WEEK 1

DATE:_____

SUBJECT: FOOD AND NUTRITION

TOPIC: food study; main foods – cereal grains

CONTENT: i. Types of cereal grains ii. Nutritive value of cereal grains iii. Processing of cereal grains

SUBTOPIC 1: types of cereal grains

Cereals are the edible seeds of the grass family e.g. rice, corn, guinea corn, millet, wheat etc. The chief food nutrient of cereal is carbohydrate (starch). They therefore belong to the energy food group. They contain protein and the B vitamins which are found in the germ or embryo and in the outer part of the grains.

Meaning and definition of cereals grain

Cereal is the broad term used for the plants belonging to the grass family. The seed they produce are known as grains. They are a very important class of food to mankind throughout the whole world. Animals and birds depend on cereal grains for their food. Cereals form the staple food in many countries of the world. Some of the common grains are: rice, maize, guinea corn, millet, wheat, oats, rye, sorghum etc.

SUBTOPIC 1: types of cereal grains

Some of the common types of cereal grains include:

(a) Maize: maize is one of the most important grain crops in the world. It is a tall cereal plant which contains the corn kernel. The different varieties of maize are: dent corn or fried corn, flour corn, pop corn, flint corn and sweet corn. Maize has a lower nutritional value than wheat and is deficient in vitamins.

(b) Rice: rice is such an important part of the diet of world's population. About 50% of the intake of calories is provided by it. It is grown in the river deltas or riverine areas, flooded or irrigated coastal plains, terraced hill side, it can also be grown in many climactic conditions, but it is most often cultivated in sub-tropic and temperate regions. Rice varieties are available in both white and brown forms.

(c) Wheat: in addition to rice and corn, wheat is one of the three most important grain groups in the world. Unlike some grains, especially corn, most of the wheat that is cultivated is used as food for humans. Most wheat is grown in temperate climates, with a large proportion grown in the great plain region of the United States and other parts of the world. Wheat is classified into hard and soft wheat.

(d) Sorghum: sorghum is a cereal plant that is native to Africa, but it is also cultivated in many parts of the world. Sorghum grows in a variety of climates and in a hot arid location. The grain ranges in

colour from white to red depending on the variety of sorghum grown. Sorghum grain has a sweet flavour that is delicious when steamed or added to soup. It is used as a staple food crop in Africa.

(e) Millet: millet is a variety of related plants because small seeds. It is an important food crop in some of the hot, arid national of Africa. Millet has a mild sweetness and crunchy texture and is eaten as a cereal – a side dish and an addition to soup, stews and as desserts. The seeds are good if roasted when they are fresh.

(f) Barley: barley is a member of grass family. It is a major cereal grain. Other cereals include buckwheat.

SUBTOPIC 2: Nutritive Value of Cereal Grains

Nutritive Value of Cereal Grains

Like all seeds, cereals are very nutritive because they contain vital nutrients. Unrefined cereals are valuable sources of proteins, carbohydrate, and vitamin B and also contain some fat, iron, vitamin E and trace minerals. They are very good sources of fibre in the diet. The proteins in cereals are incomplete like other vegetable proteins which lack one or more essential amino acids. They are well utilized when they are supplemented by more complete proteins of fish, meat, milk and legumes like soya beans.

Most of the food energy in cereal grains comes from carbohydrates. The fat content of wheat cereal is greater than that of refined cereals. The mineral and vitamin in cereals are low and are found in the aleurone, germ and scutellum layers. However, yellow maize is richer in carotene. The protein in wheat is called gluten.

SUBTOPIC 3: Processing, uses and choice of cereal grains

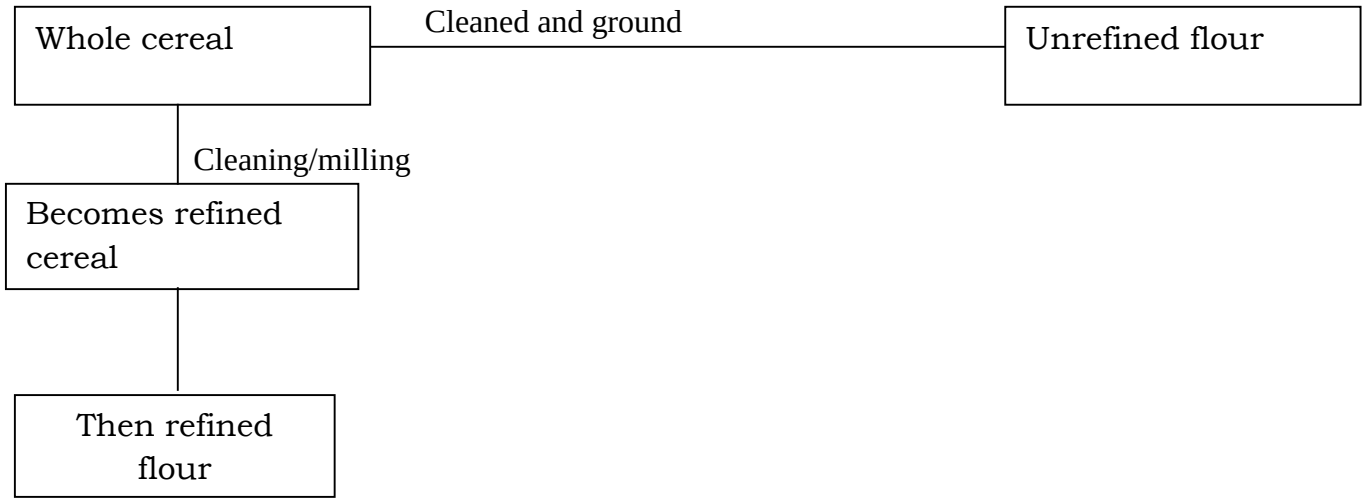
Processing cereal into flour

Cereal grains can be in the form of a whole cereal with no part of the layers removed and the refined form with almost all the layers of the grains removed. The refined form of processing through the machine is called milling. Machine milling affects the nutritional value of the refined cereals where the layers containing the important nutrients such as the vitamins, proteins, iron, etc are removed leaving only the endosperm which contain only starch. Cereals that go through these processes are maize, sorghum (guinea corn), millet, wheat, rice etc.

Rice can be milled brown or polished. The brown rice is that which the bran and other layers are retained while polished rice is that which almost all the layers have been removed.

During the milling process, the husk is removed followed by the aleurone, the scutellum and the germ layers. When only the husk is removed, the resulting rice is called brown rice which still has the aleurone, scutellum and germ layers. However, when milling is continued to remove these layers, the resulting rice is called colour rice. Such rice is whiter than the brown rice since all the layers have been removed; the vitamins and minerals are lost.

a. Wheat is usually milled into flour before it is prepared into food. The proportion of the wholegrain that is used to make flour is known as the extraction rate. The flour that is produced from cereals in which all the layers have been removed is called low extraction rate. However, the milled flour that still retains some of the outer layer is called high extraction rate flour. The high extraction flour is not as white as the low extraction flour but is more nutritive. When whole cereal is cleaned and ground, unrefined flour is produced. But whole cereal cleaned and milled flour is produced as shown in table below.



PROCESSING CEREAL GRAINS

Objective Test

1. What is the collective name for wheat, rice, maize, millet and oat?
   (a) Fruits (b) seeds (c) cereal grains (d) legumes

2. The name for wheat protein is called _____. (a) gluten (b) myosin (c) zein (d) gluten
3. The preparation of the wheat grain that is utilized to make flour is called _____. (a) high extraction (b) low extraction (c) extraction rate (d) Low extraction rate flour is produced from flour that has been. (a) blended (b) unrefined (c) refined (d)washed
4. Which of the following is not a cereal? (a) maize (b) barley (c) millet (d) guinea corn
5. Dried cereals best stored in ..... (a) box (b) cupboard (c) refrigerator (d) silos
6. Cereal grains can be processed into. (a) powdered food (b) liquid food (c) solid (d) flour (e) mixtures of food
7. The refined form of processing through the machine is called _____. (a) grinding, (b) sieving (c) milling (e) draining
8. The starch in the cereal grains are store in the _____. (a) bran (b) aleurone layer (c) endosperm (d) scutellum
9. Rice can be milled _____ and _____. (a) yellow or grey (b) painted or plain (c) white or black (d) brown or polished (e) short and long
10. During the milling process, when only the husk is removed, the resulting rice is called _____. (a) cleaned rice (b) sieved rice (c) brown rice (d) mix rice (e) safe rice.

