Home Economics 1.1

Internally assessed
5 credits

AS 90956

Demonstrate knowledge of an individual's nutritional needs

This Achievement Standard involves the planning, preparing and serving of food and liquid that meet the nutritional requirements of an individual. The individual could be a child, teenager, adult or an older person.

For the purposes of this Achievement Standard in this book, we look at the needs of the adolescent (teenager).

For the practice assessment, there are three tasks:

- Task 1 – write a food plan for one day
- Task 2 – justify the food choices for the individual
- Task 3 – prepare, cook and serve your chosen meal.

Achieving with Excellence involves **justifying** the food, liquid, and preparation practices (actions) you have planned and carried out, explaining how they meet the nutritional needs of the chosen individual. You should link your food and liquid choices to **nutrients** and their **function**, and their importance to the individual.

Unit 1 – Nutrients

Food and nutrition guidelines

To guide you in your planning for this Achievement Standard, you need to use a recognised food classification model, such as the food and nutrition guidelines for healthy children and young people (2–18 years), published by the Ministry of Health. The Ministry of Health's *New Zealand Food and Nutrition Guideline Statements* are the key recommendations to ensure **optimal growth** and to prevent **nutritional deficiencies**, **obesity** and **diet-related chronic diseases**.

The guideline statements for children and young people are as follows.

1. Eat a variety of foods from each of the four major **food groups** each day:
   - vegetables and fruits, including different colours and textures
   - breads and cereals, increasing wholegrain products as children increase in age
   - milk and milk products or suitable alternatives, preferably reduced or low-fat options
   - meat and meat alternatives (lean meat, chicken, fish, shellfish, eggs, legumes, nuts and seeds).
2. Eat enough for activity, growth, and to maintain a healthy body size.
   - Eat regularly over the day; that is, have breakfast, lunch and dinner, and include in-between snacks for young children or if hungry.

Measuring serving size

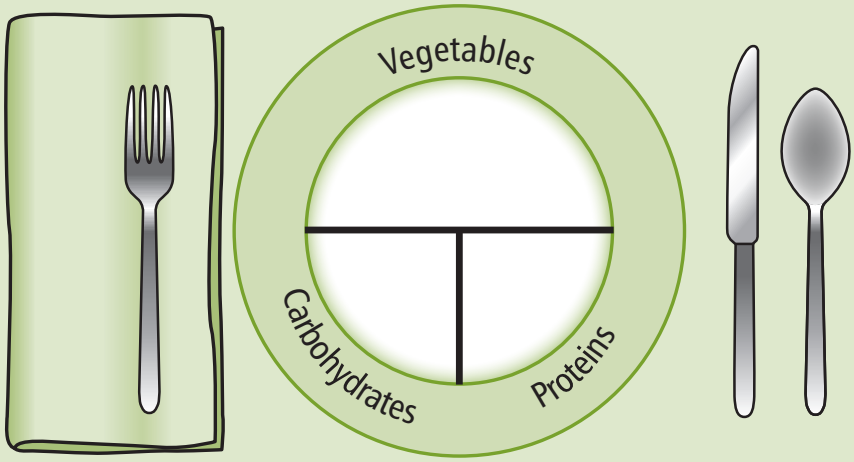
Serving size can be measured in various ways, e.g. using hand size, or sections of a plate.

Hand size

The amount of food that can fit into the palm of a person's hand can be a measure of serving size. The bigger the person's body, the bigger the hand, and therefore the bigger the serving that is required. Children, with smaller hands, have smaller servings.

Sections of a plate

A healthy plate of food should contain foods in the proportions shown in the following diagram.



Vegetables (except for starchy vegetables) should fill *half your plate*.

Carbohydrate foods such as rice, taro, pasta or potatoes should cover a *quarter* of your plate (the size of your fist).

Protein foods such as meat, fish, or chicken should cover the area of your open palm.

Weight of food or liquid

The **serving weight** of food or liquid can be used as a measure of serving size. For example, for a teenager, a standard serving of potato weighs 135 g; bread, 26 g; yoghurt 150 g; and cooked meat, 100 g.

Along with weight, achieving the correct **number** of servings each day is important to ensure teenagers consume the food and liquids they need.

The following chart shows the recommended number of servings from each food group per day.

