MINISTRY OF GENERAL EDUCATION

KITWE DISTRICT

FOOD AND NUTRITION PAMPHLET

FROM GRADE 10 TO 12

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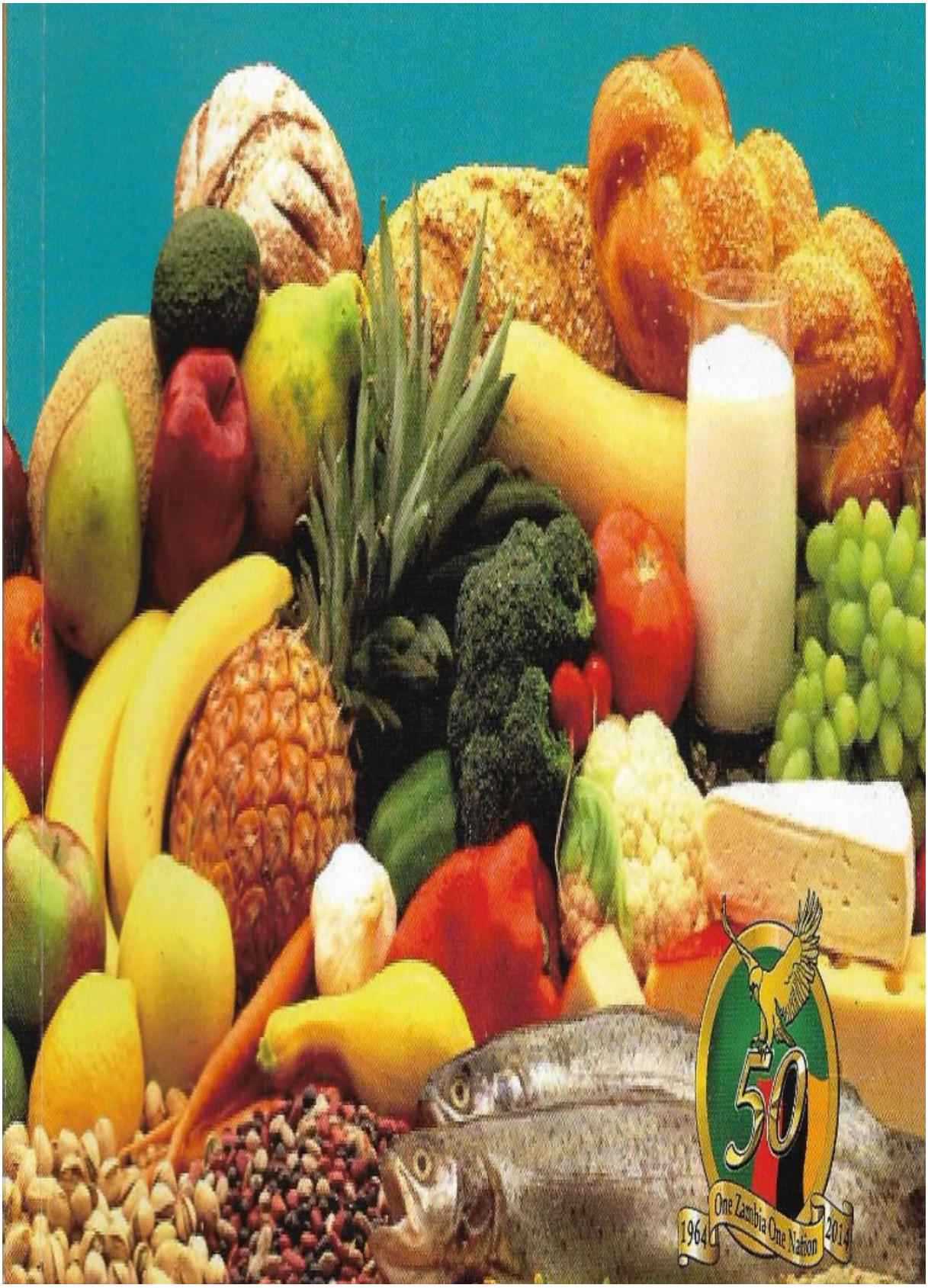


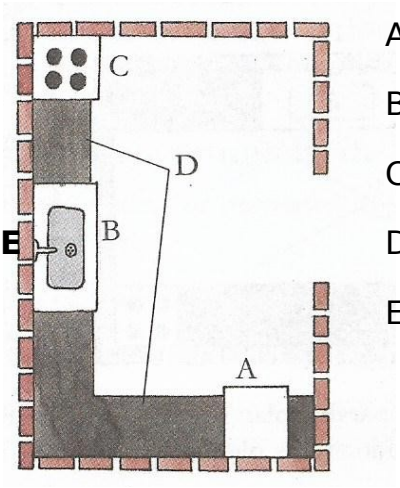
FOOD AND NUTRITION

KITWE DISTRICT PAMPHLET
THE KITCHEN.

1) Design layouts of a kitchen

- The most efficient layout of a kitchen are based on u, l or parallel lines plan

L shaped



A. Preparation area

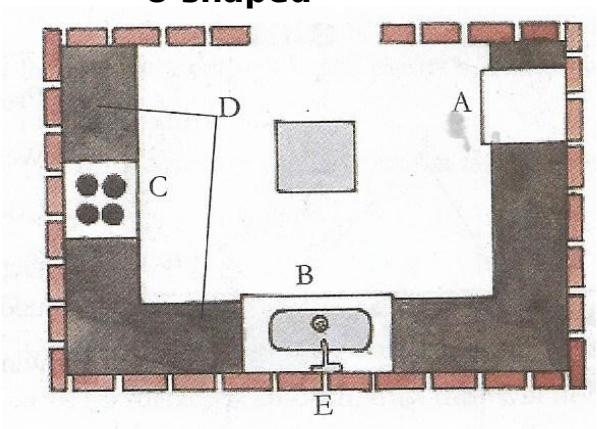
B. Wash-up area

C. Cooking area

D. Cupboard and drawers under

E. Window

U shaped



A. Preparation area

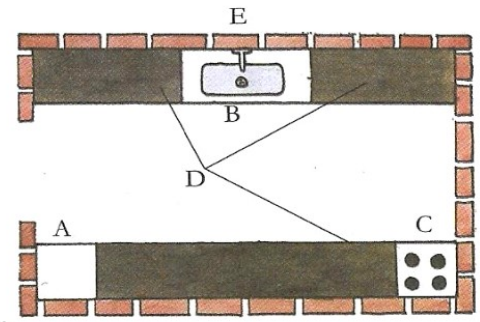
B. Wash-up area

C. Cooking area

D. Cupboard and drawers under

E. Window

CORRIDOR OR PARALLEL PLAN



A. Preparation area

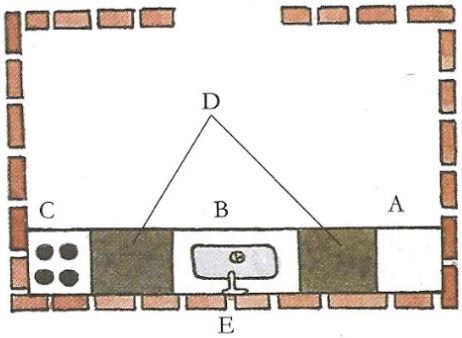
B. Wash-up area

C. Cooking area

D. Cupboard and drawers under

E. Window

ONE WALL PLAN



A. Preparation area

B. Wash-up area

C. Cooking area

D. Cupboard and drawers under

E. Window

2) Explain the importance of good kitchen surfaces

- Good kitchen surfaces are important for establishing the mood of the kitchen decoration.
- They also dictate how we function in and around them

3)Mention four types of wall coverings in the kitchen

Paints, tiles, wallpapering and plastic coverings

4a)Mention two common paints that you know

- Oil paint and water paint

b)What is the main different between the two paints?

- Water based paints are soluble in water, whereas oil based paints are soluble in oil.

c)Explain the advantages and disadvantages of both oil paint and water paint.

Advantages of oil paint

- It is water repellant and therefore can be cleaned easily using soap and water without being damaged. This makes it good for kitchen walls
- It has a smooth, thus dust will not settle on it easily.

Disadvantages of water paint.

- It is expensive
- It has unpleasant smell while fresh
- It takes long to dry.
- Stains are difficult to remove.
- It flakes on exposure to the sun
- It is highly flammable

Advantages of water based paint

- it is cheap to obtain compared to oil based paint
- It does not have an unpleasant smell.
- It dries quickly

Disadvantages of water based paint

- It is difficult to maintain as it stains easily and the stains cannot be removed without damaging the surface. Therefore, it is not recommended to use in the kitchen because of many food splashes.
- The paint wears off due to repeated cleaning

d) Which type of wall covering would you advise your friend to use in the kitchen and give reasons for your answer.

- Oil paint: because it is to clean with soap and water
- Washable wall paper can also be used because it can withstand washing.

e) Where can we use glazed ceramic tiles in the home?

- In the kitchen and bathroom because they are water repellant

f) Give two advantages and disadvantages of ceramic tiles

Advantages of tiles

- They are durable
- They are too clean
- They are too attractive and can be used to create a decorative effect

Disadvantages of tiles

- They are too expensive
- They chip off easily

g) Wall paper comes in a variety of colour, patterns and texture. Give two classes of wall paper.

-Non washable wall paper: This is always printed with water soluble and any use of water on them will damage the design. Therefore, it is not good to us on the kitchen walls

-washable wall paper: this wall paper has water repellant coating which makes it withstand washing. Therefore, it can be used in the kitchen

h) What are the advantages of wall papers?
-They are available in many colours, designs and textures.
- It can be peeled and changed if one desire.

5) Mention and explain six types of colours that you know

i) Primary colours; these are colours that cannot e produced by mixing other colours. These are red, blue and yellow.
ii) secondary colours; these are colours that are produced by mixing two primary colours like
red and yellow to give orange, yellow and blue to give green.
iii) Tertiary colours; these are colours produced by mixing primary and secondary colours like yellow and green to give yellow-green.
iv) Warm Colours: these are colours that contain some aspect of yellow and red and re
associated with heat
v) Cool colours: these are the colours that have an aspect of blue in them which gives a
feeling of calmness and restfulness as they are associated with the sky and water.
vi) Neutral colours: these are said to match with almost any colour and are important in the production of shades and tents.
6a) give the importance of good lighting in the kitchen.
- It provides light for the activities.
-it enhances furniture and furnishings.
- It prevents eye strain and accidents
-it aids safety.
-it makes the kitchen more attractive
b) Mention two types of lighting system used in the kitchen and give three examples under each system.
i) Natural lightening. Example is the sun.
ii) Artificial lighting. Examples are candles, battery lamp, electric lamp oil lamps and gas lamps.
c) What are the safety measures of lighting in the kitchen?
-lighting circuit should have a low 5 ampere fuse
-switches should be placed near the door so that lights may be turned on upon entering a room.
- avoid over loading sockets.
-use bulbs with correct wattage for fitting.
-replace live exposed wire.
-put off the switch when replacing the bulb
7a) Giving examples, outline ways in which equipment in the kitchen can be categorized
- Small kitchen equipment. Examples are folks, knives, spoons, saucepans, chopping boards,
rolling pins, sieves etc.
- Large kitchen equipment. Examples are washing machines, cookers, refrigerators, dish
washers etc.

b) Mention five general factors that should be considered when selecting household
equipment.
-The type of fuel that is going to be used, whether it is electricity or gas.
- The durability. It should be made out of the material that can last long.
- You also consider the amount of money that you have. The price of equipment should be affordable to the buyer.
- The equipment should be made from easy designs which are easy to clean.
- The space available for storing the equipment should also be considered.
- The equipment should be suitable for the purpose.
-c) Give three advantages and three disadvantages of labour saving equipment.
Advantages
- They help to save time in the kitchen.
- They help to save human energy.
- They are quick and efficient to use.

Disadvantages
- They require electricity to operate them and so if electricity is unavailable, you cannot
Have them.
- They are expensive to buy.
- They may be expensive to operate, causing high electricity bills.
- They are expensive to maintain.
- They can be dangerous if care is not taken when operating them.
d) Give five advantages and five disadvantages of using a microwave oven.
Advantages
- Immediately when the door is closed, cooking starts.
- If mobile, it can be used in other rooms rather than in the kitchen.
- It is very economical on fuel because of high cooking speed.
- It is labour saving or ideal for emergency cooking or heating up of dishes in hotels or at home.
- Because of fast cooking, flavor, food nutrients and extractives are retained.
- Frozen food can be defrosted in minutes.
- It is easy to clean.
Disadvantages
- It takes up work surface spaces
- In ordinary microwave ovens, browning of food does not occur so food is not attractive.
- It is not suitable for cooking all foods.
- There is no development of flavor in the food.
- Tough or cheap cuts of meat will need to be pre- cooked before putting in the oven.

Safety in the Kitchen.

8a) explain what is meant by safety in the kitchen.
- This is when the kitchen is a safe place to work in and the common kitchen accidents are less likely to occur.

b) Describe ways of preventing accident in the kitchen.
- The kitchen should get good ventilation to let out stale air and heat and get in fresh air.
- Every kitchen should have sufficient light to make working safe and comfortable.

