**SUBJECT: FOOD AND NUTRITION**

**SESSION: 2024/2025**

**TERM: SECOND TERM**

**CLASS: SS1**

**SCHEME OF WORK**

WEEK 1: NUTRITIONAL REQUIREMENT FOR DIFFERENT AGE GROUPS

WEEK 2: NUTRITIONAL NEEDS ACCORDING TO PHYSIOLOGICAL CONDITIONS

WEEK 3: DIGESTION

WEEK 4: MEAL PLANNING

WEEK 5: KITCHEN AND EQUIPMENT

WEEK 6: KITCHEN SAFETY

WEEK 7: FIRST AID TREATMENT

WEEK 8: FOOD BORNE DISEASE

WEEK 9: COOKING

**INSTRUCTION: copy inside your notebook. Week 1-3 before resumption**

**WEEK 1: NUTRITIONAL REQUIREMENT FOR DIFFERENT AGE GROUP**

1. **Infants**: This is the stage at which the rate of growth is highest and at this stage they are prone to infections. Infants therefore require food necessary for growth and development. They need a balance diet prepared in an easily digestive form. Basic nutritional requirements are:
2. High quality protein: In an adequate quantity especially protein rich in all amino acids.
3. Adequate amount of calcium, magnesium and phosphorous for good bone development.
4. They need adequate amount of protective nutrients i.e. vitamin especially Vitamin C for prevention of infections and Vitamin A for good eye service.
5. They need Vitamin B12, Folic acid, and Iron for blood synthesis
6. They also need vitamin B complex i.e. B1, B2, B5 and B6.
7. They need adequate amounts of energy food.
8. They also need adequate amount of water to enhance digestion and excretion of waste products.
9. **ADOLESCENT**: An adolescent is between 12 to 20 years old this is the age at which of the growth sports is experienced and such individual is usually engaged in energy demanding activities e.g. sports therefore, they need food rich in protein and carbohydrates as a result of increase in energy demand, also their vitamins meals will be increased. In addition to the growth sports, the sexual maturation is also experienced during this period and more stress on the nutrients is demanded.

It is during this period that girl commence their menstrual cycle

The following nutrients required for adolescents are:

1. High quantity and quality of protein to meet the growth and development
2. High energy intake and adequate vitamin B complex for energy metabolism and increase in appetite.
3. Increase in take of iron, vitamin B12, and folic acid to enhance blood synthesis so that they can cope with periodic loss of blood due to menstruation in girls.
4. Adequate consumption of calcium, phosphorus and magnesium for borne development
5. Adequate consumption of vitamin A, D, E and C
6. Generous adequate consumption of water.

1. **ADULT AND THE AGED**: since the adults and the aged care grown persons, the nutritional needs are not as high as to the infants and adolescence. However, they need maintenance to worn out tissues and balance diet to avoid wasting of muscles.

They also need to take adequate food that is rich in phosphorus magnesium and vitamin D. to take care of the demineralization that will take place in their bones.