	Fruit	Vegetables	Breads and cereals	Meat and alternatives	Milk and milk products
Teenagers 13–18 years	2	3	6	1–2	3

Ans. p. 222

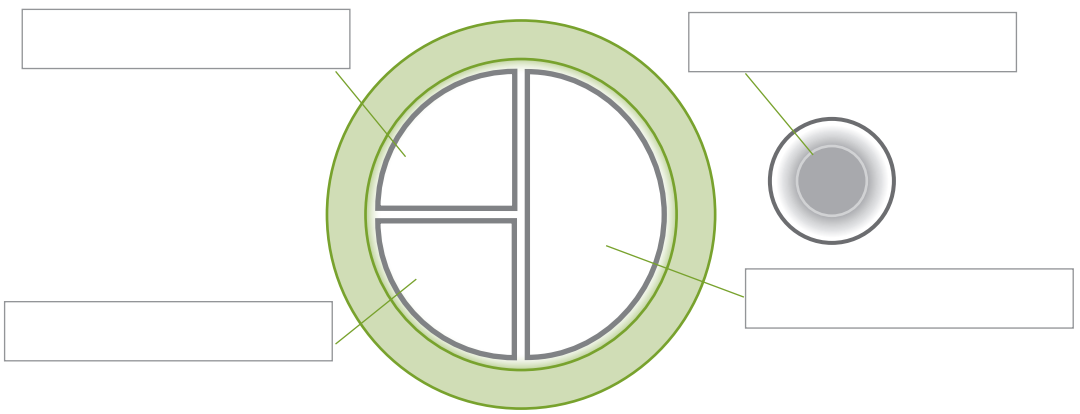
Questions: Serving and portion size

1. Complete the following sentences using words from the word list.

   fist half palm pasta portion quarter rice

   a. A serving is a _____ of food as recommended by the Ministry of Health.
   b. A salad or cooked vegetables should fill _____ your plate.
   c. Meat and meat alternatives, as well as carbohydrate foods, such as _____ and _____, should take up about one _____ of your plate.
   d. A standard portion of cooked rice or a potato or kumara is around the size of your _____.
   e. A portion of chicken or fish or meat should fit into the _____ of your hand.

2. Label the plate and glass with foods that would fit in with the recommended servings for a teenager's main meal.



3. Using the nutrition guidelines at http://www.health.govt.nz/publication/food-and-nutrition-guidelines-healthy-children-and-young-people-background-paper (at page 21), find the *portion weight* in grams for each of the foods in the photos on the previous page and record the information in the following chart.

Unit 4 – Food choices and well-being

An **impact** is an effect.

Decisions people make about the foods they eat can have positive and negative effects on their health and well-being. There are four dimensions to well-being:

- taha tinana – physical well-being
- taha wairua – spiritual well-being
- taha whānau – social well-being
- taha hinengaro – mental and emotional well-being.

All four dimensions are affected by what we eat.

The four dimensions

Physical well-being (taha tinana)

When a person has a regular diet of food that is low in fat, salt and sugar, and has a regular exercise routine, the person is likely to have good physical well-being. Someone who has chocolate-coated rice bubbles and chocolate milk for breakfast; a mince and cheese pie and a packet of potato crisps with an energy drink for lunch; and a burger and chips for dinner, can easily become overweight if this is their pattern of eating, especially if they do not do any physical exercise. Long-term effects of such a diet can be high blood pressure, diabetes, and heart disease. People need to take in fewer kilojoules if they are not physically active.

Young people, who are still growing and developing, need a varied diet and burn more kilojoules than an older person who does little or no exercise.

Spiritual well-being (taha wairua)

Young people enjoy feeling connected and being part of a group of like-minded people. Being part of the group means following what friends do, but there are times when they can lose their sense of identity and feel they have lost control of their decision making and personal values. This can lead to low self-esteem and loss of empowerment, and may lead to people withdrawing from their groups of friends in an attempt to find their own identity again.

Social well-being (taha whānau)

Social well-being is enhanced by spending time with family, extended family and friends, and doing activities together that all enjoy. If you are not at home for family meal times, and if, because of work or other activities, you miss family gatherings or other social activities, you can begin to feel disconnected from family and friends. Keeping regular contact and communication is important for social well-being.

Mental and emotional well-being (taha hinengaro)

When you are feeling strong and motivated, your self-esteem is high and you feel good about yourself. This may give you the courage and strength to make changes in your life, for example, in your eating patterns if necessary.

