbohydrates, proteins and fats
- Importance of calcium and iron to special groups
- Water

Candidate's Response to Part (a)

2. (a) Differentiate between 'essential' and 'non-essential amino acids'.

Essential amino acids are not produced by the body but is needed ^{and} can be obtained by consuming food which has it while non-essential amino acids are produced by the body so you don't need to consume a large amount food with it.

(2 marks)

Examiner's Comments

The candidate was awarded full marks for stating that essential amino acids are important as they cannot be produced by the human body and therefore they must be acquired from appropriate foods. The candidate added that non-essential amino acids are those that are produced by the body and humans do not have to acquire them from foods.

Candidate's Response to Part (b) (i)

(b) (i) State TWO examples of low biological value proteins.

Pigeon Peas
~~Red beans Kidney bean~~ Pinto beans

(2 marks)

Examiner's Comments

The candidate was awarded two marks for listing pigeon peas and pinto beans as examples of low biological value (LBV) proteins.

Candidate's Response to Part (b) (ii)

(ii) State TWO examples of high biological value proteins.

Soy beans
Fish

(2 marks)

Examiner's Comments

The candidate was awarded full marks for listing soya beans and fish as examples of high biological value (HBV) proteins.

Candidate's Response to Part (c) (i)

(c) Explain how EACH of the following affects the nutritive value of foods.

(i) Agricultural practices

~~with~~ Farmers add insecticides and fertilizers to help the plant grow and remove insects. But, using these could reduce the ~~health benefits~~ nutritive value of the food.

Examiner's Comments

The candidate was awarded full marks for suggesting that the nutritive value of food may be affected in agricultural practices through the use of insecticides and pesticides. The candidates stated that such chemicals are used to help plants grow and to remove insects but by using them, the nutritive value of plants could be reduced.

Candidate's Response to Part (c) (ii)

(ii) Food purchasing practices

When consumers purchase their goods and place them in bags or boxes, ~~some~~ fruits and ~~veg~~ vegetables lose nutritive value from ~~bruise~~ being bruised and squeezed in the bags ~~or~~ boxes.

Examiner's Comments

The candidate was awarded full marks for stating that food purchasing practices affects the nutritive value of food if consumers purchase damaged, bruised or squeezed foods.

Candidate's Response to Part (c) (iii)

(iii) Food preparation practices

When preparing food, and they are cooked for prolonged periods the water soluble vitamins are lost. For example pressuring kidney beans.

(6 marks)

Examiner's Comments

The candidate was awarded full marks for stating that during food preparation, the nutritive value of food is affected if the food is cooked for prolonged periods, causing water soluble vitamins to be lost.

Candidate's Response to Part (d) (i)

(i) State which figure OR picture shows the child who has marasmus and which figure OR picture shows the child who has kwashiorkor.

A - Marasmus

B - Kwashiorkor

(2 marks)

Examiner's Comments

The candidate was awarded full marks for correctly identifying the images. The correct answers were as follows.

A: Marasmus

B: Kwashiorkor

Candidate's Response to Part (d) (ii)

(ii) State TWO symptoms that the child in Picture B is likely to experience.

① Oversized or large stomach ✓

② Swollen body part ✓

(2 marks)

Examiner's Comments

The candidate was awarded full marks for listing two symptoms that the child in Picture B is likely to experience. The candidate stated swollen body parts and an enlarged stomach as two symptoms of the disease.

Recommendations

Students should be fully taught the concepts found in the syllabus so that they are able to apply their knowledge of the syllabus content competently when tested. Students should also be taught to pay attention to the verbs used in the statement of the syllabus objectives so that they are able to determine the depth of knowledge required when providing a response.

Question 3

This question was designed to test Section 3 of the syllabus: Meal Planning, Preparation and Dining. The question specifically tested

- meal planning
- meal planning for different groups.

Candidate's Response to Part (a) (i)

3. (a) (i) Outline the 'multi-mix' principle.