**WEEK2: NUTRITIONAL NEEDS ACCORDING TO THE PHYSIOLOGICAL CONDITIONS**

1. **Pregnant Women**: Since the pregnant women has to sustain herself and the foetus in her womb. She has to be well fed. The pregnant women require an abundant requirement for protein to meet her own needs and also to promote the growth of the foetus because the health of the foetus depends on the diet taken. There will also be increase in demand for protein for the new tissues to be formed. Foods such as meat, egg, offals, legumes, vegetables etc. She also needs extra energy foods to move the increase weight and also to perform some activities. She can also take food in rich in blood, take food rich in vitamin K to prevent excessive loss of blood during birth.
2. **Lactating Mothers**: She should take food rich in fluid or pap that will supply breast milk.
3. **Invalid**: An invalid is someone that is ill or sick. Because of their sickness and their dull appetite. They require special diet to aid their recovery. In preparing food for an invalid, the following factors must be considered:-
4. Obey the doctor’s directives or instructions
5. Choose food that will supply the necessary nourishments
6. Avoid too much seasoning
7. Serve the food hot and in attractive manner
8. Serve small portion at a time
9. Use appropriate cooking methods that will make digestion easy
10. Choose easily digested food and avoid oily or fatty foods
11. Vary the diet
12. **CONVALESCENT**: convalescent is someone who is recovering from an illness. They require special diet based on their illness Diet for a diabetic patient.
13. **A hypertensive Patient**: is one with an abnormal blood pressure. The diet of such people should have its salt contents reduced or completely free depending on the degree. They should also avoid the consumption of cholesterol foods.
14. **Diabetic Patient**: A diabetic patient is someone whose blood sugar level is abnormally high and so sugars appear in their urine. Such person needs a supplement of insulin and reduce his/her intake of consumption of carbohydrate. Such patients should consume large amounts of legumes and leafy vegetables. They should also reduce the intake of fats and oil
15. **Obese Patient**: An Obese is someone who is overweight. The overweight is due to the accumulation of excess fat. Such patient should eat food of high nutrient value and low in calories. They should reduce the consumption of carbohydrates and fatty foods but take a lot of vegetables and legumes. The reduction in consumption of energy should be accompanied by regular physical exercise. It improves blood circulation and also tightens the muscles.
16. **Vegetarian:** A Vegetarian is someone who does not eat the flesh of animals or all the products derived from them. They only eat plant origin. There are three types of vegetarian:-
* **Lacto-ovo -vegetarian**: These are people who do not eat the flesh of animals, fish or poultry but take milk, milk products and egg in addition to plant foods.
* **Lacto-Vegetarian:** These are people who do not eat the flesh of animals and take milk and milk products.
* **Strict Vegetarian**: These are people who do not eat the flesh of animals, poultries, fish and as well as the products derived from them. They only eat foods of plants origin. They are also called Vegans.

**WEEK 3 DIGESTION**

Digestion is the processes by which food molecules are broken down into various small substances that can be absorbed by the blood stream and assimilate into the cells for utilization. It is mainly a chemical process that brought about the action of numerous enzymes. The whole process of digestion takes in the alimentary canal. The process of digestion takes place in four major section of alimentary canal, i.e. the mouth, stomach, duodenum, small intestine.

**MOUTH**

In the mouth, the food is mixed and softened with saliva secreted by many enzymes and is crushed into smaller particles by the teeth. Saliva performs the following functions:-

1. It contains mucin which would lubricate the food and make swallowing easier.
2. It provides an alkaline medium necessary for the action of ptyalin and enzyme. The enzyme act on carbohydrate and convert it to maltose.

No chemical reaction happens to protein and fatty foods in the mouth. The food is then swallowed and passed into the stomach.

**THE STOMACH**

The Stomach contains juice called gastric juice which is acid (HCI). The gastric acid also contains two enzymes. Rennin and Pepsin which act on protein content in the food. The hydrochloric acid performs three major functions.

1. To stop the action of ptyalin from the mouth.
2. It provides the acidic medium necessary for the action of the Rennin and Pepsin in the stomach.
3. Destroys any bacteria that might have accompanied the food in the mouth.

**DUODENUM**

From the stomach, the product of digestion or passed into the duodenum. The pancreatic is secreted into the duodenum and the bile from the liver are emptied in the duodenum through the bile duct. The bile does not contain any enzyme rather it emulsifies (softens) the fats or oil present in the enzyme. The pancreatic juice on the other hand contains carbohydrate, protein, fat splitting. These enzymes are amylase, covert starch to maltose, Trypsin convert protein to peptides on the peptones. Lipase converts fat to fatty acid and glycerol.

**ILEUM OR SMALL INTESTINE**

The partially digested food is passed to the small intestine or ileum from the duodenum. In the small Intestine, The intestinal juice which contains many enzymes is secreted. These enzymes are:-

Maltose: convert maltose to glucose

Lactose: covert lactose to glucose to galactose

Sucrose: convert sucrose to glucose to fructose

Peptidases’: convert peptides and peptone to amino acid

Lipase: convert fats and oil to fatty acid and glycerol.

This process of digestion ends in small intestine. These nutrients are converted into the following.

Carbohydrates: Monosaccharaides or simple sugar e.g. glucose, protein amino acids.

Fats and Oil: fatty acid and Glycerol.

**ABSORPTION**: The process by which the end product of digestion pass. Through the line of digestive tracks is called absorptions. These end products are now absorbed into the body Circulatory system where they are utilized.

The simple sugars and amino acids enter the blood stream indirectly through the lymphatic system. Absorption takes place through the lining of the small intestine called ileum.

WEEK 4 **MEAL PLANNING**

Balanced Diet: It is a meal that contains all the necessary food nutrient such as proteins, carbohydrates etc. in their correct or right proportion.

Mixed Diet: It is a meal that contains more one of food nutrients.