- The walls should withstand moisture, condensation and grease
- The floors should be non-slippery, easy to clean, sound proof, greaseproof and water proof.
- Any kitchen must have a first aid box to work on any accident like burns, scalds and cuts.
- All sharp equipment must be hanged out of the floor and keep out of reach of children

c) State the common accidents in the kitchen

- Cuts, burns, scalds, electric shock, Suffocation and chocking.

d) What is first aid/

- It is the immediately temporary treatment given to an injured person before the doctor attends to him/her.

e) Explain the use of the six first aid box content.

-pain killer tablets; used for the relief of pain.
-antiseptic liquid, table salt, surgical spirit; are used for cleaning wounds.
-cotton wool; used to clean wounds and to clean blood stain on the injury.
- Clinical thermometer; for testing the temperature of an injured person.
- Razor blades; for cutting any loose skin on wounds or cuts.
- Safety pins; for removing small objects that may be stuck in the skin like thorns, small stones.
-sterile gauze; it is used for covering wounds before bandaging them.
-tweezers; are used to hold cotton wool while cleaning wounds and with the help of the scissors, they cut off the dead skin from wounds.

f) What are the causes and treatment of the following kitchen accident?

i) Burns; this is caused by contact with dry heat like fires, hot metals. If the burn is minor, apply Vaseline and give a simple pain killer like aspirin. If clothes are on fire, throw the patient on the flow and roll him over and cover him with a thick rug.

ii) Scalds; these are caused by moist heat like steam and boiling water, hot oil and hot fat. For treatment, avoid unnecessary handling .do not burst any blisters. Cover them with a sterile dressing then with a thick cotton wool.

iii) Chocking; it is caused by a foreign object entering the air passages like water, food, seeds, coins, hard sweets. For treatment, if possible, hook out the object with the finger or bend the patient forward and give the patient a sharp slap between the shoulder blades. For a child, hold him upside down and give him a sharp slap between the shoulder blades.

iv) Electric Shock; touching live electric wire or appliances with wet hands or cleaning electric appliances when they are on. For treatment, switch off the appliance immediately and disconnect a person using a dry stick.

v) Foreign body in the throat; caused by swallowing foreign body. For treatment, use a finger to remove it if possible. You can also try to allow a piece of bread or any course food that can push down the swallowed body. If the object is swallowed, give the patient a fluid or milk diet until the pain is relived.

(Nutritional terms).

Nutrients

9) Define the following nutritional terms.

a) Diet; means the food that a person normally eats every day. e.g. sliming diet.

b) Malnutrition; means an incorrect or unbalanced intake of food or nutrients.

c) Under nutrition; means an insufficient total intake of nutrients.

d) Balanced diet; means the diet that provide the correct amount of nutrient for the needs of an individual.
e) Health; this is the absence of disease in the body.
f) Over nutrition; means excess of some nutrients in the body. E.g. fat in excess cause obesity.
g) Under nutrition; this means not having enough food nutrients.
h) Nutritionist; this is a person who studies food nutrient it relation to different body status, physical activity, age, sex and health of an individual.
i) Food; is any liquid or solid that when taken, or eaten, provides the body with some nutrients.
j) Nutrition; this is the study of food and what it does to the body.
k) Nutrients; these are substances which make up food.
l) Diet therapy; this is the use of s a factor aiding recovery from illness.
m) micro-nutrients; these are the nutrients that are needed by the body in smaller amounts. E.g. sodium, potassium.
n) Macro nutrients; these are the nutrients that are needed by the body in larger amounts. E. g proteins carbohydrates.
o) Metabolism; all the reactions and processes that take place in the body.
p) Marasmus; this is the shortage of food or nutrients in the body.
q) Anorexia nervosa; it is known as a slimming disease caused as a result of excessive dieting.
r) Kwashiorkor; this is not having enough protein in the diet.
s) Balanced diet; it is the diet which consist of all the nutrients from the three basic food groups.
t) Mixed diet; this is the diet that consist of different types food.
10a) Name the elements which combine to form fat.
-carbon
-hydrogen
-oxygen
b) Fats can be classified as monounsaturated, polyunsaturated and saturated.
i) Define the term monounsaturated fat.
-these are fats that have one double bond in the molecule E.G, oleic acid.
ii) Define the term polyunsaturated fatty acids.
-Polyunsaturated fatty acids are which have more than one double bond in the molecule, eg linoleic acid.
iii) Define the term saturated fatty
-these are fat acids which have all the carbon atoms saturated with hydrogen atoms and cannot accept anymore.

(iv) What is meant by unsaturated fatty?
-these are fatty acids that have some of the carbon atom joined to others by a double bond.
c) State three problems associated with a diet that is high in saturated fat
- Excess fat is store under the skin or around internal organ, leading to weight gain or obesity.
-Saturated fat contains cholesterol, which can block the artery walls.
-Saturated fat is linked to coronary heart disease, stroke, hypertension, breathlessness, arthritis, lack of self- esteem ETC.
d) Write down five functions of fats in the body.
-they provide a concentrated source of energy.
-they surround and protect certain vital organs like kidney and glands.

-they keep the body warm by forming an insulating layer beneath the skin.
-they provide a source of fat soluble vitamins A, D, E and K.
-they provide texture and flavour in the food and help to make it palatable.
-food containing fat provide a feeling of fullness after a meal, as fat digestion is slow
e) Before fat can be digested it must be emulsified. Give the name of the substance that emulsifies fat.
- Bile.
f) What is the difference between fats oils?
-fats are solid at room temperature while oils ate liquid at room temperature.
g) Name four plant and four animal sources of fats
-animal source are lard, bacon, suet, fat in milk, cheese etc
-plant sources are nuts, pulses, avocado pear, olive, soya, maize etc.
h) How does breastfeeding help to make sure that babies get essential fatty acids in their diet?
-humans make special essential fatty acids from linoleic and linoleic in breast milk which is in turn, given to babies. This is the reason why human breast milk is best for babies.
i) Absorption of the end products of fat digestion takes place in the ileum wall. Give the name of this finger like projections in the ileum wall.
-Villi.

Proteins

(11a)Write down three functions of proteins
- They are used for maintenance of the body.
- They are used to build up the body.
-They act as secondary source energy.
(b) Mention the two classes of proteins, and three sources of each class?
-High biological value proteins. The sources of high biological value proteins are milk, meat, soya beans, eggs etc.
- Low biological value proteins. Examples of law biological value foods are ground nuts, beans, lentils, wheat to mention but a few.
c) What essential amino acids?
- These are protein molecules that are made up of small units joined together like links in a chain.
d) State the number of indispensable amino acids and their functions that are required in;
i) Children
-they are ten, which are essential for growth.
ii) Adults.
-they are eight, which are indispensable for repair and maintenance in adults.
e) Explain why the following have high requirements for protein?
i) Children.; they require a lot of proteins for their rapid growth
ii) Pregnant women; they require a lot of proteins to cater for their growing baby.

iii) Adolescents; they require a lot of protein for their rapid spurt of growth.
iv) Nursing mothers: they require lot of proteins for more milk production.
f) Describe the effect of heat on protein.

-when proteins are heated, their chemical structure is denatured. As heating continues, they coagulate (set) and become less soluble. If they are overheated, they become less digestable.
g) Mention three effects of protein deficient.
-Retarded growth in children
- worn out body cells which are not replaced
- Severe cases of protein deficiency results into marasmus.
- Malfunction of various organs due to hormonal enzyme deficiency.

Carbohydrates

12a) Carbohydrates are the cheapest and most abundant nutrient in the world. Mention two functions of carbohydrates to the body.
- It is an important source of energy to the body.
-it also acts as a protein sparer.
b) What chemical elements make up carbohydrates?
- Carbon, hydrogen and oxygen.
c) What happens if too much carbohydrate is eaten?
- Some carbohydrate is converted into insoluble carbohydrate which is stored in the liver for future use. The excess is converted into fat and stored under the skin. This is one of the major causes of obesity.
d) Give three classes of carbohydrates and mention three carbohydrates that are found under each class.
i) Monosaccharides. Examples are fructose, glucose and galactose.
ii) Disaccharides. Examples are sucrose, lactose and maltose.
ii) Polysaccharides. Examples are starch, dextrin, cellulose, glycogen and pectin.
e) Explain with examples, the difference between extrinsic and intrinsic sugars.
-intrinsic sugars are those that form part of the cell structure of plants. For example in fruit while extrinsic sugars are those that do not form part of the cell structure in plants. Examples are, refined sugar, extracted sugar in honey.
f) Describe the effect of heat on sugar and starch.
- For dry heat, sugar first melts, then caramelises and finally burns, leaving a black residue.
- For wet heat sugar first dissolves, then becomes syrup which caramelises and finally burns when the water has evaporated.
-as for starch wet heat softens the starch grains, and then absorbs water, swell, causing some to rapture. The starch then dissolves to form a paste. Dry heat changes starch to dextrin.

(Vitamins)

13a) vitamins are classified into two main classes. Mention them.
-water soluble vitamins, which are vitamin A and B.
-fat soluble vitamins, which are vitamins A, D, E and K
(b) Name five vitamins in the vitamin B-complex, stating their main functions and deficiency.
i)-vitamin B1 or thiamine. Its main function is to release energy from carbohydrates. It is also required for normal growth in children, as well as the functioning and maintenance of the nerves. The deficiency may cause depression, difficult in concentration, defective memory, retarded growth in children, muscles become weak. Severe deficiency leads to a disease called beriberi.

-vitamin B2 or riboflavin. It is essential for normal growth and release of energy from food. The deficiency may result in failure to grow, skin lesions, conjunctivitis, tongue may swell, mouth and lips become sore.
-vitamin B3 or niacin/nicotinic acid. It helps in the release of energy from food. Its deficiency results it the disease called pellagra.

-vitamin B6 or folate. It is essential for growth, formation of red blood cells and for the release of energy from carbohydrate. Deficiency of folate may result in failure to grow, megaloblastic anaemia, where the red blood cells become enlarged. Lack of folate in early pregnancy may lead to a condition called spina bifida in the baby, which causes permanent disability.
-vitamin B12 or cobalamin. It is required for metabolism of amino acids and other enzyme systems in the body. The deficiency of this vitamin may lead to megaloblastic anaemia.
c) Name four foods which provide a good supply of vitamin B-complex
-grape fruit, bananas, pineapple, whole grain cereals, eggs, milk, green leafy vegetables nuts ETC.
d) State which vitamin would be lacking if you suffered from megaloblastic anaemia?
-cobalamin (vitamin B12)
Complete the following sentences.
(e)Vitamin C is also known as (i)..... It helps absorb (ii)…….
From food and helps protect against the deficiency disease known as (iii).....

Answers

(i) Ascorbic acid (ii) iron (iii) scurvy.
(f) Name four good sources of vitamin C.
-guavas, oranges, pine apples, black currents, green and red pepper mangoes ETC.
g) Explain the effect of moist method of cooking on vitamin B and C.
It is soluble in water, leached, dissolved into water; lost /destroyed by heat.
h) Give three functions and deficiency of vitamin C.
- It is required to make connective tissues which bind the body cells together.
-it assists in the absorption of the mineral iron during digestion in the intestines.
-it is required it the production of blood and the walls of blood vessels.
- It assists vitamin E in its role as an ant- oxidant.
- It is required for building and maintenance of the skin and lining of the digestive system.
- is deficiency may lead to a disease called scurvy. It may also cause gum bleeding; walls of blood vessels weaken and break in places, cuts and wounds fail to heal properly. Anaemia because iron is not absorbed properly without vitamin C
14a) Write down the sources, functions and deficiency of vitamin A. (retinal.)
-the sources of vitamin A are animal sources like milk, eggs, butter, oily fish, liver and plant sources like carrots, spinach, cabbage, tomatoes etc.
- The functions of vitamin A are;

- to enable the retina see in dim light, to keep the mucus membrane in the throat and digestive system, bronchial and excretory system moist and free from infections.
- The other function is to maintain the skin health and smooth.
- It is also required for normal growth of children, particularly the bones and teeth.
- The deficiency is that the retina fails to make the visual purple and the vision in dim light is impaired leading to a disease called night blindness. In severe cases, it may cause total blindness.
- The skin and the mucus membrane become dry and infected, and resistance to disease is reduced the growth of children is also retarded
bi) List the functions of vitamin D, its sources and functions.
- The function of vitamin D is to help the adsorption of calcium and phosphorus which are required for proper formation of bones and teeth.
The sources of vitamin D are liver, fish liver oils, oily fish. It is also found in smaller amounts in smaller in egg yolk, margarine, milk and dairy products
-the deficiency is that the absorption of calcium and phosphorus from the small intestines is reduced and therefore, the bones and teeth will be weak. It can also result into a deficiency disease called rickets, where the bones bend and it mainly affect the children.
ii) What do we call adults rickets?
– Osteomalacia.
iii) Mention the scientific name for vitamin D.
–Cholecalciferol.
15a) what is the other name for to copherol vitamin?
-vitamin E
b) List down five the functions of vitamin E.
- It is a very affective ant oxidant.
- It can also protect against heart diseases.
- It is used as a preservative to stop fat from becoming rancid.
-it promotes health skin and hair.
- It slows down the process of aging by preventing wrinkles.
- It reduces high blood pressure.
-it helps in the proper functioning of the circulatory, nervours, digestive, excretory and respiratory system.
c) What are the sources of vitamin E?
- Vegetable oils, soya beans, cotton oils, nuts, wheat germ and legumes.
d) List down the signs of deficiency for vitamin E.
- It may result in damage to the red blood cells and nerves.
- Infertility in women and men.
-Menstrual problems.
- Increased risk of heart disease and blood vessels.
-Increased cases of bowl and breast cancer.
e) Explain the functions, sources and deficiency of vitamin K .
- Vitamin K assists to clot the blood after an injury.
- It also assists in the formation of blood.
- The sources of vitamin K are widely distributed in green leafy vegetables such as spinach.
- Bacteria present in the stomach produces a good supply of vitamin K which the body is able to use.
Deficiency is very rare, but babies are given vitamin K after they are born to encourage blood clotting on the umbilical cord.