The multi-mix principle is when you combine foods from different food groups to create a balanced meal.

(3 marks)

Examiner's Comments

The candidate outlined the parameters of the multi-mix principle, indicating that foods from different food groups are combined in multi-mix meals. The candidate was awarded full marks for the explanation given.

Candidate's Response to Part (a) (ii)

- (ii) List TWO types of food mixes other than the three-mix.

Two types of food mixes are the dual mix and quadruple mix principles.

(2 marks)

Examiner's Comments

The candidate correctly identified two mixes other than the three-mix.

Candidate's Response to Part (a) (iii)

(iii) Name ONE factor that should be considered when planning meals.

That factor could be the ~~age~~^{age group} of the person you are planning the meal for.

(1 mark)

Examiner's Comments

The candidate was able to correctly identify one factor to be considered when planning meals.

Candidate's Response to Part (b)

(b) Create a three-mix packed lunch for primary school students aged 5–12 years.

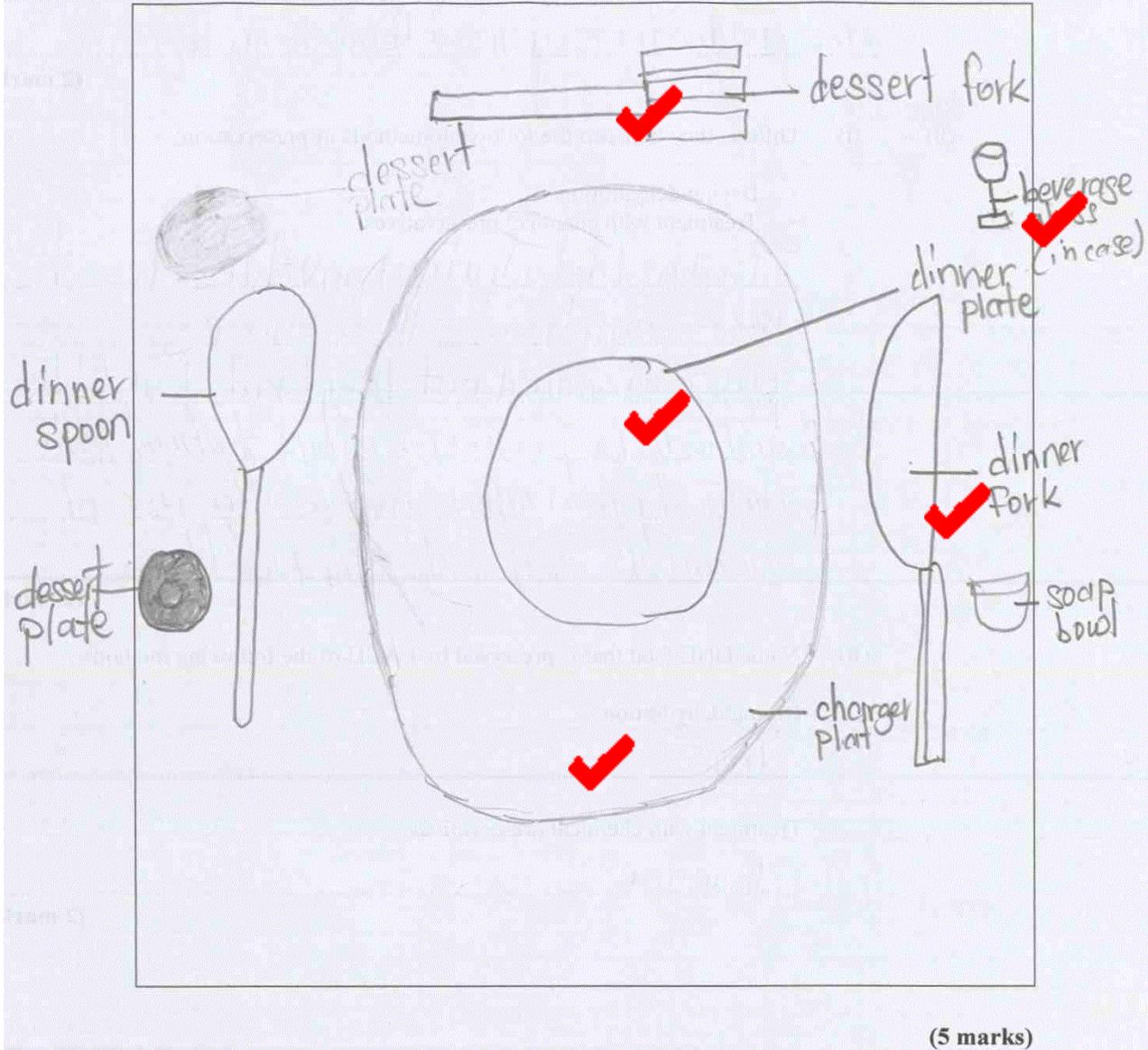
For the carbohydrate white rice for protein steamed chicken and for vegetables a stir fried vegetables.