4. Refer to the case study (Ravi's family) to answer this question.

   a. Name two traditional Indian-Fijian foods that Ravi's mother might have found hard to buy in New Zealand in the 1990s.

   b. Suggest why it was easier to obtain the foods in Wellington than it was in a small town.

   c. Identify one influence Indian-Fijian food practices have had on New Zealand eating patterns.

   d. How and why have New Zealanders adapted some of the Indian-Fijian food practices?

5. **Practical cookery – Chilli con carne**

Chilli con carne is a dish of meat and beans originating in Mexico. The following recipe has been adapted for use in modern New Zealand cooking.

T = tablespoon; t = teaspoon; c = cup; g = grams

Kiwi chilli con carne

Ingredients

500 g lean beef mince
2 onions, peeled and chopped
1 T garlic, crushed
1 t cumin
420 g can chilli beans
¼ c tomato sauce
1 beef stock cube
1 c boiling water

Method

(Serves four)
Brown the mince in a little vegetable oil and set aside.
Add onions, garlic and cumin to the pan and cook until just soft.
Return the meat to the pan with the remainder of the ingredients.
Cover the pan. Simmer gently for 20 minutes.

Serving

Serve with a fresh green salad and couscous, a jacket potato or rice.

AS 90958

Where do bacteria come from?

Bacteria are all around us. Bacteria that can be harmful come from people, pets, the dirt from vegetables and fruit, from the animals we use as food, and from insects, pests and rodents. They also come from unclean equipment, and from rubbish, dust and dirt.

Cockroaches carry bacteria

Conditions for the growth of bacteria

Bacteria need

food + moisture + warmth + oxygen + suitable pH + time

In the same way as people, bacteria need moisture (water) and a source of food. If they also have warmth, some oxygen, and the correct pH (acidity or alkalinity), over time most bacteria grow and reproduce rapidly. If there is food but no moisture, bacteria can be **dormant**, producing spores that germinate if moisture returns.

Takeaway food can provide perfect conditions for bacterial growth

AS 90959

Questions: More about bacteria

Ans. p. 231

1. List *three* facts about bacteria.

2. List the *six* conditions necessary for most bacteria to grow and reproduce.

4. Aaron and Liam

Aaron and Liam's parents have separated. Liam has Type 1 diabetes and has to monitor his sugar levels. Both boys are at high school. The boy's nana and papa, who are retired, live with the boys and their mother. Mum works four hours a day at the local primary school. The boys play soccer for their school and hang out with their friends at the local skate park after school. They have to help with jobs around the house and Nana helps cook meals. The boys go to their dad every second weekend and during the school holidays for a week, or as arranged with their mum.

Question: Thinking about the four dimensions of hauora, how could Aaron and Liam's family situation affect the boys' well-being? What could the boys do to enhance their well-being?

Taha tinana – physical well-being	Taha hinengaro – mental and emotional well-being
Taha whānau – social well-being	**Taha wairua – spiritual well-being**

5. Babita

Babita and her family are Fijian, but Babita was born in New Zealand. Babita's mum has just given birth to a healthy baby boy. Babita is 18 and in her last year at college. Dad works evening shifts, and Babita has to drive him to work. She also picks her dad up from work in the morning before she goes to school. Babita has two other siblings: one is at college with her and the other is at primary school. All three catch the bus to school. Babita cooks meals for the family and does most of the household chores, although her siblings help. Babita's aunty, uncle and two cousins live with the family. Babita's aunty and uncle both work and contribute to the household expenses. Her cousins are at primary school. Babita is tired in the morning and is often late for school. She has had to take days off school to help her mum. Babita is trying hard to keep up with her schoolwork by making sure she completes class work at school, because sometimes she does not have much time to do homework.

Unit 3 – Food labels

The benefits of being able to read a food label

Being able to read a food label is important for anyone who wants to maintain good nutrition. It is especially important for people who have food **allergies** or **intolerances** (e.g. lactose intolerance or wheat intolerance) or an autoimmune disorder such as coeliac disease, in which there is an inability to metabolise (break down) gluten. It is also helpful to be able to read a food label if you need to increase fibre in your diet to ensure regular bowel movements; iron intake to reduce the chance of becoming anaemic; or calcium intake to reduce the chance of developing **osteoporosis** (in which bones become brittle and fragile with loss of bone density). It is vital to be able to read a food label if you have a reaction to food additives or preservatives.