Digestion System.

16) Complete the following sentences to show how starch is digested.
In the mouth (i)……. produced by the (ii)…….. Glands changes
Cooked starch to (iii)……
In the ileum, starch is further broken down into
(IV) …….. which is then absorbed by the (V) …….. In the walls of the small intestine and transported to the (VI)……
(I)Amylase (ii) Salivary (iii) maltose (IV) Glucose. (v) Villi
17) Describe the digestion of fats in details.
-the digestion of fats starts in the duodenum, with the bile emulsifying the fats to disperse them into liquid droplets. Then pancreatic lipase breaks fat into soluble glycerol and insoluble fat acid. The fat acid reacts with the bile to become soluble. The fats are further broken down by lipase in the ileum, to complete their digestion.
18)How do the digestion and absorption of protein takes place?
-the digestion of protein starts in the stomach where pepsin starts the breakdown of protein into smaller chains of amino acids called peptides. The rennin clots the milk so that the enzyme pepsin can act on it more efficiently. Then the food goes to duodenum where an enzyme called trypsin continues the breakdown of proteins to peptones. Finally, the food goes to ileum where erepsin converts peptones to amino acid to complete the digestion of proteins.
- The absorption of proteins takes place in the walls of small intestines by the finger like projections villi small intestines. Each villus is surrounded by wall of single cells through which the nutrient pass to reach the centre. In the centre, there is the lacteal which is surrounded by the blood capillaries which are connected to the larger blood vessels that take up the nutrients into the blood stream.
Dietary recommendation

19) It is recommended that the intake of sugar should be lowered.
(a)Apart from energy imbalance, explain two health issues associated with eating too much sugar.
-risk of diabetes; too much glucose in blood for insulin produced;
- Permanent damage to eyes leading to blindness;
-Damage to blood vessels in hands and feet leading to risk of infection and possible amputation;
-damage to internal organs such as kidneys
b) Suggest four ways of reducing sugar in the diet.
-avoid adding sugar to drinks.
- use artificial sweetener.
- drink low-calorie/diet drinks.
- avoid sweet fizzy drinks.
- eat fewer sweets / chocolate / biscuits / cakes.
- reduce sugar in recipes.
- use fruit canned in fruit juice instead of in syrup.
- do not buy sugar-coated breakfast cereal; buy ‘sugar free’ products.
- use less convenience food.
C the dietary recommendation for a typical Zambian health life style include DEEEEE EEE, explain what this acronomy means

-drink less alcohol: too much alcohol may cause damage to the liver as well as obesity.
-eat more fruits and vegetables: (reasons for eating them are discussed under fruits and vegetables.
-Eat more fibres and starch foods: they prevent constipation and malnutrition.
- Eat less sugar: to reduce cases of tooth decay and obesity.
- Eat less fat: to reduce cases of heart disease and obesity.
-Eat the right amount of food to maintain a healthy weight: to avoid obesity and health problems, people are encouraged not to over eat or under eat.
-Eat less salt foods: the recommended salt intake per day is less than six grams. Avoid or reduce adding salt to meals at the table to prevent high blood pressure.
- Eat a variety of foods and enjoy your foods: people are encouraged to eat a variety of foods in order to lead a healthy life style.

Fruits and Vegetables.

2oa) what is the importance of fruits and vegetables in our daily diet?
- They provide vitamins and minerals in our diet. (they supply approximately 90% of vitamins within a diet) which are essential for proper functioning of the body.
- They provide fibre and add bulk to the diet.
-they add flavour to a meal.
-there is a variety of fruits and vegetables. This wide range offers an interesting selection of refreshing fruits and vegetables
- They make a meal more attractive because of their interesting colour and texture.

b) Vegetables are usually classified into three groups. Name them.
- Green vegetables. Under green vegetables we leaf vegetables E.G. cabbage, lettuce, spinach and pumpkin leaves. We also have flower vegetable, E.G. broccoli, cauliflower. Under fruit vegetable, there is avocado, cucumber, pepper, tomatoes and stem vegetable which include celery and asparagus.
-root vegetables include new potatoes, beetroots, yams, carrots, cassava and sweet potatoes. There is also bulbs which include onions and garlic.
-we also have root vegetables E.G. new potatoes, beetroots and regimes.
-finally, legumes or plants that produce pods containing seeds. Examples are runner beans, peas okra and French bean.

c) Write down five factors to be considered when buying vegetables.
- Vegetables should be fresh, bruised and insect free.
-buy vegetables which are in season when they are at their best, plentiful and cheap.
-avoid deep freezing unless time and facilities like deep freezing are available
-avoid buying them in polythene bags as these can cause condensation, mould growth and eventually, decay

d) How should vegetable be prepared in order to preserve their nutrient content?
- If vegetables require peeling, peel them very thinly to preserve vitamins and minerals.
- prepare vegetables just before cooking to preserve destruction of vitamins by oxidation.
-wash vegetables thoroughly before you cut but never soak in water, as this would cause the water soluble vitamins to dissolve in water.

-Cook vegetables in the minimum amount of boiling water. This helps to destroy enzyme and preserve vitamin. Cover the pot completely, and cook in a short period of time to preserve vitamin.
-do not add sodium bicarbonate to the cooking water because it can destroy vitamin c.
- serve immediately after cooking.
e) Fruits are usually grouped into four categories. Name them.
- Citrus fruits like lemons, oranges and grape fruits.
-berry fruits like strawberries gooseberries, raspberries, red and black currents.
-stone fruits like plums, apricots, cherries, greengages and damsons.
-Fleshy fruits like apples, pears, mangoes, melons pine apples and sweet bananas.
f) List down two ways of preserving fruits.
- Freezing, canning, cooking and drying.

Milk

21a) Milk is often described as nature' perfect food. Why is milk such a valuable source of food?
- this is because it contains nearly all the essential nutrients and these are proteins, fats, carbohydrates, vitamins A, B an D, minerals like calcium, phosphorus, potassium, sodium and chlorine are present in milk. Iron is present in very small amounts.
b) Explain the methods of processing milk at the dairy.
i)Homogenisation.
-To homogenise is to produce a substance which is of very fine consistence. The milk is then pumped through a very tiny value so that the fat globules are reduced and are evenly distributed. This makes milk more creamy and digestible.
ii) Heat treated.
-because of dangers of infected milk particularly where large quantities are involved, it has been of accepted practice to boil milk in order to destroy any possible pathogenic (harmful) organisms and to improve its keeping quality. The most popular forms of heat treatment are;
a) pasteurisation; the milk is heated at 72 degrees Celsius for 15 seconds and cooled rapidly to 10 degrees Celsius or below in a heat exchanger. It is then bottled and sealed.
- This method destroys all bacteria in milk without altering flavour or nutritive value.
-all pathogenic and souring bacteria are destroyed and as a result the milk keeps longer.
c) Sterilisation; the milk is homogenised, bottled and sealed, sterilisation is then carried out for 120degrees Celsius and then put in an auto plater for an hour. This temperature is better than the boiling point because all bacteria is destroyed. The taste and colour of milk is altered. Large amount of vitamin B and C is destroyed and the milk becomes less digestible but it keeps for many months.
d) What is the effect of heat on milk?
- For fresh milk, some of the water is converted into steam which evaporates. There is loss of vitamin b group and vitamin C is completely lost. Flavour is slightly lost. Pathogenic and souring bacteria are destroyed. Protein coagulates and forms a skin on the surface of the milk.
e) How do you store milk at home?

- If no refrigeration is available, keep it cool by keeping it in a current of air rather than a non-ventilated cup.
- For storage the floor is cooler than the raised surface.
- you can also put a bottle of milk in a basin which is half filled with cold water and place a piece of muslin saturated with cold water over the top, ensuring that the muslin rest in the cold water. The water should be changed at intervals to keep it cool.
-it should also be kept covered to protect it from contamination, flies and dust.
- in refrigerator, milk should be covered and kept away from strong smelling foods, for example, onion, garlic, cheese and many more.

Fish.

22a) how is fish classified? Give examples under each classification.
-fish is classified according to:
i) Physical structure and composition that is white fish shell fish and oily fish.
ii) water; fresh water and salt water fish, for example, pelagic and dermasal fish
Shape that is, round fish, for example, clarins fish and flat fish.
-White fish: in white fish, oil or fat is stored in the liver only, living the fish white and dry. E.G. tilapia and silver fish.
-oily fish: the oil is distributed throughout the flesh, making it darker and giving it a higher nutritive value. Oily fish are more difficult to digest. E.G. herrings and mackerel.
- Shell fish: they are divided into two that is, crustaceans and molluscs. Examples of crustaceans include crabs, lobsters and shrimps. Molluscs. Shell fish supply protein and fat in extra amount but they are usually indigestible because of their hard protective crust on their surfaces.
b) What points should influence your choice of fresh fish?
- It should have the pleasant fishy smell with no traces of unpleasant odour.
- It should have bright prominent eyes which are not sunken.
The fresh should be firm to the touch and the skin should be scaly and unbroken.
-the gills should be bright red.
- The skin should be moist but not wet.
- The whole fish should be plumb, indicating no loss of muscle tone as yet.
d) What is the nutritive value of fish?
- it has high biological value of proteins, fat in oily form, vitamins A,B, and D. minerals calcium, phosphorus, iodine, fluorine, potassium, sodium and iron.
e) How should fish be store?
- Fish is perishable and should be cooked on the day or few hours after purchase.
- For storage, wrap it in a piece of paper and put it in the fridge away from other odour absorbing foods. For example, milk and eggs.
- In absence of a fridge, sprinkle the fish with lemon juice or vinegar and put it on a plate in a cool dry place.
-never soak fish in water or leave it wrapped in a piece of paper as it will deteriorate.
-fresh fish should not be stored for more than 24 hours in a fridge.
- Left over fish should be used up quickly because of the spores of bacteria that may be present.

Cereals.

23a) what are cereal.
-these are edible seeds or grains of cultivated grasses.
b) Mention five cereals that you know.
-millet, sorghum, wheat, maize, rice, oats to mention but a few.
c) What is the nutritive value of cereals?
-they contain low biological value of proteins, vitamins, carbohydrates, minerals
d) what would influence your choice of cereals?
-good quality cereals,
-buy fresh cereals like maize when they are just plucked from the garden.
-check the expiry date if you are buying packed cereals.
e) What are genetically modified foods?
- It refers to the crop plants created for human and animal consumption using the latest molecular biology techniques.
f) Give three advantages and three disadvantages of genetically modified foods.
Advantages
- They are pest resistance.
- They are herbicide tolerant.
- They are disease resistance.
- It contains additional vitamins and nutrient content.

Disadvantages
- They may cause certain health hazard like cancer.
- Some farmers may not afford to buy seeds for GMO foods.
- They may violate human rights to safe food.

Dietary Fibre.

24) Non starch polysaccharide (NSP) / dietary fibre is not classed as a nutrient but is essential for good health.
(a) Give four benefits of NSP in the body.
- It absorbs water, making faeces soft easier to expel more regularly.
- It stimulates peristalsis,
- It reduces cholesterol,
- It removes toxin in the body.
-It lowers blood glucose levels
- It gives a feeling of fullness
-.it reduces constipation, cancer of colony, diverticular disease, haemorrhoids, and varicose veins.
(b) Name three possible results of a deficiency of NSP in the diet.
-constipation
-diverticular disease
-it leads to small hard faeces which cannot be removed so easily from the anus and extra effort is used to remove them.
(c) Suggest a total of four different ways to increase NSP in the following dishes.
(i) Soup;
- add barley; add vegetables; do not peel vegetables, if appropriate; use pulses;
(ii) Bread;
- add oats / grains / seeds; use whole meal flour.
(iii) Fruit based dessert;
- use whole meal flour; add oats to toppings, such as crumble; use more fruit than the recipe suggests; keep the skins on fruit, if appropriate;
(iii) Meat dish;

- add more vegetables; serve with named high-fibre accompaniment e.g. whole-grain spaghetti;
(iii) a meat dish; add more vegetables; serve with named high-fibre accompaniment e.g. whole-wheat spaghetti add more vegetables; serve with named high-fibre accompaniment e.g. whole wheat spaghetti.