Meal Planning: This is an act of planning meals for the family members.

**Guidelines for effective meal planning**

1. The meal must contain all the necessary food nutrients
2. The composition and nutritional need of different member of the family should be considered e.g. infants, adults, aged etc.
3. Avoid monotony
4. Consider the money available
5. Make use of food in season
6. Consider the cooking facilities/equipment available
7. Consider the occupation of the family members
8. Consider the health condition of the family members
9. Consider personal likes and dislikes
10. Serve meals as attractive as possible
11. Use suitable accomplishments and garnish dishes effects

There are three main meals in a day

1. Breakfast
2. Lunch
3. Dinner

Ways of making food interesting

1. Garnish with vegetables (by garnishing)
2. By serving meals at the right time and temperature
3. By preventing monotony
4. By using natural flavour and spices
5. Apply different methods of cooking.

**WEEK 5 Kitchen and equipment**

Kitchen can be described as a laboratory where families’ meals can be prepared.

Kitchen equipment is the materials used in the kitchen in carrying out food preparation easily. However, it can be grouped according to their materials.

**Large or fixed equipment**:- These are materials that are fixed permanently in the kitchen once they are installed, they are not usually removed examples are refrigerator, cookers, dish washer, washing machine, sink.

1. Refrigerator:- It is used for preserving raw food and also other materials that are perishable.

**CARE OF REFRIGERATOR**

1. When not in use for a long time, the refrigerator should be opened for offensive odour.
2. That food should not be arranged inside refrigerator.
3. Use bi-carbonate of soda with warm water to wash or rinse the refrigerator.
4. Occasionally deflate and clean thoroughly.
5. Wipe off splashes and greases from inside and aside the refrigerator.

Cooker: It is used for cooking, baking.

**CARE OF COOKER**

1. Do not dismantle
2. Clean splash with dry rag immediately
3. Use soft brush to scrub

**CARE OF SINK**

1. Avoid scratching the surface
2. Disinfect the outlet occasionally
3. Use sink basket to prevent blockage
4. Wash with hot soapy water and rinse thoroughly.

**Small equipment or utensils**

COOKING POTS AND PANS

CARE

1. Use them on suitable stoves
2. Soak immediately after use if burnt
3. Use steel or abrasives to remove stains
4. Avoid scratching with knife or sharp objects
5. Rinse and dry before storage

KITCHEN CUTLERES (spoons, forks, knives etc)

CARE

1. Wash immediately after use
2. Do not soak spoons, egg slicers etc. so that they will dry properly
3. Knives should be kept in knife rock/stand.

TIN WARES (baking pan, tray pan etc.)

CARE

1. Wipe while hot
2. Wash in warm soapy water
3. Dig wares and store upside down

EARTHEN WARES (Glass cups, pyres plates, mixing bowl glass bowl

CARE

1. Soak to remove sticky food particles
2. Wash, rinse and dry well before storage

**LABOUR SAVING DEVICES**

These are pieces of equipment that reduces the physical task, make work faster, easier etc.

1. Mixer: mixer is to mix cakes and pastries.

Care: Wipe the base with wet napkin.

 Wash mixing bowl and attachment with water, dry and store in dry place.

1. **BLENDER**: for pureeing and grinding.

**Care**: Wash cup without allowing water to touch the button.

Store in dry place.

1. **YAM POUNDER**: for pounding yam.

**Care**: Wipe base with wet napkin.

Separate the blade, wash with warm soapy water, rinse and dry.

**MEAT MINCER** : For grinding meat , for nuts and vegetables.

**Care**: separate the blade, wash with soapy water, rinse and dry

1. **ORANGE SQUEEZER**: for squeezing juice of fruits e.g. oranges, grapes, lemon etc.

**Care**: Wash in warm soapy water, rinse and dry before storing.

1. **PRESSURE COOKER**: for cooking of tough cuts meat, it is fast and saves fuel.

**Care**: follow instructions for use, wash with warm soapy water, rinse and dry before storing.

Other kitchen equipment are:-

Egg poaches, roosting tin, measuring cups and spoon, casserole dishes.

**WEEK 6 KITCHEN SAFETY**

Safe means free of danger or injury or to be secured from harm. Safety in kitchen means to be free from being injured by sharp objects, fire and the likes. That is, to be secure in an environment that is free from harm and injury.