Legal requirements

Food sold in New Zealand must be labelled in accordance with the legal requirements of the **Food Standards Authority** (FSA). The labels must include the following information.

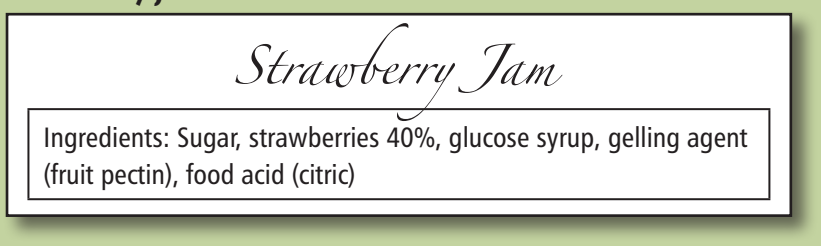
- *The name of the food*: Food products must be accurately named, to identify them.
- *Ingredient list*: All ingredients must be listed in decreasing order by weight, including any food additives, such as preservatives, flavours and colours, which are identified by their function and name or code number (e.g. 'Thickener (pectin)' or 'Thickener (440)').
- *Net content*: Total weight or volume of the food is required.
- *Directions for use* (if relevant): **Date marking** is required with packaged food that has a shelf life of less than two years. Examples are 'use by' and 'best before' dates and/or how you should store the food to help prevent the growth of bacteria.
- *Identification of common food allergens*: Foods such as nuts, eggs, dairy products and wheat are a concern for people with food allergies or food intolerances.
- *Lot identification*: If there is a food recall, the lot identification enables identification of the batch and the premises where the food was packaged and/or prepared.
- *Contact details*: These give the name and address of the business and supplier, who can be contacted if more information about the product is needed.
- A **nutrition information panel** (NIP): States the quantities of nutrients per serving and per 100 g or 100 mL of liquid (see Unit 4).

Details on the food label

Ingredients

The percentages of the main **characterising** ingredients (which are in the name of the food, or associated with the name by a consumer, or emphasised on the label in words, graphics or pictures) must be stated on a food ingredient list, which allows a simple understanding of the main components of the product.

Example – A strawberry jam



In this strawberry jam, 40% of the jam is strawberries. Sugar is listed first on the ingredient list – so more than 40% of the jam is sugar.

b. Using the toilet, blowing nose, coughing, sneezing, handling rubbish, handling raw meat or poultry or other high-risk foods, cleaning, handling vegetables, preparing food, giving first aid, handling or coming into contact with contaminated water or food, caring for a person who is sick, touching a pet (any six).

c. Dry hands thoroughly after washing so you do not give bacteria an opportunity to spread, since bacteria can spread through moisture.

4. Labels should include: clean apron, hair tied up, no jewellery, clean face, hair net or cap on, no nail polish, leather shoes, clean clothes, hands and nails clean, kitchen work bench clean, organised ingredients and equipment

Unit 6: Food hygiene (page 132)

1. a. chilly bin / chilly bag
   b. food poisoning / food-borne illness
   c. 'best before' date
   d. re-freeze
   e. wash hands
   f. use-by date
2. Equipment must be clean and dry before use to prevent cross-contamination. Using a clean towel and drying equipment thoroughly after washing correctly will help ensure bacteria are removed from the surface of the equipment.
3. Old stock needs to be used first before it 'goes off' or the food 'spoils' (becomes contaminated with micro-organisms).
4. When cooking drumsticks, if a thermometer is not available, the chicken should be pierced and the colour of the juices checked. If juices do not run clear, the chicken is still undercooked. The chicken could be gently cut open to have a visual check. The flesh should be 'set' in the middle, not pink.
5. Transferring cooked hot food into shallow containers helps food to cool quickly. The surface area exposed increases the rate at which the food cools, so food can be placed in the refrigerator as soon as possible.
6. While the refrigerator helps to chill food, bacteria are not destroyed and continue to grow (slowly) on food in the refrigerator. Food that has been in the refrigerator longer than 24 hours might be contaminated with bacteria and unsafe to eat.
7. Refrigerator