Water

25) List down five function of water in the diet.
- Water is life as over 70% of human body is made up of water
- it is also required for all body fluids like digestive juices, mucus, saliva, blood, sweat, urine ETC.
- It keeps linings of the mucus membranes, digestive tracts and bronchial tubes moist.
-it is also required for many metabolic reactions in the body.
- Nutrients also need to dissolve in water for proper absorption and transportation.
- Water lubricates joints and membranes.

b) What are the sources of water?
- Fruits, vegetables, tap water, mineral water

c) How many litres of water are recommended daily per individual?
- Minimum of two to three litres per day.

d) When does the body require extra water?
- During illness where a raised temperature results in increased sweating.
- If vomiting and or diarrhoea have occurred, both of which can cause rapid dehydration.

- During breastfeeding when extra water is required for milk production.
- After intense physical activity such as sports.

Mineral elements

(26 a) List three functions of salt in the body (sodium chloride)
-it helps to maintain correct composition of body fluids/ water balance./ osmotic diffusion.
-nerve transmission, muscle contraction/ prevention of muscle clamp.
- For regulation of body temperature.

(b) Mention two problems associated with high salt intake.
-too much salt may be retained in the body.
-access salt absorbs water and causes access fluid in the tissue
-causes access thirst
- causes hypertension
- It is also linked to coronary heart disease.

(c)Name three foods which contain high amount of salt.
-beacon, smoked fish, salted fish, cheese, butter, canned vegetable, baked cereals, monosodium glutamate/ flavour enhancer in processed food, preserved meat, potato crisps and salted peanut.

d) List down five elements needed in large amounts and five elements need in smaller amounts
- The minerals needed in large amounts are calcium, phosphorus, iron, potassium, sulphur, chlorine, sodium and magnesium.
- Iodine, fluorine, zinc, copper, and manganese,

e) Give three functions of calcium, its sources and deficiency disease.
-the function of calcium is that it is responsible for the formation and maintenance of strong bones and teeth.

- It also assists in the mechanism which causes the blood to clot after an injury.
- It is required in the correct functioning of muscles and nerves.
-the sources of calcium are milk, cheese, bread, bones canned fish and hard water.
- The deficiency of calcium is poor skeletal growth leading to rickets in children it also leads to adult rickets called osteomalacia.
f) Explain the functions of iron, its sources and deficiency disease.
Iron is necessary for the formation of haemoglobin in the red blood cells. Haemoglobin transport oxygen from the lungs to the body cells for the production of energy.
-the source of iron is liver, kidney, corned beef, cocoa, plain chocolate E. T. C.
g) What are the functions, sources and deficiency of iodine?
- The function of iodine is to make the hormone thyroxin, which helps to control the rate of metabolism in the body.
- Its sources are sea foods, milk, green vegetables, fresh water (depending on the area and iodised salt.
-deficiency of iodine results in slowing down of metabolism and the gland swells up. This swelling can be seen in the neck and is called goitre.
h (i) what is the function of fluoride?
- It is important in strengthening teeth against decay.
(ii) Where is this mineral obtained from and what is its deficiency disease?
-it is found naturally in tea, sea water fish and in some parts of the country in water supplies.
- The deficiency leads to tooth decay.

Meal Planning and Dietary needs

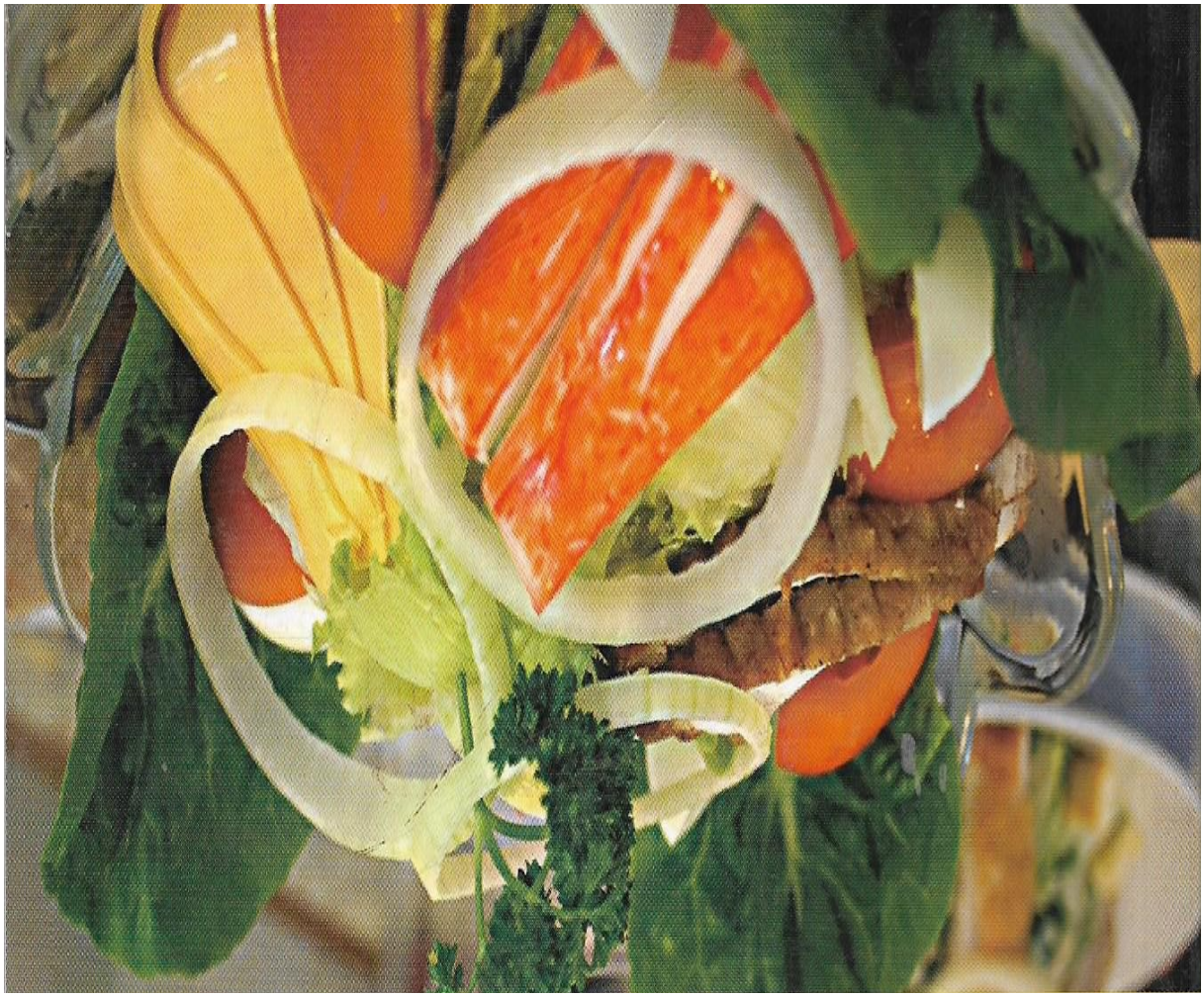
27a) define the following words
i) Menu: a menu is the plan of dishes available for a particular r meal.
ii) Meal: meal is composed of a variety of dishes served at a sitting.
iii) Meal planning: is the advanced planning o menu at different situations like family, restaurants or party, considering the dietary needs of people one is preparing food for.
b) Identify five factors that affect food requirement.
- Occasion of the meal; every day meal will differ from those served on special occasions.

- Health of individuals; the health of individuals will affect the choice of food whereby people with different health problems will have different dietary needs. For example, expectant mothers, obese people.
- Family circumstances such as income, life style and daily routine of members of the family.
-cooking facilities available will also affect food requirement.
- Individual differences, such as traditional culture and religious beliefs can also affect individual food requirement.
- The ability of the cook to prepare that particular meal and interest in the menu.
c) Explain the importance of breast feeding babies from 0 to 6 months.
-breast milk contains all the nutrients needed for the baby to grow
- Human milk contains anti effective factors which limits the growth of harmful pathogenic bacteria and viruses.

- The action of suckling produces hormones in the baby's body that helps the intestines to develop and absorb milk more effectively.
-breast feed babies are less likely to be sensitive to food s or have eczema and asthma.
- Breast feeding fosters a warm affectionate between mother and child relationship.
d) What is meant by complimentary feeding?
-this is the process of adding solid food to baby's diet in order to supplement the milk which the baby has lived on since birth.
28a) what is meant by special diet?
-this is the diet of people who are suffering from certain illnesses, and is laid down by the dietician, to restrict the intake of particular foods.
b) Mention five special diets that you know.
-low salt diet, high fibre diet, gluten free diet, vegetarian diet, weight reducing diets, diets for vegetarian, high protein diet, diet for diabetes ETC.
c) Discuss the rules for reducing cholesterol and how would you feed people with high cholesterol?
Rules for reducing cholesterol.
-reduce intake of high cholesterol foods and saturated diet.
- increase intake of poly unsaturated and use unsaturated when cooking.
-avoid over eating, have low weight if necessary.
-Take up exercise, avoid worry and stress, -give up smoking.
Diet for people with high cholesterol.
-eat plenty of vegetables, fruits, skimmed milk, cottage cheese, vegetable protein other than animal because many are rich in saturated fat. Fish and soya are also good.
29a) who is a vegetarian?
- This is a person who will not consume animal food.
b) vegetarianism is becoming increasingly popular among young people. Give three reasons why people adopt to a vegetarian diet?
-religion; some religion consider eating animals to be unclean or inhuman.
-Health reasons; some people have been advised by doctors not to eat animals due to health reasons.
-economy; some people become vegetarians due to high prices of meat.
- some people have a natural dislike for animals.
c)Mention and explain five types of vegetarians.
- Vegans: (strict vegetarians); exclude all food of animal origin.
-lacto vegetarians: these exclude meat, poultry, fish and eggs but milk and milk products are eaten.
Pesco- vegetarians: these exclude meat and poultry in their diet but they do eat fish, milk, milk products.
Fruitarians: these exclude all foods of animal origin and some plants like pulses and cereals.
d) Suggest meals for vegans:

- Means like vegetable stew like egg plants, carrots and green pepper.
- Salads with nuts and cooked pulses.
- Soups with cereals like barley, rice and sorghum.
- Mixture of sweet potatoes and beans or peas.
- Soy milk used in place of cow's milk for rice pudding and added to soups, vegetable sauces and scones. - Vegetable rice with curry.

e) Suggest foods for lacto ovo vegetarians
- Savoury flans like eggs, cheese, onion, mushroom.
- Vegetable pies with cheese, short crust pastry cheese, scotch eggs.
-Salads with pulses like peas, cheese, eggs, nuts, beans to provide extra protein.
-savoury vegetable crumbs with nuts and seeds in the topping.
-baked jacket potatoes with toppings like chopped vegetables, cooked carrots, eggs, beans, eggplant on mayonnaise.
30) Give the menu for an obese university student.
Main courses
-include a protein such as lean meat, fish, poultry, groundnuts to avoid a temptation of having a mid-snack.
Eat offal like liver, kidney once a week for iron.
-trim visible fat from meat and grill, roast or stew or casserole, avoid frying.
Raw vegetables and fruits should be eaten daily as well as 1to 2 portions of cooked vegetables.
-take skimmed milk and milk products.
- A slice of bread or 1bread rolls daily; accept on very strict diet, or a small potato or a small portion of rice or pasta.
- one cup of unsweetened tea or coffee after each meal.
32a) what is diabetes mellitus?
-this is a condition or disease in which there is more sugar in the blood than what can be used due to the breakdown of insulin production in the pancreas.
b) Which foods would you recommend a person with diabetic mellitus to eat?
- a small portion of whole meal cereals.
- Fatty foods should be avoided.
- eat plenty of fruits and vegetables.
- Grilling or roasting methods are recommended



GRADE 11 FOOD & NUTRITION

1. List various methods of cooking.

   Answer: Moist method, dry method and combination method of cooking.

2. Mention four moist methods of cooking.

   Answer:

   - Par Boiling
   - Boiling
   - Stewing
   - Poaching
   - Simmering
   - Pressure cooking

   Dry Methods of cooking

   - Baking
   - Roasting
   - Grilling
   - Frying

   Combination Methods

   - Microwave
   - Brazing

3. Give reason why food is cooked.
   - To make food safe to eat
   - To make the food easier to eat and digest
   - To improve the appearance of the food
   - To develop flavour and to add the flavour
4. Identify three different ways of heat transfer during the cooking process.
   - Conduction
   - Convection
   - Radiation
5. Give 2 examples of the heat transfer for the following:
   - Conduction e.g. Boiling and Par Boiling
   - Convection e.g. Steaming and Stewing
   - Radiation e.g. Roasting and Grilling
6. Name two ways of steaming.
   - By conduction e.g. Direct Steaming
   - By convection e.g. Indirect Steaming
7. List down four points to consider when steaming.
   - Water must be boiling before the food is placed over it so that the steam is available.
   - The lid must fit tightly and a steamer must fit in the pan to prevent steam from escaping
   - The surface of the food must be protected from becoming soapy.