Examiner's Comments

The candidate planned a packed lunch in accordance with the criteria of suitability, texture and colour of the packed lunch.

Candidate's Response to Part (c)

In the space below, sketch and label a cover that is suitable to be used for serving this meal.



Examiner's Comments

The candidate was able to correctly illustrate a cover based on the menu provided. The candidate had fair knowledge of the positioning of the table appointments. Several candidates misunderstood the concept of a cover and so they illustrated menu cards.

Recommendations

Teachers should use the correct names for items and processes when they are teaching the curriculum, in order to familiarize students with the names of such. Every opportunity should be used to reinforce the concepts previously taught, for example, table setting a cover for the items prepared during a practical on sauces.

Question 4

This question was designed to test Section 4 of the syllabus: Food Science and Technology. It specifically tested candidates' knowledge and understanding of

- food-borne illnesses
- perishable and non-perishable foods
- production of common food commodities.

Candidate's Response to Part (a)

4. (a) State TWO causes of food spoilage and contamination.

Micro organisms, Improper storage. (2 marks)

Examiner's Comments

The candidate correctly listed microorganisms and improper storage as two causes of food spoilage and was awarded full marks.

Candidate's Response to Part (b) (i)

- (b) (i) Differentiate between the following methods of preservation:

- Drying/dehydration
- Treatment with chemical preservatives.

Dehydration is removing the water or moisture from the product while Treatment with chemical preservatives is adding chemicals (Salt, Sugar, Vinegar) to a food to preserve it. (2 marks)

Examiner's Comments

The candidate was able to differentiate between drying/dehydration and treatment with chemical preservatives correctly. The distinction was clear as the candidate mentioned the removal of moisture for drying/dehydration and the use of salt, sugar and vinegar for treatment with chemical preservatives.

Candidate's Response to Part (b) (ii)

(ii) Name ONE food that is preserved by EACH of the following methods.

Drying/dehydration

Milk Powder

Treatment with chemical preservatives

Salt Fish

(2 marks)

Examiner's Comments

Two correct responses were provided in relation to examples of food prepared by drying/dehydration and treatment with chemical preservatives. The foods named were milk powder and saltfish respectively.

Candidate's Response to Part (c)

- (c) Explain THREE different changes that may occur when heat is applied to cereals.

When heat is applied to cereals, the process of gelatinization takes place. This is when the cereal grains absorb the liquid added causing the enzymes to swell and forming a gel like consistency. Dextrinization also takes place and occurs once starch, in this case, the cereal grains, come in contact with heat and moisture. Gelatinization causes a change in the texture of the cereal (from grain to gel like consistency) and dextrinization would contribute to the colour change in the cereal. Another change that may occur is the change in size as the cereal grains have now absorbed the liquid present, and have swollen to double in size.

Examiner's Comments

The candidate provided an excellent answer in which he/she explained three different changes that may occur when heat is applied to cereals. It was evident that the candidate knew the terminologies associated with the changes and was able to give precise explanations.