**COMMON ACCIDENTS THAT OCCUR IN THE KITCHEN**

* Falls
* Burns and scalds
* Cuts
* Suffocation
* Electric shocks
* Accidental poisoning

**CAUSES OF ACCIDENTS IN THE KITCHEN**

* Lack of concentration
* Disorderliness
* Being in a hurry or excessive haste
* Slippery floor
* Poor lightening and ventilation
* Distraction
* Wearing wrong clothing and shoes
* Failure to apply safety rules
* Use of wrong equipment

**Precaution taken to prevent kitchen accidents**

* Do not wear high heeled shoes in the kitchen
* Mop spilled liquid from the floor
* Peeling from food such as banana, plantain, potatoes should not be allowed to litter the floor
* Always wear gloves or use any hand protector whenever you are removing cooking pots from the cooker or stove.
* Do not allow children in the kitchen
* Make sure that windows in the kitchen are opened to prevent suffocation.
* Carryout all cuttings in the kitchen on the chopping board to prevent knife cuts.
* Do not place hot water or heat carelessly in the kitchen
* All kitchen utensils, especially glass ware should be handled with extreme care.
* Do not pass hot pan over somebody who is bending down.

WEEK 7 **TOPIC: FIRST AID BOX**

This is a box containing essential chemical substance and other materials needed to treat accidents in an emergency situation before going to the hospital or seeing the doctor.

**Contents of a first aid box**

* Cotton wool
* Absorbent bandage
* Assorted bandage
* Disinfectant Dettol or salvon
* Petroleum jelly
* Hydrogen peroxide
* Liniment
* Antiseptic lotion or cream
* Scissors
* Crepe bandage
* Triangle bandage
* Methylated spirit
* Soap
* Iodine solution

**FIRST AID TREATMENT**: it is the immediate treatment given to sustain the victim before the arrival of the medical expert.

**Common Kitchen Accidents and Their Treatments**

**1. CUTS**: These are fresh cut on the body caused by only sharp objects such as knives, broken bottles, can, broken glass or China plates etc.

**Treatment of cuts:**

* Prevent excessive loss of blood by holding the points together
* Wash in water containing few drops of mild antiseptics
* Apply plastic lint or bandage
* Seek further help if it is a deep cut

2. **BURNS**: A burn is an injury to the skin y fire and dry hot object e.g. Hotplate, hot skillet before oil is added.

**Treatment of Burns**

1. Do not burst the blisters
2. Apply shea butter (oil) on the surface of the burns

**3. SCALD**: A scald is an injury to the skin caused by hot liquid such as hot oil, hot water etc.

**Treatment of Scald:**

1. Place the injured part under slowly running cold water
2. Do not brush the blisters
3. Apply cold corn paste (ogi)

 WEEK 8 **TOPIC: FOOD BORNE DISEASE**

These are diseases that occur due to the consumption of contaminated food. These diseases can be classified into two groups

1. **Food poisoning**: This illness occurs or is caused by a poison or toxin secreted by micro-organisms present in the food we eat or as a result of chemical reactions in the food. Examples of micro-organism that causes food poison are Staphylococcus and Clostridium and Botulism.

Examples of poisonous chemicals that can lead to food poisoning are mercury, lead, cobalt, uranium etc.

1. **Food Infection**: These refers to an illness caused by a pathogenic organisms carried by the food eaten and transmitted to man. It is the growth and metabolism of pathogenic organism inside the body that causes the illness. Examples of organisms that cause food infection are salmonella.

**Symptoms of food borne-diseases**

1. Stomach upset
2. Nervous disorder
3. Frequent stoking
4. Weakness of the body
5. Intestinal pains
6. Vomiting

**Preventions of food borne diseases**

1. Avoid consumption of expired foods
2. Covering of foods when not ready for consumption
3. Ensuring that left-over foods are re-heated before consumption.
4. Maintain good personal hygiene
5. Proper cooking of food before consumption
6. All preservative equipment such as refrigerator or deep freezer should be kept clean always.
7. Proper washing of fruits before consumption.

 **FOOD SANITATION LAWS**

These are rules and regulations made by the appropriate government authorities with respect to hygienic handling of food to prevent the consumers from purchasing contaminated food. These laws include.

1. No person shall sell any article of food which has in it or upon it any poisonous or harmful substance.
2. No person shall sell any article of food or any drug which is adulterated
3. No person shall sell any article of food which was manufactured, prepared, preserved, packaged or stored under unsanitary conditions.