- No green vegetables should be steamed because the colour can be easily lost.

8. What is the difference between boiling and stewing? Give at least four points.

   Answer:

   - Boiling is cooking of food by immersing it in boiling liquid and keeping it at simmering point until tender while stewing is a slow cooking method where food is placed in a small amount of liquid which is allowed to simmer.
   - In boiling food is totally immersed in liquid at 100^0c while in stewing the food is cooked in a container with a tight fitting lid at 82^0c.
   - In boiling water used should just be enough to cover the food so that there is minimum loss of food value, while in stewing only sufficient liquid to cover the food is required.
   - In boiling the stock (water in which the food has been boiled) for gravies, soup and sauces should be used while in stewing seasonings and flavours are added to the cooking liquid which is thickened with starch to enhance the sauce.

9. Give two suitable foods which can be cooked by boiling and stewing

   Answer:

   - Boiling – Fresh meat, Chicken , Beef , Dried Cereals
   - Stewing – Beef, Poultry , Fish , Fruits e.t.c

10. Pressure cooker are designed to cook any food that is suitable for boiling, stewing and steaming

    a. Briefly explain the principle behind pressure cooking

       Answer:

       - In pressure cooking, food is cooked with direct contact with steam, and it is at a high pressure that the temperature is increased up to 120^0c and the cooking time reduces. The increase in pressure is brought about by the weights that contribute to the heaviness of the lid and the control value which allows steam to escape through the vent.

    b. Mention the main parts of a pressure cooker

       Answer

       - Safely valve
       - Control valve
       - Vent pine
       - Pressure gauge /weight
       - Rubber seal
       - Thick locking lid
       - Handle
       - Trivet
       - Lock pin /air vent

    c. Give five advantages of pressure cooking

       Answer:

- Economical on fuel
- Meals can be prepared quickly
- Most nutrients are not lost because of fast cooking
- Whole meals can be cooked in one pan at the same time
- Tough cuts of meal and hand types of food can be quickly cooked and tenderised

11. Explain effects of heat on nutrients
    Answer:
    Food can lose its nutrients value in the process of cooking if correct methods of preparation and storage of food is not observed. Changes in shape, texture, colour and flavour of food many occur when heat is applied to cad these nutrients.
12. Explain the effects of heat on proteins
    Answer
    - Proteins coagulate and usually shrink when exposed to heat. This shrinkage makes the elastic fibres to contract. It may harden or a skin may form as in milk the protein becomes indigestible.
    - In meat, connective tissues change to gelatine and extractives are released making it more digestible.
    - If over cooked, most protein become tough and indigestible
    - Protein become denatured
    - Protein burn form carbon
13. Explain the effects of heat on vitamins
    Answer:
    - There may be loss of green colour
    - Overcooking causes vegetables and fruits to disintegrate and lose flavour
    - About 50% of vitamin C and D are destroyed
    - There is loss of colour, Flavour, and texture particular only when overcooked
14. Describe economical tips in food preparation.
    Answer:
    - This involves the economy of labour, food, time, equipment, fuel and money in food preparation
15. Explain how to economise fuel
    Answer:
    - Prepare many dishes once or using one source of heat
    - Choose economical methods of cooking
    - Pan should be large enough to make full use of fuel
    - Residual heat should be used to keep food warm
    - Use the suitable equipment
16. Explain how to economise equipment in food preparation.
    Answer:
    - Make use of dishes where cooking and serving can be done in the same vessel for example casseroles, Pyrex dishes

- Use each equipment for its own purpose
- Encourage traditional dishes which are served in leaves that are later disposed of
- Frequent washing up should be done than piling many things

17. Explain how to economise food and money in food preparation.
    Answer:
    - Buy foods in season when they are cheaper
    - Make use of food leftovers
    - Avoid cooking excess foods
    - Make a budget for weekly shopping and do it at least once
    - Make use of old supplies of food before the new ones
18. Explain the effects of fuel on the environment
    Answer:
    - Fuels produce smoke which dirten the environment like buildings, walls and ceiling
    - Fuels produce fumes which cause pollution in the air that affects water bodies, plants and animals making their utilisation harmful to hum body.
    - It causes headaches and dizziness to people when they breath in fumes

19. Explain the classes of sauces
    Answer:
    - Sauces can be classified according to the method of making a particular , that is :
        1. Pouring: At a boiling point, should just glare the back of a wooden or plastic spoon, and should flow freely when poured.
        2. Coating : A coating sauce at boiling point should coat the back of a wooden or plastic spoon, and should be used as soon as it is ready, to ensure even coating over the food.
        3. Binding (panada): This should be thick enough to bind why ingredients together, so that they can be handles easily to be handled easily to be formed into rissoles, cakes etc.
20. Mention the types of sauces
    Answer:
    - Roux sauces (white and brown)
    - Simple blended sauces
    - Cooked egg sauces
21. Mention three classes of soups
    Answer:
    - Clear soups e.g. both vegetable soup
    - Thick soups e.g. cream soups, purees soups
    - Special soups e.g. cold soup
22. Explain the classes and types of stocks

Answer:

- Stocks are well flavoured liquid which is obtained by summering a food in water for some time in order to extract flavour from it. Stock have little value of food on their own, and are mainly used as the bases of soups, sauces and gravies.

23. Types of stocks

Answer:

- Bones from meat, fish and poultry
- Vegetables and vegetable liquids
- Meat, poultry and giblets

24. Classes of gravy

Answer:

- Simple pan gravy or reduction sauce
- Thickened gravy

25. Types of gravies

Answer:

- Chocolate gravy
- Egg gravy
- Mushroom gravy
- Onion gravy vegetable gravy
- Cream gravy
- Brown gravy

FLOUR MIXTURES

26. . Describe type of flour

Answer:

- White meal flour
- Whole wheat flour
- Brown flour
- Cassava flour
- Sweet potatoes flour
- Plain flour
- White meal flour: This wheat – based flour is rich in protein. Once mixed with liquids, the protein will turn to gluten, which will thicken the dough.
- Whole wheat flour: Is wheat flour which is rough and is consider un refined containing the entire wheat Kernel. (It contains 100% of wheat grain). It s rich in fibre as well as important nutrients like Potassium, Magnesium and Selenium.
- Brown flour: is made by milling unpolished brown wheat which still contains both the bran and germ. Brown cereals flour is richer but rougher than white flour.
- Cassava flour: is made from the root of the cassava plant. In a purified form (pure starch) is sued to make breads,

pancakes, nshima and a savoury porridge called fulfil in Africa and it is used as a starch in laundry.

- Sweet potatoes flour: it is potato powder of dried and ground potato flakes using the whole potato and this containing the protein and some of the fibres of the potato, having an off – white slight yellowish colour.
- Plain flour: Plain flour has a moderate amount of protein, once mixed with liquids the protein will turn to gluten that will yield tougher dough.

❖ Faults in flour mixtures

Common faults and their cases in pastry making.

Hard and tough pastry:

Answers

- Too little fat
- Mixing in a warm area
- Too much water
- Slow cooking
- Over kneading or heavy rolling

Too short and crumbly pastry

- Too much fat
- Too little water

Faults in bread making

- Loaf too small

Answer

Dough too stiff because too much flour used during mixing or kneading.

- Too much salt
- Not enough yeast or starter
- Too short time to rise
- Oven temperature too high

Faults in cake making

Cake rise to a peak and cracked

Answer

This happens when the heat in the oven is too hot, or when the cake is placed to high in the oven

Open and coarse texture

Answer

This happens because of four reasons

- Too much baking powder
- Wrong portion of fat or sugar
- The flour to the liquid, insufficient creaming
- The heat in the oven was too much

Curdled mixture

Answer

- Too much baking powder

- The cake cooked slowly

Heavy and closed texture

This happens for several reasons:

Answer

- Insufficient creaming of fat and sugar or during the adding of eggs
- Insufficient raising agent used
- Too much liquid
- Low heat from the oven
- Insufficient cooking

27. List advantages of flour and disadvantages of flour.

Answer:

- Flour (whole wheat) is a full – flavoured flour containing vitamins, minerals and protein
- Flour based dishes are a good source of carbohydrates which are energy giving foods to the body.
- Some types of flour like white flour have good baking qualities producing a fine texture in cakes bread and pastry.
- Flour especially whole meal flour is a good source of calcium iron fibre and other minerals like selenium

Answer:

- White flour contains less calcium, iron , proteins and vitamins
- Flour can get weevils, if kept for a long time in a damp place.
- Some people are allergic to wheat or do not digest it well, otherwise whole wheat is safe
- Over consumption of highly processed flour foods may lead to constipation because they lack the fibre

28. Make dishes from different types of flour mixtures

Answer:

Mixture for Cakes
- Queen cakes
- Cup cake

Mixtures of Scones
- Cassava scones

Mixtures for Pastry
- Meat Samosas
- Sausage rolls

Mixtures for Biscuits
- Short bread biscuits
- Plain biscuits

Mixture for Cookies
- Cookies

Mixture for Bread
- Bread rolls

29. Cheese making is a method of preserving nutrients in milk.
    a. What is processed cheese - is cheese that is made by thoroughly mixing cheddar and other cheeses.
    b. Explain the storage of cheese in a home
       Answer:

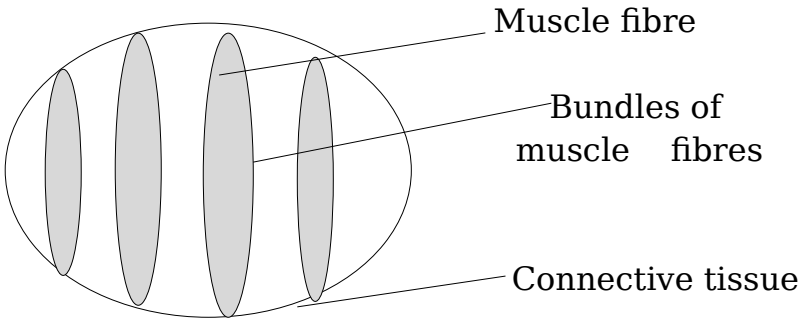
- Hard cheese should be wrapped in foil or plastic to prevent them from drying out, and then stored in a cool place
- Lightly pressed cheeses have a shorter storage life than hard cheese. They should be stored in a similar way
- Acid curd cheeses and cream cheeses should be eaten within a few days of purchases
- Hard cheese can be frozen

c. Briefly describe the importance of cheese in the diet cheese is a relatively concentrated source of protein and an important source of calcium, retinol (vitamin A) and riboflavin

d. How is cheese used in food preparation as a garnish for soups, meat sauces coin flour cheese etc. Grated on salads, meats dishes also for making cheese cakes, short crust pastry.

30.

a. Label the diagram below which shows the structure of meat.



b. List the nutrients found in meat
- Proteins
- Vitamins fat soluble
- Minerals

c. Name two methods of cooking suitable for the following cuts of meat and justify your answer.
- Shin-stew, braise
- Sirlon-roast as steak-grill, fry, barbecue

d. Describe changes which take place when meat is cooked.
Answer:
The protein of meat denatures, at the temperature of 40^0c to 65^0c.As the protein denatures, the structure of the meat tightens and the meat becomes firmer.

e. What advice would you give a friend on the storage of fresh meat?
- Should be kept in cold places

31.

a. Write five function of sauces
- To enhance the flavour of the food which it accompanies
- To provide a contrasting textile to solid foods e.g. poultry or fish

- To build ingredients together for dishes such as fish cakes
- To add colour to a dish e.g. jam sauce with a steamed sponge pudding.

b.

(i) List three classifications of sauces.

Pouring, coating, building (panada)

(ii) Describe two of the sauces listed in b (i) above

- A pouring sauce, at boiling point, should just glaze the back of a wooden or plastic spoon and should flow freely when pored.
- A coating sauce, at boiling point, should coat the back of a wooden or plastic spoon, and should be used as soon as it is ready, to ensure even coating over the

c. Give five characteristics of a good white sauce.

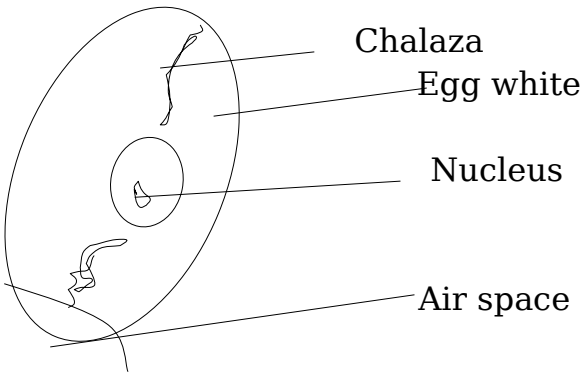
32. Cheese is one of the milk products.

a. List four nutrients found in cheese
   - Protein, calcium, vitamin A and riboflavin

b. Name two varieties of:
   (i) Soft cheese- Lancashire
   (ii) Hard cheese- cheddar, derby, Cheshire

c. Explain what happens at each of the following stages during cheese productions
   (i) Culturing of milk-a special bacteria is added to the milk to convert the lactose to lactic acid. The lactic helps to pressure cheese.
   (ii) Renneting- the milk is heated to 30oc and the enzyme rennin, in the form of rennet, is added to make the milk dot (set). The caseinogens with the acid and rennet.