Candidate's Response to Part (d)

(d) Explain TWO ways in which air is incorporated into a batter.

Air is incorporated into a batter during the process of mixing the batter. Sifting is the process of aerating aerating the dry ingredients and allows unwanted substances to be captured in the and discarded. Air may also be incorporated in the batter through the raising agent. For example these raising agents react to the acids present in the batter then produce carbon dioxide, causing the batter to rise when baking.

(4 marks)

Total 16 marks

Examiner's Comments

Two ways in which air is incorporated in a batter were correctly explained by the candidate.

Recommendations

Emphasis must be placed on ensuring that candidates understand the requirements of the syllabus for food spoilage and contamination as well as food preservation. Candidates must be able to apply the principles of food spoilage to food preservation.

Candidates must also be knowledgeable of methods used to preserve foods and not confuse them with methods used for cooking foods.

Question 5

This question was designed to test Section 5 of the syllabus: Kitchen Design and Equipment Management. It tested candidates' knowledge of

- kitchen sinks
- accidents in the kitchen
- working efficiently in the kitchen.

Candidate's Response to Part (a)

5. (a) List THREE factors to be considered when purchasing a stove/cooker.

① The Size
② The Price
③ The Features

Examiner's Comments

The candidate correctly listed three factors to consider when choosing a stove/cooker and was awarded the corresponding marks.

Candidate's Response to Part (b)

- (b) List THREE ways to conserve energy when using an electric cooker.

① When baking avoid opening the oven frequently
② Put pots and pans on burners that are the correct size
③ avoid opening pots and pans frequently when food is cooking.

(3 marks)

Examiner's Comments

Three ways to conserve energy when using the electric cooker were correctly listed by the candidate.

Candidate's Response to Part (c)

(c) Figure 3 illustrates the kitchen in a daycare centre.



Figure 3. The kitchen in a daycare centre

Use the illustration in Figure 3 to identify THREE types of accidents that may occur in the kitchen and state ONE example of EACH type of accident.

- ① Fire Electrification - if the stool falls pulling the toaster and it falls into the water while being plugged in the child playing in the water will be electrocuted, which may result in death.
- ② Fire: The child playing with matches in Figure 3 above could accidentally get the wire attached to the blender burnt causing a fire, which may

result in the death of every one in the house.

③ cuts & injuries: example is that if the mother in Figure 3 Fall From the stool she could have a serious injury resulting in hospitalization or if the child pulls the glass wear off the table it could result in lots of cuts and injuries that may lead to heavy bleeding and hospitalization.

(6 marks)

Examiner's Comments

Three types of accidents that could occur based on the given scenario and examples of such were correctly explained by the candidate. The candidate focused on electrocution, fires and cuts.

Candidate's Response to Part (d)

(d) Jenny is responsible for making 300 tea plates for a function. Explain TWO ways in which Jenny may achieve maximum efficiency in the kitchen.

- ① Jenny could create a time plan, so that she could manage her time and know what to prepare first, etc. last, second etc.
- ② Jenny could pre-prepare her ingredients and utensils and equipment and use labour saving devices to make her work load easier.

(4 marks)

Examiner's Comments

The candidate provided two good explanations relating to how Jenny could achieve maximum efficiency in the kitchen.

Recommendations

Teachers should reinforce the concept of energy efficiency and conservation to students when they are being taught practical skills. The time plan, although not an official part of the examination, should be taught along with energy efficiency, and reinforced during practical activities. Students should be able to identify and justify steps taken for energy efficiency and conservation.

Question 6

This question tested two sections of the syllabus, namely Section 6: Consumerism and Purchasing of Food, and Section 7: Food Management, Preparation and Service. The question specifically tested

- terms associated with consumerism
- selecting and purchasing fresh foods
- the preparation and service of one-pot meals
- methods of cooking.

Candidate's Response to Part (a)

6. (a) State THREE reasons for cooking food.