   Top shelf – fresh pasta sauce, yoghurt, coleslaw
   Middle shelf – sausages, mayonnaise
   Bottom shelf – fresh chicken drumsticks, minced lamb
   Dairy compartment (door) – butter, cheese slices
   Crisper – tomatoes, broccoli, pears
   Door – milk, tomato sauce, eggs (egg compartment)
   Freezer – ice cream, frozen peas, frozen berries, fish fingers
   Pantry cupboard – flour, canned tomatoes, penne pasta, sugar, muesli, sliced bread, plain biscuits, spray oil
   Pantry drawer – potatoes, onion
   Fruit bowl / bench – bananas

Unit 7: Kitchen set-up (page 135)

1. 'Mise en place' is a French term that translates to 'putting in place'. It refers to the preparation of ingredients and equipment before starting cooking. This idea can be applied to cooking at home and at school. Setting up ingredients and equipment before cooking ensures you have all necessary supplies close by, which makes it easier to work because you do not need to move around the kitchen or classroom. This saves time and energy.
2. setting up the kitchen; organising the workspace; the cleaning up
3. A sanitiser is a chemical cleaner that is applied to surfaces to reduce the number of micro-organisms on the surfaces to a safe level. A sanitiser is used to kill bacteria on surfaces and equipment.
4. Use a clean dry tea towel to avoid spreading bacteria, since bacteria are spread more easily by wet surfaces.
5. Place a damp paper towel or a damp cloth under the board.
6. hot water, dish rack, sink plug, detergent, dish brush, small cloth, clean tea towel (any six)
7. Rinsing loosens food particles left after cooking, preparation or eating, making the food easier to remove completely and the dishes easier to clean thoroughly. (Rinsing also removes food that would otherwise make the washing-up water dirty.)
8. 2, 1, 3, 5, 4

Unit 8: Recipes and safe food practices (page 138)

Part A – Burgers

1. a. beef, mayonnaise (egg yolk), salad ingredients (tomato, lettuce leaves, cucumber) once prepared (any two)
   b. They provide a suitable environment, including protein and moisture, for the growth of bacteria.
2. a. Store raw meat in the refrigerator on the bottom shelf, in a container and covered. Remove from the refrigerator only when the meat is required.
   b. This storage method keeps meat cool to prevent growth of micro-organisms, and will prevent any leaking blood juices from dripping onto other food.
3. To check that the meat in the burgers is cooked, I would use a meat thermometer, or check that there are no pink juices / meat juices run clear.
4. Process 1: Making the meat patty – preparing the onion, combining the sauce, herbs, and breadcrumbs and forming a meat patty.
   Process 2: Making the salad for the burger – washing vegetables, slicing tomato, lettuce and cucumber and combining as salad on the bun
   Process 3: Making mayonnaise – combining ingredients
5. Washing salad ingredients helps get rid of dirt, pests and sprays.

Part B – Rice and chicken

1. Store raw chicken in a covered container on the bottom shelf of the refrigerator to prevent any drips from the chicken getting on other food.
2. a. Store cooked rice in the refrigerator, covered, and for no more than 24 hours. Keeping the rice cool slows down bacterial growth.
   b. When reheating cooked rice, the rice should be so hot that you can see steam coming from it. The temperature for reheating cooked food is 83 °C.
3. Test chicken by checking that juices from the chicken are clear. Any pink juices indicate the chicken is not cooked thoroughly. A thermometer can be used in the thickest part of the chicken, to show the freshly cooked chicken has reached a temperature of at least 75 °C. The three indicators are: temperature for cooked chicken is at least at 75 °C; chicken juices run clear; chicken meat is no longer pink.
4. Leftover cooked chicken should be stored in a covered container at the top of the refrigerator at 2–4 °C, for no more than 24 hours.
5. Maximum time is 24 hours.

Part C – Safe food practices

1. a. To prevent hair falling onto food or kitchen surfaces and contaminating food.
   b. To remove dirt and prevent spreading of bacteria.
   c. To prevent contamination from any micro-organisms that might be present on clothing, or dirt brought in from outside the kitchen.
   d. To prevent bacteria from cuts and scratches contaminating food and liquids and to prevent cuts or scratches becoming infected. Covering and/or wearing gloves isolates the problem area.
   e. Using a clean spoon prevents cross-contamination. Double-dipping causes cross-contamination from the taster's mouth.

3. a. Advantages: minimal preparation required, quick to cook, can serve in the dish the food is prepared in, little or no washing up
   b. Disadvantages: added preservatives, artificial colouring, artificial flavouring, stabilisers, high sugar and/or salt content
4. Salt (sodium)
5. Any of the following: fruit smoothie, vegetable sticks and dip, salad with the pizza
6. Discussion may include peer pressure, friends present and the desire to be accepted by the group (social well-being, mental and emotional well-being).