33. Draw the structure of an egg and label the following parts.



34. Illustrate how you can test an egg for freshness using brine.
   - Eggs can be checked for freshness in the home by placing them in a jug of brine (2tbsp salt dissolved in 575 ml water) if the egg sinks it is fresh. If it floats on the surface, it is stale because the air space has enlarged and water has evaporated.

35. List five uses of eggs in food preparation.
    - Thickening
    - Cake making
    - Binding
    - Coating
    - Glazing
    - Garnishing

36. Explain the effect of heat on nutrients

Carbohydrate

Answer:

- Sugar: Dry heat: Sugar first melts, then caramelizes and finally burns, leaving a black residue.
- Wet heat: Sugar: First dissolves, then becomes a syrup which caramelizes and finally burns when the water has evaporated.

Starch

- Dry heat: Starch changes to dextrin
- Wet heat: Starch grains first soften, and then absorb water and swell, causing some to ruptune. The starch then dissolves to form a paste.

Proteins

Answer:

- When proteins are heated, their chemical structure is denatured (changed) . This is a permanent alternation and cannot be reversed. As heating continues, proteins coagulate (set) and generally becomes less soluble if overheated, they become less digestible e.g.
- Milk: Boiling or baking lactalbumin and lactoglobulm coagulate gradually as milk is heated and form a skin on the surface.
- Cheese (Dry heat) Protein coagulates rapidly to a rubbery texture and finally to a crisp and less digestible state.
- Egg white: (Dry or moist heat) at 60^0c coagulation starts when ovalbumin denatures into a solid and continues until the whole while is solid and opaque.
- Meat: (Dry or moist heat) collagen and elastic molecules start to coagulate at 60^0c contracting as they do so and causing the meal to shrink. Under 100^0c coagulation is slow, over 100^0c coagulation is rapid and the protein becomes hard and less digestible. In the presence of moisture, collagen is converted into the protein gelatine, which soluble.

Raising Agents

37. Identify different types of raising agents.

The different types of raising agents are:

- Mechanical Raising Agents

Sieving-Creaming
Whisking
Folding and Rolling
Rubbing in mixtures.

- <u>Chemical Raising</u>
  Baking Powder
  Yeast
  Bicarbonate of Soda

38. Define a raising agent.
    - A raising agent is a substance which makes floor mixtures rise and have a pleasant texture.
39. What is the principle behind raising agents
    - The principle behind raising agents is that gases expand when heated and can raise a mixture in the process.
40. Explain the importance of east as a raising agent
    - Yeast is important as a raising agent because it is able to produce carbon dioxide (gas) and alcohol in a series of chemical reactions (known as fermentation).
41. Describe problems encountered in the use of raising agents
    - <u>Faults in cake making</u>
      Curdling of uncooked cake mixture
      Cause:
      If the egg is very cold, it cools the fat. The fat globules become surrounded by water from the egg; therefore it is very difficult for the egg York to emulsify the fat. The mixture will hold less air and the cake will be very close-textured. A mixture may also curdle if too much egg is added at once.
    - <u>Cake has sunk in the middle</u>
      Cause:
      Too much sugar or syrup causing the gluten to be over-softened so that it collapses
      Too much raising agent, causing the gluten to over stretch and collapse
      Undercooking, caused by the wrong temperature or cooking time
      Opening the oven door before the gluten has set, so that the heavy cold air makes it sink
    - <u>Cake has risen to peak and is crushed</u>
      Cause:
      The oven temperature is too high, causing the mixture to rise rapidly, then overcooked
      Too much mixture for the size of the baking tin
      Placing the cake too high in the oven
    - <u>Cake has a heavy texture</u>
      Cause:
      Too much liquid in the mixture

Too little raising agent used, or incorporated during creaming or whisking.
The mixture has curdled and does not hold sufficient air
The oven temperature is too low, or the cake has not been cooked for long enough.
Over beating when adding flour, causing loss of air
Over beating after adding a liquid

- Cake has a coarse, open texture.
  Cause:
  Too much raising agent has been used causing large pockets of gas to be produced
  The flour has not been mixed sufficiently
- Cake has risen unevenly
  Cause:
  The oven shelf is not levelled, which may be due to the floor on which it stands
  The cake mixture was placed very near to the source of heat, which causes it to rise quickly on one side.
- Cake has a hard sugary crust
  Cause:
  The sugar is too coarse for the mixture and does not dissolve in time.
  Too much sugar has been used

- Cake is badly shaped
  Cause:
  The tin has been badly lined or filled with mixture
  The mixture is too stiff and does not even out when baked, or is too wet and has spread out much.
- Cake is dry
  Cause:
  Too much chemical raising agent has been used
  Too little liquid has been used
  Cake has been overcooked
- Fruit sunk in fruit cake
  Cause:
  The mixture is too wet and the heavy fruit cannot be held evenly throughout.
  The fruit is wet and therefore adds too much liquid to cake mixture
  Too much sugar or raising agent has been used, causing the structure to collapse and the fruit to sink.

YEAST MIXTURES; BREAD FAULTS

- Loaf is small and dense
  Cause:
  Insufficient fermentation and proving
  Insufficient liquid resulting in dough which is too stiff to allow expansion
  Inactive yeast, which has not produced enough CO_2 gas
- Loaf has not risen well, and is hard and coarse in texture
  Cause:

The dough has been over-fermented. Too much pressure from CO_2 gas causes gas pockets to break down which leaves large, uneven, holes in the baked dough.
Yeast was killed before the loaf was baked.

42. What is the best raising agent for each of the following
    a) Scones
        - Bicarbonate of soda and baking powder
    b) Ginger bread
        - Bicarbonate of soda
    c) Bread
        - Yeast
    d) Yorkshare pudding
        - Steam

HYGIENIC PRACTICES

Hygienic practices in food preparation is very important

43. Define food hygiene.
    - This is the hygienic handling and preparation of food in relation to personal hygiene in order to prevent food contamination and poisoning

44. Explain food spoilage, contamination and their causes
    - <u>Food Spoilage</u>
      This is the deterioration of food by action of micro-organisms which leads to food spoilage
      Food spoilage is caused by two main factors;
      i. Natural decay within the food itself
      ii. Contamination by microscopic forms of life
    - <u>Contamination</u>
      This is the spoilage of food by, to the action of micro-organisms e.g either by
      i. Bacteria
      ii. Moulds
      iii. Yeast

45. Describe and give examples of refuse
    - Refuse are unwanted by-products of various human activities which can be solid, liquid, or gaseous in nature.

46. Identify the methods of waste disposal
    - Burying
    - Burning
    - Composite pill
    - Recycling

FOOD PRESERVATION

47. Describe food preservation
    - Food preserved to prevent natural and microbial decay by modifying the conditions that favour enzyme activity and the growth of micro-organisms.

48. State reasons for preserving food
    - To add variety to the diet, by making food available out of season

- To make use of food when it is cheap and plentiful and to store it for later use
- To vary the diet by preserving food in ways that make a new product out of the food (e.g. pickling, jam making)

49. Demonstrate the ability of preserving a variety of foods using the different methods of preservation
    - Heating
    - Radiation
    - Addition of chemicals

CONVENIENCE FOODS

50. Describe convenience foods.
    - Convenience foods are foods that are processed and partly of totally prepared by the manufacturer, so that they are either ready to eat, or require minimal preparation by the consumer.

51. Identify four different convenience foods.
    - Dehydrate
    - Ready to eat
    - Canned
    - Frozen
    - Cook-chill foods
    - Ready-prepared meals

52. State four reasons why convenience food have become increasingly popular in recent years.
    - Less leisure time being spent in food preparation
    - More women going out to work and so having less time to prepare food
    - Advances in food technology
    - Increased freezer ownership (so people can store ready-prepared foods at home).
    - The influence of advertising a peoples food habits.

53. Explain the importance of buying foods packed in environmentally friendly materials.
    - For hygienic storages and transport
    - To protect it from damage during storage and transport
    - To give information to customers
    - To attract customers
    - For customers convenience

54. Explain the advantages and disadvantages of convenience foods.
    - <u>Advantages of convenience foods</u>
        - Convenience foods are quick and easy to prepare and save time and fuel
        - They are easy to store and useful for taking on holiday
        - They can be kept for emergencies
        - A wide variety is available

- There is usually little waste, they often have extra nutrients added

- Disadvantages of convenience foods
  - They may be more expensive than fresh foods
  - Too many processed and refined foods in the diet may limit the intake of NSP
  - Servings in convenience meals may not be adequate, making it necessary to buy extra, which detects the object
  - Nutrients may be lost during processing and not replaced
  - They may have high levels of fat and sugar

55. Despite convenience foods being popular. State five reasons why people are being discouraged from eating them.
    - Convenience foods are not as nutritious as fresh foods
    - There is no substitute for fresh foods in terms of flavour, texture and appeal
    - They may have high levels of fat and sugar which is not good for health
    - Too many processed and refined foods can cause constipation
    - They may be expensive that fresh foods

HERBS AND SPICES

56. Distinguish herbs from spices
    - Herbs refer to any green or leafy part of a plant used for seasoning and flavouring of food
    - While spices are anything used to season or flavour a dish for instance dried bark, roof, berry seed or twig
57. Give two examples of herbs and two examples of spices
    - Herbs
      1. Rosemary
      2. Parsley
    - Spices
      1. Cinnamon
      2. Ginger
58. State how herbs and spices are used in cookery
    - Herbs and spices are used to enhance the flavour in food e.g. black, white and green paper, meats, eggs and poultry.
    - Herbs and spices are used to garnish, stew, salads, fish, meat and vegetables
    - Processed food and refined foods (convenience foods lack nutrients)
    - Convenience foods lack nutrients such as vitamin B and C
    - Convenience foods have high levels of fat , salt and sugar
    - Convenience foods have an interior taste to that of fresh foods
    - Foods are expensive

FOOD ALLERGIES

59. Describe food allergies

- Food allergy is when the body's immune system reacts abnormally to specific food. Allergic reactions are often mild but they can sometimes be very serious

60. Give three examples of symptoms and signs that may occur if a person has a food allergy.
    - An itchy sensation inside the mouth, throat, or ears.
    - Raised itch red skin, rash (this condition is called urticaria or hives)
    - Swelling of the face around eyes, lips, tongue and the roof of the mouth (this condition is called angiodema)
61. Define Genetically Modified Organisms (GMOs)
    - Genetically Modified Organisms can be defined as organisms (i.e. plants, animals or micro-organisms) in which the genetic material (DNA) has been altered in a way that does not occur naturally by mating and or natural recombination.
    - It refers to crop plants created for human or animal consumptions using the latest molecular biological techniques.
62. Explain the use of food additives
    - Food additives are used to give a smooth and consistent texture to food
    - Food additives improve or preserve the nutrient value
    - Food additives are used to maintain the awesomeness of food
    - Food additives are used to control the acid-base balance of food and provide leavening.
    - Food additives provide colour and enhance the flavour of foods.
    - Additives enhance the flavours, colour and texture enhance.

GRADE 12 SYLLABUS FOOD AND NUTRITION



GRADE12 Food Presentation

1. Describe presentation of food

   Food presentation is the visual impression of serving food and the surrounding in which it is eaten

   - In order for the food to be appreciated and enjoyed the appetite must be stimulated before a meal.
   - When this occurs digestive juices are produced so that the body is ready to receive the food when it is eaten.

- Usually appetite stimulation is influenced by the body senses: sight, smell. Touch and taste.
- Colour, design and decoration are important consideration.

Colour:

- There is a wide variety of natural colour in different foods and a meal should contain as many variations as possible to make it attractive and interesting.
- Enhance the colour of food by the use of garnishes and decorations.
- The colour of environment, the food will be eaten from should be comfortable, warm and conducive to holding a conversation while eating.
- The table should be neatly arranged, with appropriate cutlery and decorations, 'finishing off a dish by garnishing or decorating adds to the visual impact and attractiveness of the food.