Evaluation:

1. Describe the process of obtaining flour from cereal grains
2. Explain at least two (2) effects of milling on the nutritional value of cereal grains.
3. Differentiate between brown rice and polished rice.
4. Identify different cereal grains
5. Write the importance of cereal for man and animals
6. List 3 conditions for cultivating cereals.
7. Write five (5) staple foods in Africa
8. Discuss the nutritive value of cereal grains.
9. Explain where minerals and vitamins are found in cereals
10. With the help of a diagram, explain the two (2) processing methods to obtain wheat flours.

ACTIVITY: Students should list the various types of cereal grains used for food in their locality and describe how they are prepared.

Weekend Assignment

Read Evans food and nutrition for senior secondary schools book 2 by F. A, Bakare et al. Page (1-9)

Pre-reading assignment

Read on the uses and choice of cereal grains and cooking methods.

Reference Texts

- Evans food and nutrition for senior secondary schools book2 by F.A. Bajare et al; Evans Brothers Nigeria Limited.

-Food and nutrition for senior secondary school. Page 1-3 by J.O Olusanya et al (page 58 –60).

WEEK 2

DATE:_____

SUBJECT: FOOD AND NUTRITION

TOPIC: Main foods

CONTENT: iv Uses and choice of cereal grains, v. Cooking methods and vi. High/low extraction rate flour: usefulness of low extraction flour

SUBTOPIC 1: Uses and choice of cereal grains

Uses of cereals

Cereal grains are useful in multiple ways for food. For instance, cereals like millet are ground to make flour or meal, from which unleaven bread may be prepared. The grain maybe used to make porridge (kunu) and local beer (burukutu).
Sorghum corn can be used in preparing other dishes. They can be made to pap (akamu or ogi). Maize can be boiled or roasted and eaten whole. Rice can be used as rice pudding, boiled and eaten with stew, jollof rice or combined with beans, it can be ground into powder for various uses in food preparation.

Choice of Cereal Grains

Cereal grains can be chosen based on the following:

1. Their freshness
2. Free from weevils

SUBTOPIC 2: Cooking methods of cereal grains

The suitable method of cooking cereal grains are boiling, stewing, roasting and baking.
Meals from cereals e.g. akamu or pap and tuwo

Recipe for akamu or pap for 2 people
½ cp of raw paste of cereal
2 ½ cups of water
Sugar to taste
¼ of a tin milk

Method

1. Bring the water to boiling point.
2. Mix the paste with a little water to light consistency
3. Pour the boiling water into the mixture; stir continuously until it thickens.
4. Add sugar and milk to taste.
5. Serve with fried yam/potatoes or akara (beans cake).

Recipe for ‘tuwo’ for 2 people

3 cups of ground cereal powder

3 cups of water

Method

1. Bring the water to boiling point
2. Mix part of the powder in water and pour into boiling water and continue to stir
3. Allow to cook for sometimes and then add more powder into the mixture to thicken.

4. Stir and allow it to simmer for at least 10minutes and serve hot with any soup.

SUBTOPIC 3: High/low extraction rate flour: usefulness of low extraction flour

The proportion of the whole grain that is utilized to make flour is known as the **extraction rate**.

High extraction rate flours: These are produced from partially milled cereal that still retains some of outer layers. They are not as white as the low extraction rate flour, but are better in nutritive value. The flours obtained from cereals grain can be mixed with other ingredients and used in baking as in bread, cake, biscuit etc.

Low extraction rate: They are produced from cereals in which all the layers have been removed, they are very white and low in nutrient content.

Advantages of low extraction rate flour compared to high extraction rate flour.

1. They are white
2. They contain less fat
3. They contain less phytic acid.
4. They have better uniform baking quality
5. They contain less fibre.

Disadvantages:

1. They contain less of B-complex vitamin.
2. They contain less calcium and iron.
3. They contain less protein.
4. They contain several trace elements.

Evaluation:

1. List three suitable methods of cooking cereal grains and describe how one of them is used.
2. What is low extraction rate flour?
3. What are the advantages of low extraction flour over high extraction flour?
4. Explain the term extraction rate in cereal grains processing
5. Differentiate between low extraction and high extraction cereal grain processing.
6. What are the disadvantages of high extraction flour?
7. Cereal grains are useful in multiple ways for food. List 3 grains and the meals prepared from each.
8. List the three (3) basic reasons in which cereal grains can be chosen.

Objective Test

1. The proportion of the whole grain that is utilized to make flour is called..... (a) high extraction rate flour (b) extraction rate (c) serial grain extraction rate flour (d) low extraction rate flour
2. Low extraction rate flour is produced from the flour that has been (a) blended (b) unrefined (c) washed (d) refined
3. High extraction rate flour is produced from the flour that has been..... (a) washed (b) refined (c) unrefined (d) blended

Reference Text

Evans food and nutrition for senior secondary school book 2 by F. A. Bakare et al; Evans Brothers Nigeria Limited.
Basic food and nutrition for senior secondary school SS 1-3 by Aminu S.N. Bariki (page 92 – 93)

WEEK 3

DATE:_____

SUBJECT: FOOD AND NUTRITION

TOPIC: Legume grains

CONTENT: (i) Types of legume grains

(ii) Importance of legume grains
(iii) Nutritive value of legume grains
(iv) Cooking method for legume grains

SUBTOPIC 1: Types of legume grains, Importance of legume grains

Meaning of legume grains

Legumes are the edible seeds of the leguminous plants belonging to the leguminous family.

A typical legume is composed of

i. Seed coat (testa or mill)
ii. The cotyledons and
iii. The embryo

Each of the above components varies in proportion in different legumes. The outer layer is called the testa which has beneath it the cotyledon.

The embryo of every legume consists of the plumule. The hypocotyls and the radicle.

Legumes constitute the second largest family of seed plant and contain about 600 general with 13 species.

Types of legumes

Legumes used as food are available in two broad classes: pulses and oil seed. Pulses are the dried edible seeds of cultivated legumes.

They comprise all varieties of beans, peas lentils. Oil seeds are those legumes which are relatively high in oil and they are processed primarily for their oil. They include soybeans, groundnuts, melons etc

Importance of legume grains

Legumes are generally very important nutritionally. They are next to animal and fish in protein quality. They are incorporated into the diet so as to improve the nutritional quality of meals. There are numerous dishes that can be made from legumes and these have made legume very popular. The importance of legumes include

i. Cowpea (*vignaunguiculata)* is the commonest edible pulse in Nigeria. It is a major source of protein in most homes in Nigeria. They are high in protein and soluble carbohydrates, low in crude fibre and oil with a little amount of minerals. It is used in preparation of these dishes: moimoi, adalu, gbegiri, bean cake (akara), stewed beans, ekuru etc.
ii. Soybeans are widely cultivated worldwide. It has been an outstanding source of protein due to its high protein content and the relative ease of its absorption. It contains about 40% protein, 20% fat and 21% carbohydrate. Its meal is fairly of high biological value. It is classified as first class protein because it contains all nutritional essential amino acids. Its processing stages have been developed to obtain and modify its protein for special food uses. It is the source of valuable protein to improve the protein quality of traditional weaning foods e.g. maize grain meal.
iii. Groundnut: is one of the major crops cultivated in the northern part of Nigeria. It contains about 25% protein and 50% oil. The oil is of high nutritive value. After extracting the oil, the residue contains about 51% protein. Though its protein contains large amount of essential amino acids, its nutritive value is limited due to its low content of lysine and methionine, tryptophan and threonine. Its digestibility coefficient is around 90%.

The B complex vitamins in it are i. thiamine ii. Riboflavin iii. Niacin iv. Pyridoxine, pantothenic acid and trace of tocopherols. The following are not in it – (i) retinol (ii) cholecalciferol (ii) ascorbic acid. The nut contains some mineral elements. (i) Sulphur (ii) calcium (iii) manganese, copper, magnesium, potassium etc.

Improper harvesting and storage cause it to produce some toxic substances known as aflatoxin. The toxin is produced by a fungus known as *Aspergillus flavus*. Ground nut is used in various dishes.

i. Boiled in the shell or roasted and consumed as snack
ii. Groundnut flour to enrich tuber flours e.g cassava four, cake (kulikuli)
iii. Make groundnut paste as sustitue for amond paste.
iv. Groundnut cake
v. Peanut butter

4. Melon: melon is an annual group belonging to gourd family. It is a water-loving crop and mostly cultivated in the southern part of Nigeria. Its seed is rich in protein and oil, but low in ccarbohydrate. It contains the following minerals: magnesium, potassium, and phosphorus. It has a fair amount of vitamin 'D' and carotene. The high caloric value is due to its high oil content. It is used in the preparation of stew and soup e.g. melon soup elegusi (in Yoruba).