 **KITCHEN LINEN / CLOTHS**

These are different types of kitchen clothes for cleaning, maintaining proper hygiene and safety in the kitchen.

1. Oven clothes or Gloves:-Used for removing hot pots, hot dishes from the oven or top cooker
2. Muslin Clothes: Used for covering foods and straining.
3. Hand Towels: Used for drying hands
4. Dish Clothes: Used to wipe kitchen equipment tables and work surfaces.
5. Tea Towel: Used to wipe cutlery and glass ware when it is necessary

**WEEK 9 COOKING MATERIALS**

Cooking can be defined as the preparation of food to bring about both physical and chemical changes such as breaking down of tissues and softening of cellulose.

**Reasons for cooking food**

1. To make it more digestive
2. To kill the bacteria in the food
3. To preserve the food
4. To develop flavour and improve its appearance

**Cooking methods can be grouped into three:**

1. Cooking in water (convention)
2. Cooking in oil (conduction)
3. Cooking in dry heat (radiation)
4. **COOKING IN WATER**

**Boiling**: This involves cooking food until it is tender

**Advantages**

1. It is an easy and quick method of cooking.
2. It does not require constant attention.
3. It makes food soft and easy to digest
4. Liquids obtained after boiling can be used for soup and sauces.

**Disadvantages**

1. Some food nutrients such as water-soluble vitamins and minerals are lost during boiling
2. It is time consuming
3. Boiling in water can spoil the colour and flavour of the food
4. **STEWING**: This method involves cooking food slowly at a low heat in small quantity water for a long time. This method is commonly used in making soup at a tender nature of 90-96oc.

**Advantages**

1. Nutrients are conserved
2. It enables the flavor of food to be retained
3. By slow and gentle heat or simmering, tough food such as tough meat or dried meat are made tender and easy to digest.
4. It does not require heat, therefore it is economical

 **Disadvantages**

1. It is long and slow method of heating
2. It requires more attention than boiling to ensure that the food does not burn.
3. The prolonged cooking involved in stewing can destroy some food nutrients such as vitamin C in fruits and vegetables.
4. **STEAMING**: By this method, the food is cooked in the steam from boiling water and there is no direct contact between the food and the boiling water.

**Advantages**

1. Steam foods are easily digested therefore it is a suitable meal for invalid, adolescent, children and pregnant women.
2. There is no loss of food nutrients into the cooking water.
3. There is less risk of over cooking.

 **Disadvantages**

1. Steam foods need careful garnishing to make them look attractive
2. Steam foods are not palatable as foods by other methods.
3. It is a slow method of cooking because of the lengthy process

**COOKING IN OIL**

1. **Frying**
2. Shallow frying
3. Deep frying

**Reasons for coating food before frying**

1. To seal the nutrients
2. To prevent breakage of the balls
3. To maintain the shape

**Advantage of frying**

1. It is a fast and quick method of cooking
2. Fried foods are attractive and tasty
3. No loss of soluble nutrients if coated before frying

**Disadvantages**

1. Fried foods are greasy when cold
2. They are not easily digested
3. It requires constant attention
4. Sautéing: This is method of frying food quickly in a shallow pan of hot oil.

 **COOKING IN DRY HEAT**

1. **Baking**: it is cooking food by dry heat in an enclosed reheated oven

**Advantages**

1. Food does not break but keeps its shape
2. There is no loss of soluble nutrients
3. Food cooked by this method is attractive and appetizing
4. It is also economical on fuel as more than one dish can be baked at the curry.

 **Disadvantages**

1. It requires constant attention, otherwise food may be burnt
2. It requires careful temperature control and skill.

**GRILLING**: This is a method of cooking over direct heat

**Advantages**:

1. It is a quick method of cooking and heat is maintained throughout the production.
2. Grilled foods are very tasty and easy to digest.
3. There is no loss of nutrients.

**Disadvantages**

1. Only suitable for the tender part of meat
2. It requires constant attention

**ROASTING METHOD:**

Roasting means cooking by radiated heat or oven on a low temperature

**Advantages**

1. It is tasty
2. Appearance of food is usually attractive
3. It retains its full flavour and value
4. It reduces weight loss

**Disadvantages**

1. Need constant attention
2. Takes longer time at lower temperature

**MICROWAVE**

This is a method of cooking and reheating food by using electromagnetic wave in a microwave oven.

Advantages

1. It is quick way to cook and reheat
2. It is economical and less energy is required
3. Hot meals can be available 24 hours.