2. Identify Methods of decorating and garnishing food.
   - Food can be decorated and garnished in many ways.
   - The garnish and decoration should add colour, flavour and texture to the food and it should be edible,

Food can be garnished using the following

a) Tomatoes

- Can be cut into rings
- Can be cut into segments
- Can make waterlilles by cutting the tomatoes to the centre core with a sharp knife and separate halves.

b) Cucumber

- Peel cucumber, square flesh with fork and slice thinly
- Cut a thin slice almost halfway and twist
- Cut slices into flour and use wedges
- The skin can be removed or left on the for extra colour

c) Parsley:

- It can be used chopped, or in spring
- Almost dry parsley can be used to sprinkle on savoury foods

d) Lettuce

- Can be used as whole leaves or shredded

e) Vegetables

- can be served dried, grated(e.g. Carrots, mushrooms, beetroot, pepper, celery) in strips or in balls.

f) Radishes

- Cut into thin slices almost to base, leave in cold water to open out and make a flower
- Cut downwards. Leave to soak in water

g) Boiled egg

- Overlapping slices

- The white can be chopped and York (sieved)

h) Bread

- Use fried or toasted and cut into various shapes

i) Lemon

- Wedges and twists can be prepared in the same way as cucumber

j) Cheese: You can use grated cheese

Sweet foods can also be decorated using different methods

a) Chocolate

- Grate, flake, melt and cut into shapes when cold or croquet(spread a thin layer of melted chocolate on a flat surface, allow to set , draw a long bladed knife across it at an angle, to shave off long, thin scrolls of chocolate)

b) Icings: There are different types of icing which can be used to decorate food

- Grace icing
- Royal icing
- Butter icing
- Fondant
- These can be piped in various designs

c) Marzipan

- Add colour and make into different shapes e.g., fruit, flower animals

d) Fruits

- Use fresh, dried or crystallise

e) Jelly

- chop or use as a glaze

f)Nut

- Use chopped ,chopped and coloured, flaked, toasted, halved or whole

g) Sugar

- Dredge in icing or caster sugar or use sugar strands, coloured sugar crystal or crushed caramel

h) Cream

- use double or whipping cream, whooped and piped

3. Identify styles of meal service

a) Modern American Pleated Service

- This requires fewer and less extensively-trained service staff members. The food is completely prepared, portioned, plated, and garnished in the kitchen.

b) Booth Service

- All customers are served from a single focal point or serving point.

c) Banquette Service

- Customers are seated facing the server with their backs against the wall.

d) Family-Style Service

- Customers serve themselves and pass the food around the table. This creates an atmosphere of eating dinner at home. Advantage is that customers may choose their own portion sizes.

e) Classical French Service

- The most elaborate and elegant style of service. Some foods are fully or partially prepared tableside in full view of the customer. More time consuming and labour intensive.

e) Russian Service

- The elegant, formal service that is used internationally. This is ideal for banquets where everyone is eating the same meal. Each course is completely prepared, cooked, portioned, and garnished in the kitchen and then placed on a service plate or platters.

g) Butler Service

- Server carries the prepared food on a silver tray to standing or seated customers. Customers serve themselves from the trays.

h) Buffet Service

- Used in casual restaurants and larger gatherings.eg. family or church events
- All the food is attractively displayed on a table for the customers to see. Customers go to the buffet, choose what they want, and serve themselves.

i) Cafeteria style

- This type of meal in service is commonly found in school settings.
- Students are served the food components of their meal by the food service staff as they proceed down the serving line.

j) Combination style meal service

- This type of meal service combines pre-plated and family style meal services
- It can be used when certain food items cannot be easily or safely passed in common serving dishes from one person to another when using the family style meal service

3. Describe ways of serving meals for different occasions.

- Meals can be served in different ways depending on the occasion.
- Meals can be served formally, informally, and traditionally formal serving of meals.
- This type of serving meals requires more planning, detailed preparation and elaborates tableware than any of the other styles.
- Foods are serviced from the kitchen and require adequate waiter or waitress service.
- All courses are served with the plates being removed after each course and there are about 6 courses in the meal.
- It is usually used in hotels/ restaurants dinners and luncheon examples are luncheons or contracted type of meal service.
- Informal serving of meals
- This type of serving of meals in usually used in the home setup.
- It does not require the serves of a waiter.
- At an informal setting, fewer utensils are used and serving, dishes and placed on the table.
- Often, in less formal settings, the napkin and cutlery may be held together in a single bundle by a napkin ring.

Traditional

In a traditional set up, people do not necessary use folks and spoons. They wash hands and use them to dig into the food.

- Food is placed in the middle of the table and the accompanying sauce in front of the diner (one going to eat)
- The drink is placed to the left of the dinner.

- In the traditional set up, there is no clear pattern of where things will be placed.

CONSUMER EDUCATION

4. Identify organisation that protect the consumer
   - Government agency
   - ZABS (Zambia bureau of standards)
   - Consumer and consumer protection agency
   - Human rights commission
   - Ministry of health-public health

5. Describe consumer rights and methods of redress
   - The right to satisfaction of basic needs

To have access to basic essential goods and services, adequate food, clothing, shelter, health care, education, public utilities, water and sanitation.

This means that every government should ensure that even the poorest of the poor access these basic needs

- The right to safety: to be protected against products, production processes and services which are hazardous to health or life,
- Governments must ensure that they adopt or encourage the adaptation of appropriate measures including legal systems, safety regulations, national or international; standards voluntary standards and maintenance of safety records to ensure that products are safe for either interested or normally foreseeable use.
- In Zambia, this has been addressed through 52(1) of the Act which states “a person or an enterprise shall not sell any goods to consumers unless the goods conform to the mandatory safety standard for the class of goods set by the Zambia Bureau of Standards or another relevant Competent body”
- The right to be informed: to be given the facts needed to make informed choice and to be protected against dishonest or misleading advertising and labelling. For example, under the competition and consumer protection Act no.24 of 2010,it is an offence to engage in conduct that is likely to mislead the public that goods are of a particular origin, standard, quality, value, grade, composition, performance, style or model or have a particular history or previous use(section47)
- The right to choose: to be able to select from a range of products and services offered at competitive prices with an assurance of satisfactory quality.
- The right to be heard: to have consumer interests represented in the making and execution of government policy and in the development of products and services.
- The right to redress: to receive a fair settlement of just claims, including compensation for misrepresentation, shoddy goods or unsatisfactory.
- The right to consumer education: to acquire knowledge and skills needed to make informed, confident choices about goods and services, while being aware of basic consumer rights and responsibilities and how to act on them.

- The right to health environment: to live and work in an environment which is non –threatening to the well being of present and future generations.

The following are the methods of Redress

- There are four ways in which a consumer can lodge in a complaint with the competition and consumer protection commission.
- Physical visit to commissions offices
- Phoning or faxing the commission
- E-mailing
- Electronic complaint through the website
- However when making a complaint the consumer should note that to facilitate the complaint process there should be evidence of purchase from the trader or seller e.g. Receipt or other evidence linking a particular trader or seller to the item purchased

6. Explain the role of advertisements to the consumer
   - The point of advert is to make consumers buy things
   - To give certain information on the product to the consumer to help them make a choice from a range of products.
   - Advertising convinces a consumer that one product is 'better' than the other.
7. Importance of shopping
   - It is important to shop economically and carefully so that:

   - It will help you plan weekly, monthly or daily before going out and as you shop it is important to stick to the plan as far as possible.

Shopping helps in looking for competitive prices, special offers and multi-buy saving.

- It helps in looking for good quality food that is a good value for money. Some retailers have an economy range of essential good items sold in simple packaging. These are cheap but the quality of ingredients may be not be so high'
- It helps buy only the amount that is required for particular meals, unless the extra food is to be used up on another occasion.

It helps compare prices per unit weight, volume, pectin or pack to get the best value.

8. Describe product labelling
   - Product labelling is important as most goods are hidden away inside packets, tins and content.
   - Products labels are meant to give identify to the products. These are important for consumers to a make informed decisions and people have a right to know what is in the food they are eating and that the food is safe. 'Product labels should include
   - Name of the product, the name must be shown and must not mislead the customer
   - The ingredients: labels an pre-packed food must show a complete list of ingredients in describing order of weight(heaviest first
   - The instruction for the use must be shown if it is not obvious what to do

- The date mark under the 1983 regulation date marking became compulsory for most foods
- Some of the exception is frozen foods, fresh bread and cakes, fresh fruit and vegetables, sugar and food which will last over 18 months.
- The date mark is usually in the form of ‘best before’ followed by the day, month and year.
- The food should stay in peak condition of flavour, crispness and so up to the date shown.
- Perishable foods like cream, or yoghurt, which should be eaten within a few days or weeks of packaging, have a ‘sell by’ date instead.
- The label also has a use by date after which is illegal to sell it,

It also tells you how you should store the food if it is to keep fresh for that time.

- Sometimes you will see food past its ‘best before’ date being sold cheaply in shops. This is not illegal provided the food is fit for consumption and the consumer realises what is being offered.

i) Storage instructions are important if the date marks are to apply. For example, if you keep a package of butter in a warm kitchen when is should be stored in the fridge, you cannot expect it to keep fresh for the recommended time.

ii) Not quantity that is the quantity without packaging.

- This must be shown by weight or by volume of the can or packet.

iii) Name and address of the manufacture or packet of food must be shown because they are responsible for original condition of the food.

iv) Place of origin should be shown if it is not what the buyer might have expected.

v) Special claims- some foods claim to be suitable for slimmer, babies, or diabetes, or to contain extra amount of vitamins or minerals.

- Any claims like this must be backed up with clear factual information on the label.
- Some foods some exempt from these regulations and have their own rules, including honey, hen’s eggs, sugar, chocolate and coffee.

9. Describe meat analogue

- There have been many attempts to manufacture foods that are rich in protein as alternative meat. For various reasons:

i) Meat is expensive to produce and has risen in price over recent years due to a shortage of good posture land on which to rear animals.

ii) In countries where there is a shortage of food (particularly protein –rich food), there is an urgent need for new protein food to be manufactured especially for babies and young children who suffer the most under conditions of famine.

- Cheaper feeds for animals are required as meat is in high demand in many countries. Several different raw materials have been used for the preparation of new protein foods including micro-organisms bacteria, yeast, algae, and plankton.
- Plant-seeds, legumes, cereals .seaweed.

- Micro-organisms can be made to grow on industrial or agricultural waste materials (e.g. paper, wood, cotton, sugar-refining waste) and the production of protein(yeast, algae, and plastein on are slightly efficient)
- Protein products from micro-organisms e.g. the mycoproteinquorn, are useful for vegetarian.
- Quorn is sold s chucks or mince and can be stir-fried or used in casseroles, bolognaise.
- It is also available in ready meals, sausages, burgers and oven bake fuels. It is more expensive than some meals.
- Plants-seeds and legumes (pulses) can be used to produce protein-rich food.
- The main types used are soya bean, sunflower, seed, groundnut and sesame seed.
- Soya is one of the most important sources of HBV plant protein.

Soya bean were originally grown for the oil industry but it was discovered that once the oil was extracted, the residues contained up to 50% protein and could be made into flowers or flakes for various uses.

10. Identify alternative sources of food for meat analogue
    - Plants-seeds and legumes(pulse)
    - The main types used are soya bean, sunflower, seed, groundnut and sesame seed.
    - The flakes for residue can be refined and concentrated so that they can contain up to 70% protein.
    - The extracted protein can be textured and flavoured to reasonable meal.(textured vegetable protein). This can be shaped into ‘meat’ cubes or minced granules and used as meat substitute in a variety of dishes.
    - Soya beans and sausage mixes and soya flour can be used in baking in place of eggs.

Soya sauce and soya bean pasta are made from fermented soya beans and are both high in salt.

- Soya milk is a substitute for cow’s milk but needs to be fortified with vitamins and minerals.

Soya desserts, cream substitutes and yogurt’s are available.

11. Explain Gelatine

Gelatine is a protein which is extracted from the collagen present in the skin, tendons, bones and connective tissue of cattle that have been slaughtered for meat.

- It is tasteless transparent, colourless, brittle solid which is faint yellow in colour.
- When mixed with water, the gelatine absorbs it and swells, because the protein molecules in it form a three-dimensional network which entangles the water and immobilizer it. When the water is trapped in this way it forms a get.
- If the gel is then heated above 35°c it becomes a liquid and it is called a sol.
- When cooled, the sol becomes solid and this process is called gelatane.
- The ability of gelatine is to cause liquid to set in this way is used in food preparation for several purposes.

12. Explain the importance of gelatine in the diet
- Gelatine is a protein, but although it is on animal protein. it has been a low biological value.
- Gelatine can be used to set jam for people suffering from diabetes, where sugar intake has to be limited.

13. Explain the importance of sweets and puddings
- Sweets and puddings are mainly used as desserts in the diet.
- As the name suggests they are usually sweet and nutrition's for they are a combination of a number of ingredients.
- They are usually served as a last course in the meal to wash down whatever foods have been eaten.
- They can be served cold or hot.
- They add texture to the meal.
- They aid digestion.
- They add to the satisfaction after a meal.

FOOD AND NUTRITION SECURITY

14. (a) Describe food path and food security.

Food path

- Process where food is produced to where it is consumed
- It is the path way from where food is produced to where it is being consumed

Food security

- Is when one is able to get enough food throughout the year to satisfy his or her nutritional needs
- It refers to the availability of food and ones access to it for a health life

(b) Identify types of food security

National food security

- This is when the government or the nation has enough food for everyone in the country

Household food security

- This is when the family has enough food to eat
- It also means access to food all times for an active health life

Individual food

- When an individual has enough food to eat

(c) List down the factors to be considered for the country to have food security.