Melon can also be fermented to make a condiment called ogiri. The residue obtained after the extraction of oil from melon is also used in making two local snacks called robo and Igbaloinyoruba land.

Subtopic 2: Nutritive value of legume grains

Legumes are the main source of plant proteins. They are incomplete proteins because they lack one or more essential amino acid. The essential amino acid that are absent in legumes are methionine and cysteine. They are also rich in B

complex vitamins such as thiamine, riboflavin, nicotinic acid and vitamin C. However, dried pulses are poor sources of vitamin C but contain a appreciable amount of carbohydrate.

The major sugar in legumes is sucrose. They also contain some oligosaccharide that are not easily digestible in human intestine e.g. raffinose, trisaccharide and starchyose a tetra saccharide. This results to accumulation of too much gas in the colon. The fermentation of the indigested oligosaccharides result in the distention of the stomach, thus causing discomfort and flatulence – passing of flatus (incessant elimination of gas via the anus).

The presence of roughage and sulphur in pegumes causes its indigestibility. Thorough cooking of legumes soften the cellulose thereby removing the action of sulphur. The toxic substance reduce their effective utilization in the body. These toxic components include: trypsin inhibitor,saponin, cyanogens, haemagglutinins and urease.

They are destroyed by heat when legumes are cooked, hence they must be thoroughly cooked to remove these components.

Anti nutritional factor	Method of removal
Trypsin inhibitors	Inactivated by heat
Haemaglutinin	Inactivated by heat
Urease	Inactivated by heat
Saponins	Inactivated by heat

To maintain the nutritional value of legumes, consider the following:

i. Free from weevil
ii. Fresh and wholesome
iii. Very dry to prevent growth

Suitable cooking methods

There are numerous methods of cooking like boiling, frying, steaming, stewing, baking and roasting

Fishes from legumes include the following:

(a) From cowpea: bean stew, gbegiri, beans and rice, akara or fired beans cake, beans pudding or moi-moi, adalu or beans with corn.
(b) Form groundnut: groundnut stew, groundnut cake, groundnut ball or kongu, groundnut paste (oseogi) etc
(c) From melon: egusi or melon stew, vegetable melon stew or ofeeleegusi
(d) From pigeon pea: maize/pigeon pea dish (agaharaoka).
(e) From bambara nut: bambara nut pudding (okpa).

Subtopic 3: Practical

A. **Cooking of Bambaranut pudding (okpa) (steaming method)**

Recipe (ingredients and their measurement)

1. 10 cups of bambara nut
2. 4 large pepper (ground)
3. 2 cups of palm oil
4. Salt to taste
5. Water to mix
6. Uziza seed ground

Method (procedure)

1. Pick the nuts, mill and sieve with a fine sieve
2. Make a hole and add palm oil and 1 cup of water
3. Mix and gradually add water to avoid lumping
4. Add the ground uziza, salt and pepper
5. Add water gradually until it has attained a water consistency
6. Check the seasoning

7. Pour into fresh banana/plantain leaf or aluminium cup or cellophane bag (depending on the quantity required).
8. Steam in a pot for about 1hr 30minutes
9. Serve with agigi or pap

B. cooking of maize/pigeon peas dish (agharaghaoka)

Boiling

Recipe (ingredient with their measurement)

1. 3 cups of maize
2. 2 cups of pigeon pea (fiofio)
3. 1 ½ cup palm oil
4. 4 fresh pepper chopped
5. 2 large branches of vegetables (chopped)
6. 1 large onions (ground)
7. 1 large onions chopped
8. Fermented oil beans (ukpaka)

Method (procedure)

1. Parboiled maize 4 dried and grind in a manual hand grinder
2. Pick the pigeon pea and look with a low heat until tender
3. Reduce the water to the level of the pigeon pea.
4. Rub in ½ cup of palm oil into the ground maize
5. Add the chopped vegetable on top of the pea and make a bed.
6. Pour the oiled ground maize on top of the vegetables;
7. Add the chopped onion top and cover the pot.
8. Cook for about 30minutes on a moderate temperature stirring only the maize after every 10 minutes.
9. Add the remaining palm oil, ½ cup of water, ground onion, ground pepper and salt into a small pot and cook for about 10minutes. Pour it into the maize and stir together.
10. Dish and serve with a drink

C Stewing method

Recipe (ingredients and their quantity)

1. 2 cups of beans
2. Dried fish (medium)
3. 4 small pepper ground
4. 150ml of palm oil or vegetable oil
5. 1 large onion
6. 2 large tomatoes
7. Salt to taste

Method (preparation)

1. Pick the beans to remove stones and unwanted materials
2. Wash and boil beans until tender
3. Prepare fish, dice a slicks of onion, grind the other half with the pepper
4. Add diced onion to the tender beans and allow to simmer, until some of the water has evaporated.
5. Fry fish and the ground ingredients in the red palm oil or vegetable oil. Season to taste.
6. Add the fried ingredients to the tender beans, add some more salt if need be, stir and allow to simmer for about 15 minutes
7. Serve hot with rice, boiled yam, fried plantain and potatoes.

D Frying method

Recipe (ingredients and their measurement)

1. 1 cup of beans
2. Large pepper (chopped)

3. 1 medium sized onion (diced
4. Groundnut oil
5. Cray fish
6. Water to mix
7. Salt to taste

Method (preparation)

1. Soak beans and remove husk
2. Grind until smooth
3. Beat very well in a bowl with a spatula or an electric mixer
4. Add water gradually and beat until mixture is light and drop when shaken from the spoon.
5. Add crayfish, onion, pepper, and salt to taste
6. Mix thoroughly
7. Put oil on fire until hot
8. Fry until golden brown, turning the balls at interval to prevent burning
9. Drain in a colander
10. Serve with bread or agidi or pap.

Evaluation:

1. List two essential amino acids absent in legumes
2. State four B complex vitamins in legumes
3. Give one reason for indigestibility of legume
4. State with examples, the different methods of cooking legumes
5. (a) List three dishes that can be made from legumes

   (b) State the recipe and procedure for preparation and cooking of one of the dishes above.

6. (a) State the composition of a tropical legume.

   (b) Illustrate (a) above with a diagram

7. State the classes of legumes and give two examples of each of the classes

8. State the importance of soya bean a typical legume
9. State briefly the nutritional value of legume to humans

Objective Test

1. _____ are the dried edible seeds of cultivated legumes. (a) oil seeds (b) groundnut (c) groundnut (d) pulse.
2. The seed coat of legumes is also referred to as _____. (a) cotyledon (b) embryo (c) plumule (d) testa
3. Which of the following is process mainly because of its oil content? (a) beans (b) peas (c) melon (d) lentils
4. Which of these are the major nutrients in legume? (a) carbohydrate (b) water (c) protein (d) oils
5. _____ are responsible for the indigestibility of legumes. (a) vitamins and minerals (b) roughage and sulphur element (c) cellulose and protein (d) accumulation of gas
6. _____ are next to animal and fish in protein. (a)roots (b) steams (c) grains (cereals_ (d) legume grains
7. _____ is found to be rich in all essential amino acids. (a) cowpea (b) melon (c) groundnut (d) soya beans
8. The nutritive value of groundnut protein is limits due to its low content of _____ and _____. (a) vitamins and fat (b) carbohydrate and mineral salt (c) lysine and methioine (d) iron and iodine
9. Which of the following is processed mainly because of its oil content? (a) lentil (b) melon (c) peas (d) beans
10. One of the following is us to remove unease in legume. (a) water flow (b) heat (c) cold (e) pressure

Pre-reading Assignment

Read about the types of fruits, nutritive value and difference between fruits and vegetables.

Weekend activity

1. Write five nutrients that are contained in fruits
2. Apart from nutrients, of what other use are fruit to humans?

Reference Text

- Evans food and nutrition for senior secondary school book 2 by F. A. Bakare et al; Evans Brothers Nigeria Limited.
- Food and nutrition for senior secondary school 1-3 (page 58 – 60).

WEEK 4

DATE:_____

SUBJECT: FOOD AND NUTRITION

TOPIC: Fruits/vegetables

CONTENT: (i Types of fruits

(ii) Nutritive value of fruit
(iii) Differentiate between fruits and vegetables
(iv) Factors affecting the choice of fruits and vegetables
(v) Preparation and serving of fruits

SUBTOPIC 1: Types of fruits, Nutritive value of fruit

Definition of fruit

A fruit is a natural ovary of a flower, including the seed and any other part of the flower remaining attached to it.

Fruit is naturally sweet, colourful, high in vitamins and fibre and low in calories and fat. Vitamin C and photochemical, including antioxidant, abound in fruits.