Unit 2: Promotional features (page 193)

1. The red colour emphasises the tomato in the tomato sauce, suggesting there are a lot of tomatoes in the sauce.
2. The photo of the pineapple and passionfruit suggests the fruit juice contains pineapple and passionfruit juices and is made from natural, fresh fruit. It suggests that no artificial colours, flavours or preservatives are used in making the juice.
3. a. The following answers are examples only. Check other answers with your teacher.

Promotional word	What the word suggests
hearty	flavoursome, suggesting a meal that is balanced and filling, perhaps including meat, potato and vegetables
express	quick to prepare
sensations	extra-special flavour

   b. Check with your teacher.
4. a. Young children
   b.

Promotional feature	How the feature might appeal to the target market
Purple colour	Captures attention and makes the product stand out
Cartoon picture	Makes the product appealing to young children; makes the product look like fun
Nutritional claims	99% fat free so contains very little saturated fat, which is good for heart health B vitamins to assist energy release Good source of iron, which helps with carrying oxygen and the release of energy from cells
No artificial stuff	No concerns about colouring, flavouring or preservatives for children who might have food allergies

5. Consumers think they are paying for only four and getting two items 'free'. (However, the price may include all six items.) Many consumers are tempted to buy, even though they might not have planned to buy the product, because they perceive it to be a 'bargain'.
6. Negative aspect: 'Flavour you can see' suggests the food is covered in salt or artificial flavouring.

   Positive aspect: The phrase suggests there is nothing artificial about the flavour. (For example, the food has a mushroom flavour – and you can see the mushrooms.) Because the wording is ambiguous, it should be read with other promotional tools on the package and not in isolation to determine what ingredients are in the product.

Unit 3: Food labels (page 197)

1. Answer depends on product chosen.
2. Foods must not be sold after their 'use by' date for safety reasons. Micro-organism growth in the food might have reached unsafe levels after that date and the food product should not be consumed. Foods can be sold and consumed after their 'best before' date if they are of good quality.
3. The muesli bar has a 'best before' marking because it might still be of good quality beyond that date. A muesli bar is not a high-risk food so it does not need a 'use-by' date. A 'best before' date is suitable for a box of muesli bars because they are not highly perishable.
4. a. The kumara chips package has a picture of kumara, so appears to be made from **natural** ingredients. The colouring of the package is a soft, green colour that creates a **subtle** and believable message, with claims of 'low fat', 'tasty and nutritious', and 'healthier choice'. Having a healthier choice tick reinforces the message and the belief that these must be **honest** claims about the product.

   b. (Answers in any order.)
   - The packet states 'low fat' – but how low is the fat content? How much fat is present in these chips?
   - What makes the chips 'tasty'? What ingredient, and/or how much salt in that ingredient, gives these chips their taste?
   - Are the chips really a 'healthier choice'? What ingredients, additives and preservatives are in the product?
5. You can conclude the crackers do not contain additives, flavouring, colouring or preservatives, because those items are not on the ingredient list. Their salt and sugar content might be relatively low because sugar is listed last and salt second to last. However, this would need to be verified from the NIP.
6. The cracker promotion on the package claims the cracker is 'baked not fried', but vegetable oil is second on the ingredient list. This suggests there is a large amount of vegetable oil in the product despite the cooking method. It is necessary to look at the NIP to draw further conclusions.

Unit 4: Reading the nutrition information panel (NIP) (page 202)

1. a. 3.6 g
   b. 17.6 g
   c. 11.2 g
   d. 17.6 – 11.2 = 6.4 g
   e. 54%
2. a. false; b. true; c. false; d. true
3.

Nutrient	Larger or smaller amounts?
Sugars	smaller
Iron	larger
Trans fats	smaller
Monounsaturated fats	larger
Fibre	larger
Saturated fat	smaller

4. The NIP can tell you about the types of fats, carbohydrates and specific amounts of salt, sugar, fat and other nutrients per serve or per 100 g.
5. The apricots are a good nutritional choice because they are low in fat, saturated fat and sodium. They contain natural sugars, are a good source of energy, and contain iron.
6. a. The low sugar content provides an opportunity to promote the product, even though the sugar content is not relevant to the food product.

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