- There should be adequate supplies in terms of quantity and variety
- Stability in the flow of supplies
- Sustainability access to available supplies
- Adequate income
- Enough land

- Access to health services

(d) What are the components of food security?

Availability of food

- For food to be available, there must be absorption

Access to food

- Food should be affordable
- Absorption of food in the body. It should be utilized for repair and maintenance
- Adequate nutritional diet
- There should be adequate nutritional, safe food and skills to prepare and consume

(e) State the activities that promote food security

Food production
- Mixed crop farming
- Promotion of fisheries
- Improved preservation of food
- Chicken rearing
- Income generation, strengthening the small scale agro-food processing industries
- Encouraging families to grow crops that mature at different times
- Buying of cheaper foods when money is not enough
- Government should promote sustainable method of food production
- Government should be able to stabilize the supplies where there is food shortage through FRA

(f) Explain the causes of food insecurity

- Natural disaster like drought flood
- Gender imbalance in land distribution by the government
- Poverty
- Illiteracy
- Change of government may bring about change of polices
- Agriculture practices (use of fertilizer, if you don’t have, yield is affected).
- Culture may affect the food (it influence food choice)
- Religious grouping (may not be allowed to eat certain foods)
- State of health it may affect absorption

(g) Mention the group of people who are at risk to household food security and malnutrition

- Poor people
- Marginal land people like land without rain
- People with insufficient income
- Women of bearing age
- Women headed household
- Subsistence farmers

(h) Explain the meaning of food and nutrition severance

- It is the monitoring of the supply of food at different point of the food path

15. Explain the processes in the food path

- Food path may be long simple, short simple and long and complicated

Short food path e.g. clear, plant harvest, shell and sell

- When the food is sold, the bath becomes and complicated e.g. cornflakes, maize goes to South Africa, make cornflakes the brought back to be bought.

Blocks

Can prevent people from having enough food, they occur at different food path

16. (a) Explain the food loses along the food path at production

Pre harvest

- Planting seeds- infection like army worms attacking the food
- Shortage of inputs
- Lack of chemicals e.g. fertilizer
- Unfertile lands
- Crops and liver stock diseases
- Shortage of labour
- Low income especially rural farmers
- Natural disasters like flood or drought

Post harvest

i. Food storage and preservation
   - In adequate storage facilities
   - Lack of knowledge on preservation
   - Lack of storage facilities and storage equipment

ii. Lack of distribution and marketing
   - High cost of fuel

- Poor roads
- Lack of market
- Poor storage in some areas
- Inefficient marketing system

(b) Storage and preservation
- In adequate storage facilities
- Lack of knowledge on preservation
- Lack of storage facilities and storage equipment

(c) Lack of distribution and marketing
- High cost of fuel
- Shortage of transport
- Poor store in some areas and inefficient marketing system

- Poor roads
- Lack of markets

(d) Mention other challenges to food security
- Lack of money
- Inadequate money budgeted for food
- Buying poor value food
- Cultural and religious beliefs
- Choice of food

(e) Blocks to food preparation
- Shortage of fuel
- Equipment
- Lack of information
- Time
- Labour

What are the blocks to eating enough food
- Artificial feeding
- Not getting adequate food
- Poor appetite
- Illness
- Lack of teeth
- Infections

List down two blocks to the body using nutrients
- Worms
- Infectious diseases

Explain the effects of food insecurity
- Hunger
- Malnutrition
- Theft
- Diseases

Traditional cookery

17. Describe traditional cookery.

- The process of preparing and cooking traditional dishes or meals such as thobwa, chikanda, munkoyo.
- Traditional cookery has become more important when seen in the light of its contribution to the battle against poor nutrition, poverty, disease and HIV/AIDS related infections such as TB and Malaria
- Traditional meals provide nutrition's foods and drinks e.g. proteins, carbohydrates, fats vitamins and mineral elements
- It encourages and promotes the use of good methods of food preparation and consumption, leading to healthy living.

(a) Identify prominent traditional dishes and beverages in Zambia.
- Chikanda
- Munkoyo drink
- Thobwa drink
- Chidongwa drink
- Musasa drink
- Chibwantu drink
- Ubusala
- Chibwabwa iyakusashila
- Ifinkubalas
- Katapa
- Beef in pumpkin seed
- Beef and cassava stew
- Rabbit in peanut sauce
- Stewed imbowa
- Ntungulu drink
- Sorghum drink
- Futale
- Chikonda moyo
- Delele
- Boiled impwa
- Kalembula iya kusashila

(b) Explain the loss of nutrients and supplements through traditional cookery.

Green vegetables
- Cut them thinly- vitamin c is lost
- Pounding vegetables- vitamin c is lost as well
- Cooking without lid vitamins is lost
- Over cooking vegetables vitamin c is lost
- Adding bicarbonate of soda also destroys vitamins
- Adding soda

The nutrients can be supplemented
- Adding extra food value e.g. adding tomatoes at last
- Cook vegetables in a sauce pan with a tight fitting lid
- Adding eggs to the food in the last cooking to add extra nutrients and improving the taste

(c) Prepare a traditional dish

Paw-paw in groundnut sauce
Ingredients
- 1kg paw-paw
- 400g pounded groundnuts
- Tomato
- Onion
- Green pepper
- Soda (potash)
- Salt/water

Method
- Wash hands
- Wash and peal paw-paw, remove seeds and cut into small cubes
- Put the pieces of paw-paw in sauce pan, add water, soda and cook on low heat
- Add groundnut paste to the cooked paw-paw and cook for 20minutes
- Add tomatoes, onion, green pepper and cook for 5minutes and stew
- Save with nshima.

Nshima
Ingredients
- 4 cups cornmeal or ground maize (one cup per serving is sufficient)
- 8 cups water
- Serves 4

Method
- Pour cold water into a large pot. Over high heat, begin to bring to a boil.
- After a few minutes, when the water is hot, slowly add the other half the cornmeal to the water one spoonful at a time, stirring continuously with a wooden spoon
- Continue cooking and stirring until the mixture begins to boil and bubble
- Reduce heat to medium and cook for a few minutes
- Cook the mixture over medium heat, and the remaining cornmeal, as before, sprinkling with spoonful by spoon of cornmeal as you continue to stir. It is essential to keep stirring to prevent lumps from forming
- The nshima should be very thick with no liquid remaining and smooth (no lumps). Note; it may reach this point before all off the remaining cornmeal is added to the pot or it may be necessary to add even more cornmeal than this recipe indicates. Once the desired consistency is reached, turn off heat, cover the pot and allow the nshima to stand for a few minutes before serving.
- Serve nshima immediately, hot, with the ndiwo of your choice.

Chikanda
Ingredients

- 2 cups grounded chinaka or chikanda tuber
- 1 cup grounded raw peanut powder
- 2 cups water
- ½ teaspoon baking soda or ifishikisa
- ½ teaspoon salt
- ¼ teaspoon red cayenne pepper (optional)

Method
- Pour two cups of water into a medium sized pot
- Place on medium heat for two minutes
- Add baking soda, salt, and teaspoon red pepper. Stir until well dissolved
- Add chinaka and peanut powder and stir slowly until thoroughly mixed contents will gradually boil, thicken, and sputter
- Cover, lower heat, and cautiously stir every three to five minutes
- Simmer for fifteen to twenty minutes
- Remove from heat and immediately empty the solid chinaka onto a platter
- Smooth the top of chinaka with the back of a large spoon. Chinaka will thicken as it cools down. The chinaka should have the look of a large unsliced bologna
- When cold, cut the chinaka into desired slices to be served as delicious sandwich cuts or serve and eat with meals
- Traditionally chinaka is eaten as relish with nshima

Okra stew (delele)
Serves 6
Ingredients
- 500ml water
- 1 tsp bicarbonate of soda, optional
- 750g sliced okra
- 3 tomatoes, peeled and chopped salt and pepper to teste

Method
- In a large saucepan, bring the water to the boil and add the bicarbonate of soda
- When dissolved, add the okra and cook for 5 minutes
- Add and tomatoes, season and simmer over gentle heat for 20 minutes, occasionally skimming off the foam
- Serve over nshima (pap)

Sweet potatoes (peanut futari)
Serves 8
Ingredients
- 750ml water
- Salt 1kg sweet potatoes, peeled and thinly sliced

- peanut sauce
- 300g ground peanuts
- 250ml water

Method
- In a large saucepan, bring the water to the boil
- Add salt and cook the potatoes until just soft
- For the sauce, mix the ground peanuts with the water. Pour over the sweet potatoes and simmer for 5 minutes and mash. Serve hot

Pumpkin leaves (chibwawa)

Ingredients
- 1kg of chibwabwa cut up
- 1 cup of pounded groundnuts
- Salt

Serves 3-5

Method
- Wash and boil chibwabwa
- Mix nuts with water to make a paste and add to chibwabwa
- Cook together until the nuts are cooked
- Add salt and serve

Kapenta stew

Ingredients
- 2 or 3 tablespoons oil
- 2 tomatoes, peeled and cut up
- 500g well washed dried kapenta or 500g fresh kapenta or perch
- 1 chopped onion

Method
- For dried fish sauté onion in oil until it starts to brown
- Add tomatoes and sauté another few minutes
- Add dried kapenta and cook 5 to 7 minutes over hot fire. Water may be added if you prefer water gravy

Zambian chicken stew

Ingredients
- 1 cut up chicken, 2 tablespoons oil
- 1 chopped onion
- 1 cup water
- 1 teaspoon salt
- ½ cup unsalted peanuts finely ground or 1 cup peanut butter

Method
- Fry chicken pieces in hot oil in a heavy stewing pan until well browned
- Drain chicken and set aside
- In same oil, sauté onion until golden brown
- Add water and salt and bring to a boil
- Return chicken pieces to pan and simmer 20 minutes
- Add ground nuts or peanut butter and continue cooking until chicken is tender

5. Entrepreneurship as a career

a) Define entrepreneurship

- It is the ability to develop, organize and manage a business

b) Who is an entrepreneur?

- It is someone who understands a business venture
- Someone who organizes and manages labour, capital, and natural resources to produce goods and services to earn a prophet
- Someone who takes risks in doing business

c) Mention the characteristics of a successful entrepreneurs

- Focus on the attention of success and not failure
- Always manages time well
- He/she is a positive thinker and does not dwell on set backs
- Is motivated by strong desires to achieve and attain financial success
- Is hand working and always willing to stick with a project
- He/she is in good health, has a lot of energy and handle stress
- Likes to complete
- He is a self starter (proactive)
- Is able to do many things at once
- An independent and self confident yet knows when to get help
- Has the courage to take risks but is not a gamble
- Often has a close friend or relative who owns a business

d) Give reasons why people venture into business

People start a business for one or more of the following reason

- To make a lot of money (get rich or die trying)
- To be their own boss and not work for others
- Create a job for oneself
- Economic necessity (to make a living)
- To supplement income from other employment
- To use experience or skill they required
- As a personal accomplishment

- It is always a dream to run their own business

e) Mention two main things that entrepreneurs must do in order for their business to succeed

1. Setting a goal; every entrepreneur must have a goal, maybe he says in five months time after selling under a tree, should now think of building a kantemba, from a kamtemba toa big shop
2. Marketing; getting your products known to the customers to be sold and gain a profit

a. How is marketing done?

- Advertising the products on media, posters, flyers news papers

b. Pricing; when pricing you must consider the logistics e.g. transport costs labour even those small costs. This will make you know whether you are making profit or a loss

c. Place; find a central place to locate your business so that customers can easily access
d. Promotion; making customers aware of your new products e.g. mwinemushi and kasaka on TV

Additional information on the tips on entrepreneurship

a. Give five tips on entrepreneurship

- Saving e.g. if you earn k200.00, remove a k100.00 and bank it or put it away
- Do not allow yourself to borrow
- Avoid bad company
- Peer pressure (avoid this at all costs)
- Plan before you spend
- Learn to invest in productive assets e.g. a form, infrastructure instead of investing in vehicles
- Start small
- Be financially disciplined
- Lie within the income
- Avoid dependency syndrome e.g. depending entirely on employers

b. From small entrepreneurship group for small scale businesses

Food and nutrition

- Setting up a restaurant
- Setting snacks such as sweet potato crisps, scorns and cakes
- Jam making
- Making beverages or fruits juices e.g. lemonade, orange juice or munkoyo drink.

Home management

- Making home decoration articles like customers and pillows
- Making flower arrangements using local or wild flowers
- Planning and selling indoor and outdoor plants
- Planning home gardens for people
- Growing and selling of fresh vegetables
- Offer cleaning services for households
- Making soup and selling
- Starting up a laundry and dry cleaning business for clothes

Needle work and craft

- Make curtains, bed sheets, table do these and supply to interested people
- Making different garments for sale
- Making paintings and bead work or craft work e.g. brooms, weaving of mats and baskets knitting school sweaters and crocheting baby clothes.