Antioxidants destroy harmful substances in the body called *free radicals* which can build up and cause cancer. Many domesticated indigenous fruits are essential part of household diet.

Types of fruits

Common types of fruits in our locality: guava, mango, palm tree fruit, African pear, lemon, lime, pawpaw, cashew,

coconut, sweet orange, grape fruit, mandarins' orange tangerine, sour sop, avocado pear, banana, pie apple, water,

melon, apples

Fruits can be classified majorly into two groups:

(a) Fresh fruits
   i. Soft fruits e.g. berry, cashew, banana and sour sop etc.
   ii. Hard fruits e.g. apples, pears, plum, water melon etc.
   iii. Citrus fruits e.g. oranges, lemons, grape fruits, tangerines etc.

(b) Dried fruits such as figs, dates and apricot

Fruits can be further classified based on their physical characteristics

i. Pomes: they have a seed surrounded by a firm flashy body e.g. apples and pears.
ii. Drupes: these have stones or nuts embedded in edible flesh e.g. cherries, plums, peaches, mangoes, avocadoes and olives.
iii. Berries: they have seeds enclosed in a pup e.g. citrus, grapes and oranges.

Nutritive Value of Fruits

Fruit is refreshing to eat and adds colour and flavour to the diet. Fruits are consumed raw

Contents of fruits:

(a) Vitamin C ascorbic acid, B groups and small quantity of carotene (Vitamin A).
(b) Carbohydrate in the form of sugar, cellulose and starch. The cellulose is indigestible but adds bulk to the stool.
(c) Protein is small
(d) Fat e.g. avocado and olive have high fat content
(e) Moisture. The water content of fruit is high, it ranges between 80% to 90%
(f) Fruits contain some anti-nutrients like oxalic.

SUBTOPIC 2: Importance of fruit include

i. Reduction of heart diseases, type II diabetes and some cancers.
ii. Help to maintain healthy blood pressure and perhaps reduce the risk of developing kidney stones.
iii. Help to reduce loss of bone density with age due to potassium content
iv. Fruit fibre may reduce risks of disease, blood cholesterol levels, constipation and diversification in overall healthful eating pattern
v. Vitamin C: fruits promotes growth, repair body tissue, head cuts, wounds and keep teeth gums healthy
vi. Reduce calories in meals and snacks.

Factors to consider when choosing fruits

i. Fruits in season: fruits are at the best when they are in season. Some are common in during the dry season e.g. bananas, pawpaw, citrus while guava and mangoes are common during the rainy season. They are cheaper and better in quality.
ii. They must be fresh
iii. They must b free from insect infestation
iv. They must not be overripe
v. They must be firm to touch
vi. Choose highest grade of grape for eating and lower grade for fruit salads and cooking.
vii. For jellies, and jam, buy fruits with high protein content, gives better taste.

SUBTOPIC 3: Preparation and serving of fruits (practical)

Fruits can be prepared in many ways before being served for consumption.

1. Wash fruit properly to remove dust soil and other microorganism.

2. Boil – fruits can be cooked to make most of them palatable e.g. apple
3. Stew – fruits could be stewed to retain the shape of the fruit and to make them into other products such as jams and jellies.

This is done in water or in syrup. Those cooked in syrup help majorly in maintaining the shape particularly if the sugar concentration of the fruit is equal to that of the syrup. If the sugar concentration of the syrup is greater or more than that of the fruit, the fruit shrinks. Fruits may be served whole, fresh, ripe or raw. Fruit are importantly served as fruit salads when fruits are combined for delicious taste. It should be eaten before or after meals, and not with meals.

Recipe for fruits

A Fruit Salad

Fresh fruit: pawpaw, pineapple, apple, mango. Water melon, orange, syrup (lemon, sugar and water)

i. Make syrup by dissolving the sugar in water in a small pan.
ii. When the sugar is completely dissolved, bring the syrup to boil for about 1 minute the pour into a large bowl to cool.
iii. Squeeze the juice from the lemon and add to the syrup.
iv. Wash the fruits, peel and cut (removing the peel and core as applicable).
v. Add these to the cooled syrup
vi. Serve the fruit when completely cold with custard or as a dessert.

B. Fruit fool

Recipe (ingredients with measurement)

1. 500g mangoes
2. 75g sugar
3. 250 milk
4. 1 level tablespoon custard powder
5. 1 level table spoon sugar

Method (preparation)

1. Wash, peel and cut mangoes and put into a small pan with water.
2. Simmer greatly with the lid until the fruit is soft. Remove from heat and stir in 75g sugar.
3. Make the custard, put most of the milk into a pan, leaving about 4 tablespoonfuls in a jug or basin.
4. Add the custard powder and sugar to the milk in a jug and mix until it is free from lumps. Bring the milk in the pan to boil, and then pour it into the jug, stirring all the time. Make sure the custard is thick.
5. Put the custard and fruit into the blender, blend until smooth, and then pour into glass dishes.
6. Serve cold with grated chocolate on top to garnish.

Evaluation

1. Collect all the fruits in season in your locality and group them into soft, hard and soft citrus fruits.
2. State four(4) nutrients in fruits
3. List five (5) importance of fruits to human
4. Explain five(5) factors to consider when choosing fruits
5. Define fruit
6. List at least fifteen(15) fruits obtained from your locality
7. State two (2) classes of fruits
8. Explain the following (a) pomes (b) drupes (c) berries
9. Explain reasons for choosing fruits in season
10. Use any fruits of your choice and formulate a recipe that has never existed.
11. List five(5) hard fruits from your locality
12. Prepare and serve a suitable dessert using fruits of your choice

Objective Test

1. Which of these should be used in making dishes? (a) citrus fruits (b) ripe fruits (c) unripe fruits (d) overripe fruits

2. When should fruits be eaten? (a) before meal (b) after meal (c) with meal (d) before or after meal
3. Which of these nutrients is fund in abundance in fruits? (a) carbohydrate (b) riboflavin (c) ascorbic acid (d) proteins
4. An example of soft fruit is _____. (a) apple (b) lemon (c) berry (d)date
5. All these are hard fruits except _____. (a) pears (b) plums (c) water melon (d) guava

Weekend Assignment

Read Evans food and nutrition for senior secondary school book 2 by F.A. Bakare et al page (23 - 33)

Pre-reading Assignment

- Read types of vegetables, nutritive value and factors affecting choice of vegetables.

Weekend Activity

- Identify the different vegetables.
- State the factors affecting the choice of vegetable

Reference Text

Evans food and nutrition for senior secondary school book 2 by F. A. Bakare et al; Evans Brothers Nigeria Limited.

WEEK 5

DATE:_____

SUBJECT: FOOD AND NUTRITION

TOPIC: Fruits/vegetables

CONTENT: (i) Types of vegetables

i. Nutritive value of vegetables
ii. Factors affecting the choice of vegetables
iii. Cooking method for fruits and vegetables
iv. Salads, garnishing desert

SUBTOPIC 1: Types of vegetables, Nutritive value of vegetables

Definition of vegetables

Vegetables are edible parts of plants which are meant for human consumption. These edible parts can be consumed raw or cooked and they include flower, roots, stem, leaves, etc. They are highly nutritious because they supply the body with essential nutrients which enable the body to function properly:

They contain fibres(cellulose) that act as roughages that aid bowel movement and prevents many types of disease. They also add colour and palatability to a simple meal. The perishable vegetables especially can be preserved or stored in the refrigerator or other scientific methods.

Vegetables in our locality

There are seven classes

1. Fruit vegetable – tomatoes, koru, etc
2. Green leaf vegetable – water crest (water leaf), lettuce, fluted pumpkin in leaf (ugu), bitter leaf, African spinach (green) etc.
3. Roots – carrots, Swedes, turnips, parsnips etc
4. Seed vegetable – green beans, lentils, soybeans
5. Tuber vegetable -Irish potatoes, sweet potatoes etc.
6. Bulbs vegetable – cucumber, garden egg, onions, broad leaf, pumpkin etc.

Nutritive value of vegetables

Generally, vegetables are rich in vitamins and minerals. Green leaf vegetables are god source of vitamin and beta carotene (pro vitamin A). The amount of these vitamins in each vegetable varies but dark green leaves contain more vitamins than vegetables whose leaves are pale green.

Dark- -green- leaf vegetable contain a high amount of calcium and iron but some anti-nutrients (phytate and oxalate) in vegetable often make them not be readily available to the body. Vegetable contains the B-complex vitamins especially riboflavin (vitamin B2). They contain small amount of protein (about 5% for green vegetables). They also supply the body with fibres which are cellulose that acts as roughages that aid bowl movement (easy defecation).