Reasons for cooking food:

- 1) Kill any bacteria or germs which may ^{have found} find its way in the food.
- 2) To change the texture and colour of food to make it more ~~exp.~~ attractive or digestible.
- 3) To help fight diseases or regulate body temperature when sick or cold

(3 marks)

Examiner's Comments

The candidate earned full marks for stating to kill bacteria, to change texture and to make it more digestible as reasons for cooking food.

Candidate's Response to Part (b) (i)

(b) Figure 4 is a diagram showing the sections where the cuts of meat are taken from a cow.

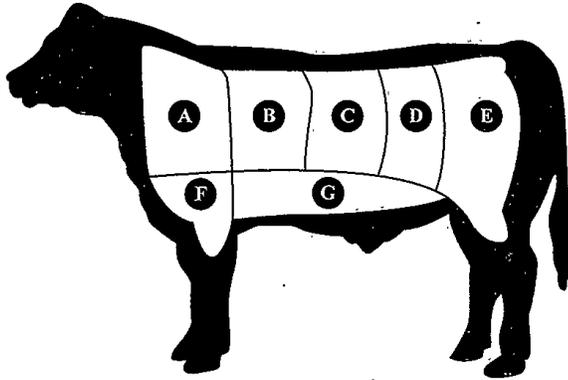


Figure 4. Diagram showing cuts of a cow

Identify EACH of the following cuts.

- (i) A Chuck.....
- (ii) C Sirloin.....
- (iii) E Round.....

(3 marks)

Examiner's Comments

The candidate was able to score full marks for properly identifying the three cuts of meat. The answers given were A — *chuck*, C — *sirloin*, E — *round*.

Candidate's Response to Part (c)

- (c) Explain the scientific principle underlying pressure cooking as a method of cooking.

The pressure ~~cooker~~ cooker uses steam ~~to~~ to assist food in cooking faster and becoming more nutritious to the body. The pressure cooker is filled to a specific point in the pot with the food item you want to cook. When the water heats up and ^{starts} to boil, steam is trapped in the cooker and when it reaches its optimum point, the steam is released at the top of the pot into the atmosphere. The food cooks quickly as a result and becomes ~~of~~ softer and more nutritious. [hard cuts of meat become more tender.]

(4 marks)

Examiner's Comments

The candidate scored partial marks for explaining the principles of pressure cooking. The candidate was awarded marks for stating that when steam is trapped in the cooker, it reaches a maximum point at which some steam is released and the food become softer and nutritious.

Candidate's Response to Part (d) (i)

- (i) Pre-preparation

In your pre-preparation of the dish, you would want to wash your meat and pre-season it to let it marinate, therefore making it become more flavorful in the long-run.

(2 marks)

Examiner's Comments

The candidate did not score any marks for the answer given with respect to what should be done during the pre-preparation stage when cooking of beef stew. The candidate stated 'wash meat' and 'pre-season it'.

Candidate's Response to Part (d) (ii)

(ii) Cooking

When cooking stewed beef, you would want to cook the meat in a pot first and later transfer it to another pot or add water to the same pot to create the soft texture and liquid sauce of the beef. You would also want to season it further with herbs and spices.

(2 marks)

Examiner's Comments

The candidate was unable to outline two correct steps involved in the cooking of beef stew. The candidate stated that the meat must first be cooked in a pot then transferred to another pot and water should be added to create a soft texture. The candidate added that the stew should be seasoned to taste.

Candidate's Response to Part (d) (iii)

(iii) Service/garnishing

For serving the beef, you would want to serve it on a big dinner plate with an accompaniment like rice. You could garnish the beef with parsley or any other leafy vegetable or herb you think is suitable. A side of vegetables could also be served with it.

(2 marks)

Examiner's Comments

The candidate earned full marks for stating that the beef stew can be garnished with parsley and served on a dinner plate.

Recommendations

Emphasis should be placed on all areas of the syllabus and not only the areas frequently tested. The integration of theory and practical activities is recommended to ensure that students have a comprehensive understanding of food preparation principles, for example, principles of pressure cooking.