SUBTOPIC 2: Factors to consider when choosing vegetables

(a) Green leafy vegetables
   i. Green leafy vegetables should look crisp and fresh with a natural attractive colour
   ii. Their mid ribs should not be limp, but should snap sharply when broken
   iii. When a bunch of green leaf vegetable is shaken, the leaves should not drop.
   iv. They should be free from signs of insect attack

(b) Roots and tubers
   i. Roots and tuber vegetables should be free from sand and soil.
   ii. When buying roots or tuber vegetables, choose medium size ones instead of very small or very large ones.
   iii. There should be no sign of rot or decay on the skin of thee vegetables
   iv. Choose those that are free from bruises caused by harvesting implements. They should be firm and smooth when touched not rough and wrinkle.

(c) Other vegetables
   i. They should be firm and snap sharply when broken with the finger, e.g. okro
   ii. They should be covered with dry skin to protect the vegetable e.g. onion, garlic.
   iii. They should moderately ripe, not overripe or under ripe.
   iv. They should be free from insect attack i.e. not showing any sign of maggot opening.
   v. Flower vegetables should have bright colour.

Conservative cooking methods of fruits and vegetables.

Conservative cooking method are those methods employed in cooking so as to conserve the nutrients such methods include: steaming, baking etc.

Precautions to observe when cooking leafy vegetables

i. Choose a suitable size of pot for the bulk of vegetables
ii. There should be tight fitting lid to prevent evaporation which may cause the vegetable to burn.
iii. Use of potash to improve the green colour of vegetables should be minimized as it affects the B-complex vitamins.
iv. Green-leafy vegetables should be added prevent loss of nutrients especially vitamin C.
v. Wash the vegetables several times to remove dirt, sand and debris.
vi. Wash before cutting to minimize loss of nutrients.
vii. Avoid overcooking vegetables, it impairs colour and flavour and destroy vitamin C
viii. Use nutrient-conserving methods to cook vegetable e.g. steaming, baking etc.

(a) Precaution to observe when cooking other vegetables
i. Put enough water to cover the vegetable
ii. Maintain the boiling points throughout cooking period
iii. Prevent delay in the cooking time by adding salt at the last cooking stage
iv. The use of local potash to hasten the cooking of some vegetables should be minimized as it affects the B complex vitamins. To reduce cooking time, vegetable should be soaked in water before cooking
v. Peel root and tuber vegetable as thin as possible
vi. Do not soak peeled vegetable in water for a long time; rather, soak in salted water to reduce discolouration.
vii. Cooking some root and tuber vegetable with skin help to retain their nutrients e.g yam, cocoyam, three leaf yam etc

Differences between fruits and vegetables

	Fruits	Vegetables
1.	Most fruits are sweet because they contain a simple sugar called fructose	Most vegetables are less sweet because they have less fructose
2.	Fruit is eaten as appetizer	Vegetables are foods that are eaten as part of or an accompaniment
3.	Most fruits are sweet, start or thirst quenching	Vegetables have strong bland or natural taste
4.	Fruits grow on plant	Vegetables do not
5.	Fruits can be eaten raw	Most vegetables are always eaten after cooking
6.	Some fruits are mostly perennial plants	Some vegetables are annual plants
7.	Fruits are consumed when fully ripe	Vegetables are better eaten tender
8.	Fruits are the sweet ripe ovaries of a seed-bearing plant	Vegetable is a herbaceous plant, cultivated for an edible part (seed, root, stem, leaf bulb, tuber non sweet fruits)
9.	A fruit can be a vegetable	A vegetable cannot be a fruit

SUBTOPIC 3: Salad Garnishing Deserts (practical)

Salad

Salads are prepared from different food stuffs. The most popular ones are those containing raw green plants cooked vegetables may be used when fresh ingredients are not available. Fruits such as avocado pears, orange and grape fruit may be included as they add interest, varieties and flavour to the dish.

Salad can be classified as follows:

(a) Green salads compose of: lettuce, cucumber, fruit tomatoes, French dressing
(b) Cold-cooked-vegetable salad

The vegetables are neatly cut up and mix with the dressing

(c) French salad
This consist of one vegetable only, such as potatoes tomatoes, cucumber, etc with a French dressing

(d) Salad with distinctive characters
e.g. fish, meat, chicken or cheese etc. These form the chief ingredients and they are mixed with the usual salad vegetables
this sort of salad is served as a separate course with a dressing.

(e) Fruit salad -Fresh or tinned fruit may be used

Uses of salad

1. As an accompaniment to a hot pot or poultry e.g. a green salad with a French dressing.
2. As an accompaniment to cold meat e.g. green salad with French dressing or mayonnaise sauce
3. As a luncheon or supper dish, when the salad contains a protein food. It is served as salad cream or mayonnaise
4. As an hor d'oeuvre
5. As fruit salad served as a sweet course

Salad food value

1. Green and yellow vegetables contain 'A' as the vegetables eaten raw, vitamin 'C' is not lost.
2. Cellulose in the form of roughages help the body to get rid of waste matter
3. The flavour of the salad stimulates the digestive juices
4. Oil and egg used in the dressing increases the food value. Protein and starchy foods are added to the food value.

Preparation of Salad (coleslaw)

Recipe

1. 1 cabbage (medium size)
2. 1 tomato (fruit)
3. 2 fingers of carrot
4. ½ finger green pepper
5. 2 table spoon salad cream

Method

1. Shred finely the inner white leaves of teh cabbage.
2. Wash in salted water. Drain in a colander
3. Cut fruit tomatoes in slices
4. Wash carrot and cut in slices or cubes
5. Wash all in a plastic container and put inside fridge to cool. Serve

Precaution before preparing and garnishing salads

1. Use only crisp and sound ingredients
2. Wash salad vegetables thoroughly, removing all coarse and withered vegetables, separating leaves and wash them in several changing of water
3. Soak anything likely to contain insect and worms for a short time in cold salt water.
4. Drain very well in a colander and shake in a salad basket or in a clean cloth
5. Lettuce can be kept in a wet cloth or in a refrigerator receptacle to keep it crisp
6. Cook vegetables such as potatoes, yam, carrot etc, they should be tender, but firm enough to be cut into neat slices or dishes.
7. Tear lettuce or cut with a silver or stainless ironic, but serve whole if possible as vitamin c is destroyed by cutting.
   Shred cabbage finely; only the tender inside part should be used.
8. Use ingredients of the best quality for dressing and add this to the salad just before serving. The most popular dressings are mayonnaise, French dressing and cream salad dressing. New varieties are now offered commercially.
9. To give a slight flavour of onions, rub a cut onion round the inside of the salad bowl.
10. Arrange the ingredients daintily in a salad bowl and keep the rest parts for garnishing. There should be some of each ingredient in the garnish to indicate that is in the salad.

Evaluation

1. Explain best ways to prepare salad
2. List 5 classes of salad
3. State 5 uses of salad
4. Write 3 importance of salad to human
5. State three methods of cooking vegetables for nutrient-conservation
6. List four (4) differences between fruits and vegetable
7. Write (2) precautions to observe when cooking vegetable.
8. State the factors affecting the choice of vegetable.
9. List two factors for choosing green leaf vegetable
10. Explain the importance of medium-sized vegetables in diet.
11. Explain 2 precautions before preparing salad
12. State why salad vegetable should be soaked before using them
13. List 2 important dressings for salad

General evaluation

1. One of the following is not the classes of food vegetable. (a) leaf (b) root (c) maize (d) tuber
2. Leafy vegetables do not contain one of the following. (a) calcium (b) iron (c) B complex (d) fat
3. _____ is an example of a tuber vegetable.
4. Green-leaf vegetable should be added at the stage of cooking. (a) true (b) false (c) none of the above (d) all of the above
5. _____ is not a nutrient-conserving method of cooking vegetable. (a) stewing (b) boiling (c) baking (d) steaming
6. One of the following is not in the class of vegetable. (a) leaf (b) root (c) maize (d) tuber
7. Leafy vegetables do not contain one of the following. (a) calcium (b0 iron (c) B- complex vitamins (d) fat
8. _____ is an example of a tuber vegetable. (a) bitter leaf (b) Irish potatoes (c) cauliflower (d)okro
9. Green leaf vegetable should be added at the last stage of cooking.
10. _____ is not a nutrient-conserving method of cooking vegetables

Weekend Assignment

Read Evans food and nutrition for senior secondary school book 2 by F.A. Bakare et al page (33 – 36)

Pre-reading Assignment

- Read kitchen equipment and utensil

Weekend activity

- Identify different kitchen equipment for various task
- List 3 large equipment and 2 small ones.

<u>Reference Text</u>

- The student cookery book by Enid O Reilly – Wright (page 95 – 100)
- Evans food and nutrition for senior secondary school book 2 by F. A. Bakare et al; Evans Brothers Nigeria Limited.

WEEK 6

DATE:_____

SUBJECT: FOOD AND NUTRITION

TOPIC: Kitchen equipment and utensil

CONTENT: Identification of different equipment for various tasks:

i. **large equipment e.g. mechanical equipment**
ii. **small equipment**

SUBTOPIC 1: LARGE EQUIPMENT

Kitchen Equipment refers to all machinery, tools, utensils, cookery, cutlery and furniture which may be used for preparation, service and storage of food with the activities carried out in a particular area of work in the kitchen. The equipment can be large, mechanical and small equipment or utensils.

Large equipment as the name implies are made of large and heavy metal that can withstand hard use and occupy space. These are generally fixed on a platform but may be free standing. Large equipment includes:

1. Gas and electric ranges
2. Ovens
3. Range tops
4. Hot cupboards
5. Friers
6. Steamers
7. Sinks
8. Stoves – different types of stoves are available while some are operated with gas, others are operated with electricity.
9. Refrigerator
10. Washing machine
11. Working surface
12. Cupboards
13. Shelves etc.

MECHANICAL EQUIPMENT: the equipment help to reduce the energy and time spent on some basic kitchen operations. They include:

1. Refrigerators
2. Dish washer

3. Food processors
4. Trolleys
5. Juicers
6. Mixers
7. Mashers: they can either be hand or electrically operated
8. Food slices and choppers

SMALL EQUIPMENT

These type of equipment as the name implies are smaller in size and can be easily handled or moved around or places anywhere for use when required. Small equipment includes:

1. Knives
2. Pots
3. Cutlery
4. Drying pans
5. Whisks and beaters
6. Colander
7. Baking sheet or tins
8. Openers
9. Those that are used daily for food preparation, cooking and service. Example includes plates, drinking cups, serving spoons and desert spoons etc.
10. Earthen ware: glass, Pyrex articles, plates, drinking glass, pudding basin and pie dishes.
11. Tin wares: baking pans and trays, sandwich tins, cakes tins,
12. Graters: tin opener, pastry cutters, wire whisks, rotary whisks
13. Wooden articles: wooden spoon, mortar and pestle, chopping board, cookeries also kitchen utensils examples are: forks, pallet knifes, potato peeler, kitchen scissors, fish slicer or turner etc.

SUBTOPIC 2: USES AND CARE OF KITCHEN EQUIPMENT

All kitchen equipment large or small, mechanical or light, require care in handling in order to extend its shelf life, money time and effort spent on care helps to maintain equipment in continuous working order. The following uses and care practices can be adopted.

1. **Stoves:** Some are operated with gas others are operated with electricity, local or kerosene and some are even operated by solid fuel e.g. firewood.

Uses: they are used for cooking while the oven section is used for roasting and boiling operations.

Care: the solid tops should be washed clean or wiped clean with a pad, when cool. The stove tops can be thoroughly cleansed by washing and using an abrasive

2. **Grills and salamander** can be heated by either gas or electricity

Uses: they are used for grilling tender cuts of meat, chicken and either food items.

Care: the salamander bars and draining trays should be replaced and the heat turned on for a few minutes to dry the bars

3. **Sink:** could be of porcelain product or stainless steel.
   Uses: All washing up operations is carried out in the sink
   Care:

i. Fix at the elbow height of the user
ii. Prevent blockage of the sink by using sink basket
iii. Avoid scratching the surface of the sink
iv. Disinfect the outlet occasionally
v. Wash with hot soapy water and rinse thoroughly

4. **Boiling pans:** they must be heated by gas or electricity
   Uses: they are used for boiling or stewing large quantities of food.
   Care: the boiling pan and lid should be thoroughly washed with mild detergent solution and then rinsed.
5. **Refrigerators:** it could be absorption system or compressor type
   Uses: They are used for preserving raw or cooked food items and other materials that are easily perishable. Oat food should not be kept inside the refrigerator.
   Care
   (a) Wipe off splashes and grease from inside and outside daily.
   (b) Occasionally defrost and clean thoroughly following manufacturer's instructions
   (c) Use bicarbonate of soda with warm water to rinse
   (d) Never remove materials from the freezer compartment with sharp object
6. **Mashers:** they can either be hand or electrically operated

Uses: they are used for mashing fish, yam or potatoes.

Care: this should be washed thoroughly immediately after use and dried.

7. **Food slicers:**
   Uses: are used for any kind of slicing operation e.g. slicing of meat, onions, fish, potatoes etc. While the chopper is used for chopping or dicing items of food like onions, spinach etc.
   Care:
   (a) The blades should be sharpened regularly

(b) Clean each section that comes in contact with food and dry carefully after use.
(c) The rotating joints should be lubricated

8. **Pots and pans:** they are used for cooking e.g. boiling during food preparation
   Care:
   i. Use them on suitable stoves
   ii. Soak immediately after each use
   iii. Use steel or nylon scourers or abrasives to remove stains.
   iv. Avoid scratching with a knife or sharp object
9. **Tin wares**
   Use: for baking, cooking and roasting
   Care: wipe while hot, wash in warm soapy water.
   Dry well and store upside down in a dry place

Note: The general process of cleaning small pieces of equipment and utensils e.g. colander, knives, spoons, plates etc include: scraping, soaking, washing and drying

STORAGE OF KITCHEN EQUIPMENT

Storage involves arranging goods in specified areas within spaces ear-marked for particular materials till they are required for use. It also involves storage of spare kitchen equipment, service equipment and miscellaneous like cutlery, crockery etc. A well planned storage of equipment will help to prevent spoilage, spillage and breakage. Storage of equipment depends on two basic factors:

i. **Nature of equipment to be stored**
ii. **Length of time for which they will be stored**

Nature of equipment to be stored:

Equipment storage can be classified according to their durability i.e.

i. Durable
ii. Less durable
iii. Fragile

Durable: any equipment is considered durable if it can be utilized for five years and above.

Less durable: equipment will be considered semi-durable if it will not be utilized up to five years but can be utilized up to one year to about three years.

Fragile: equipment will be considered fragile if it is delicate in nature and so extra care should be taken when handling such equipment

Length of time for which they will be stored:

Storage of kitchen equipment can also depend on the length of time they can be stored before use. They can be classified according to the degree of use as:

i. **Daily use kitchen equipment**
ii. **Often used kitchen equipment**
iii. **Less often used kitchen equipment**

Daily use kitchen equipment:

These are equipment that are so important in the kitchen and are used daily. Examples include: pots, spoons, knives, cups etc. The storage of these items needs to be handy. They are usually stored in the cupboards, kitchen, hangers and kitchen table so that they can be easily reached.

Often use kitchen equipment:

This class of equipment are the types that are used always but not every day or for every food preparation. They include microwave, blender, mixer etc.

Less often use kitchen equipment:

This class of equipment is not often used. They can be used weekly, monthly or bimonthly. This group of equipment are not normally stored in the kitchen. They can be kept in a store, so that it will not occupy space and prevent convenience in the kitchen e.g. food warmer.

SUBTOPIC 3: practical on the identification of kitchen equipment.

EVALUATION:

1. Mention 2 types of equipment that are not in use every day in your home.
2. Storage of equipment depends on two basic factors, mention one.
3. Mention 2 uses of grills.
4. How will you care for your cooking stoves
5. Mention five types of large equipments
6. Name five examples of mechanical equipment found in the kitchen
7. What is small equipment?
8. Give 3 examples of each of the following

i. Tin wares
ii. Graters

9. Name utensils or small equipment used on daily basis in the kitchen
10. Mention 2 types of wooden utensils or small equipment in the kitchen
11. Differentiate between kitchen equipment and kitchen utensil or small equipment

OBJECTIVE TEST

1. Which of the following is large kitchen equipment should be placed near each other? (a) cooker and cupboard (b) freezer and refrigerator (c) sink and cabinet (d) cooker and sink
2. The following utensils or small equipment are grouped under earthen ware except.(a) drinking glass (b)pie dishes (c) desert spoon (d) pudding basin
3. Which of the following is not among the group of mechanical equipment? (a) food mixer (b) mashers (c) boiling pans (d) dish washer
4. Which of these cleaning agents is recommended to prevent the blockage of a sink outlet? (a) steel wool (b) iron sponge (c) sink basket (d) nylon sponge
5. The most appropriate small pieces of equipment to use, when beating is an egg..... (a) beater (b) fork (c) nag (d) whisk
6. In the absence of an electric mixer the small pieces of equipment used to mix cake ingredient is a..... (a) kitchen fork (b) scraper (c) spatula (d) wooden spoon
7. The small equipment on which kebabs are pierced is called (a) sticks (b) skewers (c) needles (d) rods
8. Which of the following piece of equipment is required for decorating cake? (a) paring knife (b) palette knife (c) kitchen (d) bread knife

REFERENCE TEXTS

Evans food and nutrition for senior secondary schools book1 by F.A. Bakare et al; Evans Brothers Nigeria Limited.

WEEK 8

DATE: _____

SUBJECT: FOOD AND NUTRITION

TOPIC: Labour saving devices

CONTENT: (i) uses of labour saving devices

(i) importance of labour saving devices in the kitchen
(ii) Operation of labour saving devices
(iii) Factors to consider when purchasing/selecting labour saving devices

SUBTOPIC 1: use of labour saving devices, importance of labour saving devices in the kitchen.

Labour saving devices are pieces of equipment that reduce the physical task involved in carrying out some cooking processes. For a home-maker to manage the household task and avoid exhaustion, it is necessary for him or her to use labour saving devices or equipment. These include:

1. **Blender:**
   Uses: for pureeing and grinding ingredients
   Care:
   i. Wipe base with napkin
   ii. Wash cup without allowing water to touch the bottom
   iii. Store in a dry place
2. **Mixer:**
   Uses: to mix cake and pastries
   Care:
   i. Wipe base with wet napkin
   ii. Wash mixing bowl and attachments with warm soapy water, dry and store in a dry place.
3. **Orange squeezer:**

   Uses: for squeezing juice of fruit e.g. orange, grape, lemon etc.

   Care: wash in warm soapy water, rinse and dry before storing

4. **Pressure cooker:**
   Uses: for cooking food. It is fast and saves fuel.
   Care: follow instructions for use.
   Wash with warm soapy water
   Rinse and dry before storing
5. **Meat mincer:**
   Uses: for grinding meat
   For nuts and vegetables
   Care:
   i. Separate the blade, wash with warm soapy water
   ii. rinse and dry
   iii. Wrap blade in greases paper and store in a dry place
6. **Yam Pounder:**
   Uses: to pound yam

Care:

i. Wipe base with wet napkin
ii. Separate accessories, wash with soapy water, rinse and dry.

IMPORTANCE OF LABOUR SAVING DEVICES

Labour saving devices are important because of the following:

1. Labour saving devices help one to accomplish a given piece of work within the medium expenditure of time and energy.
2. It cuts down the number of movements and improves the type of motion on a specific task
3. It helps the home – maker to have free time for rest and leisure.
4. It reduces the overall boredom, frustration or fatigue resulting from the monotony of long accustomed and routine habit of house work.
5. It reduces the amount of time on a particular job e.g. blender, meat mincer

Sub-Topic 2: OPERATION OF LABOUR SAVING DEVICE, Factors to consider when purchasing/selecting labour saving devices

Operation of labour saving device includes:

1. **Mixers:**

   Operations: mixers contain beaters, whisks or dough hooks efficient in rubbin in, whisked, creamed or dough mixes

2. **Toasters:**

   Operation: to toast bread, pre-set to give correct time

3. **Dish washers:**

Operation: large machine usually plumbed into water with high pressure jets of water, very efficient and hygienic. Plates and cups are fixed in racks and sprayed with water and detergent.

4. **Blenders or liquidizer:**

Operation: reduce semi-solid materials to a pulp, it can be used of sieving, e.g. soap making, baby foods

5. **Processors:**

   Operation: high speed blades combine slice or chop ingredients

FACTORS TO CONSIDER WHEN CHOOSING LABOUR SAVING DEVICES

The following factors can be considered when choosing labour saving devices.

1. Buy high quality equipment, not inferior ones that will spoil easily and cost a lot of money to repair
2. Choose labour saving devices that can be easily manipulated
3. Buy equipment or devices that are in agreement with the standard of your kitchen
4. Buy equipment or devices that are absolutely essential
5. Choose devices that can be easily maintained
6. Buy suitable size for the requirement of the family
7. Money available

EVALUATION

1. Why do you have to buy good quality devices
2. Name three (3) other factors that you need to consider when choosing labour saving de
3. How will you operate a toaster?
4. Mention one technique of operating liquidizer
5. Define labour saving devices
6. Mention two (2) ways of caring for yam pounder
7. Name three(3) other useful labour saving devices in the kitchen
8. State the uses of the following:
   (a) Orange squeezer (b) mixer
9. Mention two ways on how to care for pressure cooker

OBJECTIVE TEST

1. The fastest way of cooking cow is to use a..... (a) electric cooker (b) gas cooker (c) pressure cooker (d) kerosene stove
2. Buy equipment that are in agreement with your standard of:
   (a)Bathroom (b) store (c) bedroom (d) kitchen
3. Mixer contains _____.(a) cups (b) iron (c) bottles (d) beaters
4. One of the following is specially made to reduce the cooking time of food.
   (a) Sauce pans (b) pressure cooker (c) frying pans (d) patty pans
5. _____ is used for mixing cake and pastry. (a) spoon (b) spatula (c) mixer (d) fork
6. Labour saving devices help to simplify and work. (a) false (b) true (c) do not know (d) all of the above
7. Labour saving devices used for pureeing ingredients is called _____.(a) rolling (b) pin (c) paddle (c) blender (d) whisk
8. When buying saucepan, the home maker should consider..... (a) colour, handle, cost, durability (b) storage, space, size, ease of cleaning, (c) quality, size, efficiency, cost (d) family size, cost, colour weight.

PRE-READING ASSIGNMENT: Read about time and energy management in food preparation.

REFERENCE TEXTS

- Evans food and nutrition for senior secondary schools book2 by F.A. Bakare et al; Evans Brothers Nigeria Limited.

WEEK 9

DATE: _____

SUBJECT: FOOD AND NUTRITION

TOPIC: Time and energy management in food preparation

- **(i) Meaning of time and energy management**
- **(ii) Tasks that require time and energy management**
- **(iii) Importance of time and energy management**
- **(iv) Guidelines on time and energy management**

SUBTOPIC 1: Meaning of time and energy management, Tasks that require time and energy management

Time and energy are the resources used by men to accomplish tasks. The management of these two resources is necessary in food preparation in order to accomplish more tasks at a given time and also reduce the amount of time/energy spent on a given task

Meaning of Time management

This is a set of principles, practices and skills used by a home-maker to half accomplish a given task within a given time. When time management is learn, it helps to manage time effectively and make the most use of it. Time is a resource that cannot be stored or saved. Any misuse time cannot be retrieved in order words, time is finite, and there are 24hours in a day none of which can be reclaimed. Time can be compared to a flowing stream that passes without stopping.

Energy management: this will be viewed as human energy management. Human energy management is the technique applied by a home-maker in order to manage and control ones level of personal energy. Unlike time management, it can be stored or save. Human energy is within an individual and cannot be bought as each individual is endowed with it. Human energy is our currency for life because without it, we cannot perform or enjoy doing much, so many people feel tired, over-whelmed and unfulfilled in their ever-increasing busy lives while so many people gain more time and more energy.

TASKS THAT REQUIRE TIME AND ENERGY MANAGEMENT.

Time and energy may be wasted if labour is not properly planned. As quantum physicist would attest, or simply put, when you manage energy, you are in fact, managing time. Every task to be performed requires time and energy management. In food preparation, tasks involved are;

1. Purchasing
2. Transport and delivering
3. Refrigeration
4. Food preparation
5. Food service
6. Washing and clearing away

1. **Purchasing:**
   Purchasing of goods require human energy. For effective shopping, one should make a shopping list. A shopping list helps to reduce worry and indecision. Time and energy management also helps to minimize impulsive buying. When purchasing food materials, it is wise to buy food in season as they are available, cheaper, and fresher and of maximum flavour and colour. This helps to reduce the stress of working round the market to look for food items to purchase.
2. **Transport and delivery:**
   Food materials should be delivered on time to prevent spoilage.
3. **Refrigeration:** food materials are refrigerated so as to preserve them for future use or may be prepared immediately.
4. **Food preparation:** for proper time and energy management, the home-maker should observe the following.
   i. Arrange equipment properly to reduce extra movements while working.
   ii. Plan menu in advance to reduce indecision and mental fatigue
   iii. Use labour saving devices to reduce time and energy spent on a given task.
   iv. Use correct working heights. Working height should be of normal reach. E.g. dumping, dish washing, chopping should be done on the table etc.

5. **Food Service:** if food is well prepared and not properly served, a customer may reject the email. Therefore, meal service is very important, in food preparation. Meal service takes quality time of a home-maker. Food service requires human energy. The caterer may use a trolley to transfer food from the kitchen to the service area to reduce time and energy spent on that task.
6. **Washing and clearing away**: it is a very important task in food preparation. Emphasis is always laid on this aspect of food preparation. When washing up is not done, food preparation has not ended. To save time and energy, washing up and clearing should be done as the food preparation is progress.

SUBTOPIC 2: IMPORTANCE OF TIME MANAGEMENT.

Time therefore, it is very important and should be managed properly if time is well managed, it can lead to the following:

i. Help to set up priorities
ii. Help to make conscious choices, so that more time can be spent on things that are important and valuable
iii. Reduce indecision and worry.
iv. Helps one to be more productive
v. It helps one to be more creative and to do the right thing at the right time.
vi. Time can also be saved for rest.
vii. It helps to establish routine in the home
viii. Help one to become more productive.

IMPORTANCE OF ENERGY MANAGEMENT

When energy is properly managed, more tasks can be accomplished in a shorter time without much fatigue. The following are some of the importance of energy.

1. Energy management helps to conserve energy.
2. It helps to increase the worker's interest in a given task.
3. It minimizes the amount of time spent on a given tasks.
4. It eliminates fatigue.
5. It encourages work to be carried out in the best possible way.
6. It aids in the elimination of unnecessary movements.

Sub-Topic 3: GUIDELINES ON TIME MANAGEMENT

Time is a special resource that cannot be stored or saved for use at a latter part of the day. It is not a skill but the core skill upon which everything else in life depends. There are some guidelines that can help one to work more effectively.

1. **Apply the 80/20mprinciple and ask questions:** the 80/20 rule states that 20% of your tasks account for 80% of the value in your to do list. Endure prioritization to identify and pay off tasks. Asking questions can be an effective tool to help you stay on track. Whenever you are unsure of what to do next, just ask yourself "what is the most valuable use of my time right now?
2. **Use your energy cycles:** we all have equal time in a day. There are times we feel active and other times refers to the highest energy time during the day. Find out your peak times. Use these to your advantage. Get mentally challenging tasks done during your peak time. During the non peak time take care of low priority routine or task that is none challenging

3. **Analyse your tasks and group them:** If you have several work that are routine, like making phone calls, checking e-mails, etc and you likely have some that need plenty of brain storming or writing. In order to use your time wisely, try to perform certain tasks in batches. For example, sort out the papers on your desk and file at the same time.
4. **Avoid attempting to do much:** if you spread your time and energy over too much different projects, you may not be able to make meaningful progress on any of them. Good time management often requires that you focus your time on a lesser set of objectives
5. Utilize "productive procrastination"
   Procrastination does not necessarily have to be a bad thing if you use it to delay working on low priority that may not need to be done at all. Wait until a task becomes important enough to deserve your time before you wok it.
6. **Urgent versus important tasks:** A key principle in time management is that important things are not always urgent; and urgent things are not always important. Learning to distinguish between the two is essential for effective time management. Weekly planning helps you to balance projects with long-term importance against more pressing matters.
7. **Make time for important projects**: Schedule regular time to works not important e.g. long term projects. If a project is important and not urgent, you run the risk of neglecting it unless you make regular time for it.
8. **Avoid wishful thinking:** wishful thinking can ruin any well laid out plan. Avoid this by identifying risks and learning how to place realistic expectation on your projects schedule room for error and unexpected problems.
9. **Learn to relax**: working hard is important but you also need to take time to relax and enjoy yourself.
10. **Don't over schedule:** when you over schedule your days, it can cause unnecessary stress. Hen creating weekly plan and scheduling appointments always create room for error. Make a list of your regular tasks and then sort these into appropriate categories.
11. **Delegating authority:** By delegating task, you have more time to accomplish other important task. A primary concern is that you should only delegate, if there is a person who is skilled enough to do the task at hand.

GUIDELINES ON ENERGY MANAGEMENT

It is very frustrating when you cannot follow things that are important that you want to do. It is good for you to be as active as possible and you can stay alive, if you use good pacing techniques. When you also learn to maintain a comfortable breathing pattern while you work, you will be able to do more. When you work more efficiently, you reduce the train on your heart and cardiovascular system, minimize fatigue, shortness of breath and back pain.

Here are some techniques and guidelines to reduce any food preparation task.

1. **Sit to work:** For task taking a long time, use a stool or chair to minimize fatigue
2. **Adjust working heights:** Eliminate unnecessary bending. Use better working height e.g. a table top 2inches below the elbow. Raising the weight of the table makes chopping easier. Table bed or chair legs can be extended with wooden blocks. Extenders with bolts can be found in some catalogues e.g. dustpan with a long hand eliminates bending.
3. **Avoid lifting and use wheels for transport**: It is good to have utility cart to use in most household activities e.g. place plate on the cart and distribute food to all members of the family.
4. **Eliminate unnecessary task:** Unnecessary extra trips by planning ahead. Use throw always such as paper plates when you want to save washing time. Let dished dry in the rack

5. **Easy flow of work:** During meal preparation, take all the necessary items from the refrigerator by cart to the sink area. Do all of the preparations there, more on to the stove and when the cooking is completed proceed to the table.
6. **Use planned rest periods:** When you know a task will take a long time or is usually fatiguing, plan to take breaks, if this is difficult to do, create a "breath centre" with reading or hand work so you do not feel that you are wasting your time.
7. **Relax:** Nervousness and anxiety consumes energy, cause muscle tension, headache, backache, and put more stress on the heart. Minimize anxiety by planning ahead, leaving enough time to complete tasks and rest afterwards. Only plan to do each day what you can realistically accomplish.
8. Organize storage and work areas: excessive bending causes back strain and increases fatigue. Store item in the area where they are used most.
9. **Keep cool:** Working in a room that is warm is less efficient for the body than working in a cool place because extra energy must be expended by the heart and lungs to cool the body, so do more stressful activities such as gardening in the cool part of the day. Avoid excessively hot baths or Jacuzzi, as they may cause fatigue, dizziness, or shortness of breath.
10. **Pace yourself:** Give yourself adequate time to complete a food task to avoid rushing. Take frequent short rests and breaks before you really tired.
11. **Make task easier:** Most of us waste an amazing amount of energy every day. Finding easier ways to do things is not laziness. It is working smart.
12. **Space your activities:** Break some big job into smaller steps. Put restful activities between more strenuous ones.
13. **Think of energy as money in the bank**: if you continuously overspend, you will always be running in the red. If you under spend, you will not be making the best use of your resources.
14. Maintain a comfortable breathing pattern while you work. You may need to stop during strenuous activity and take some deep diaphragmatic breathes i order to decrease shortness of breath.

EVALUATION:

1. Why do you have to use good spacing techniques
2. State 2 guidelines to be observed by a home-maker for proper energy management.
3. Explain the term use your energy cycle.
4. State 3 guidelines to be observed by a home-maker for proper time and energy management.
5. Why do you plan labour
6. State four simple techniques that can be employed to reduce food preparation task.
7. Mention three tasks that are involved in time and energy management.
8. What can time be compared with?
9. Define time and energy management.
10. How can you save time for rest
11. Outline two importance of time management.
12. Explain the term "use your energy cycle"
13. Explain the following:
    i. Delegating authority
    ii. Making time for important project

OBJECTIVE TEST

1. _____ may be wasted when layouts are not properly planned. (a) human resource (b) time and energy (c) energy and task done (d) time and task done
2. Excessive bending causes _____. (a) back strain (b) head ache (c)waste pain (d) night blindness
3. Avoid wishful _____. (a) dance (b) talking (c) thinking (d) jugging

4. Nervousness and anxiety consume _____. (a) energy (b) time (c) joy (d) stress
5. Eliminate unnecessary _____. (a) task (b) food (c) idea (d) idleness
6. Which of these management can be stored or saved:
   (a) Energy management (b) time management (c) personal management (d) individual management
7. _____ is the currency for life. (a) personal energy (b) time (c) management (d) human energy
8. _____ is a resource that cannot be stored or saved. (a) currency (b) time (c) energy (d) management
9. _____ require time and energy. (a) human being(b0 management (c) all task (d) individual management
10. Which of the following is a tree time? (a) time not devoted to work or sleep (2) time devoted to sleep (c) time devoted to leisure (d) time devoted to job
11. Time is a special resource that cannot _____ for later use. (a)store (b) reach (c) waste
12. Energy management eliminates. (a) fatigue (b) hunger (c) waste (d) bulling

REFERENCE TEXTS

- Evans food and nutrition for senior secondary schools book2 by F.A. Bajare et al; Evans Brothers Nigeria Limited.

10 Revision
11 Examination

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