Lesson Number	Title of the Lesson	Skills	Activity
4	Food Nutrition and Health	Creative thinking Decision Making	Plan a talk on the topic:Good Nutrition is a prerequisite for Good Health
		Problem solving Critical Thinking	

Summary:

Food plays an important role in our life and is closely associated with our existence. It is probably one of the most important needs of our lives. The term 'food' refers to anything edible which can be solid, semi solid or liquid and which provides nourishment to our body. It contains certain units called 'nutrients'which performs important functions in our body. Food performs not only physiological functions but social and emotional functions as well. Nutrients are utilized in our body by the process of 'Nutrition'. This process is a prerequisite to good health. Different nutrients have different food sources. Each of the nutrient has a specific function in our body which leads to growth, develops immunity and provides energy to perform all the vital functions of the body as well as for physical activities. Nutritional requirements for a person are dependent on many factors. Indian Council of Medical Research or ICMR has recommended nutritional intakes for various age groups and have also recommended dietary allowances or RDA for various age groups and physiological conditions like pregnancy and lactation

Principal Points

1. Nutrition involves all the processes which lead to the utilization of nutrients in the body

Nutrients

Macro Nutrients	Micro Nutrients
Required in large amount	Required in small amounts
• Carbohydrates -Simple e.g. Sugar -Complex e.g starch	• Vitamins -Fat Soluble: Vit A, D, E & K -Water soluble: Vit C & B Complex
• Proteins -Animal Protein: Meat, fish, eggs -Plant protein: Dals, legumes	• Minerals eg. Calcium, iron, iodine
• Fats -Saturated Fatty Acids: Butter. Ghee -Unsaturated Fatty Acids: Vegetable Oils	

Build your understanding

1. Functions and sources of Macro Nutrients

Carbohydrates	Proteins	Fats
Functions		
Provides energy	Growth, maintenance & repair of tissues	Concentrated sources of energy
Protein sparing action	Important constituent of enzymes, hormones, anti bodies & pigments especially Haemoglobin	Provides fat soluble vitamins
Dietary fibre		Protein sparing action
Helps in disposal of waste	Provides energy in times of distress	Acts as an insulator &as a cushion for vital organs
Food Sources		
Cereals e.g. Wheat, Rice, Bajra	Animal sources- meat, fish, poultry	Ghee, butter & cheese
Pulses- Dals, Rajma, Chana	Milk & milk products	oil seeds, nuts & cooking oils
Fruits & tubers-Potato, sweet potato	Plant sources- legumes, dals, nuts	Meat, fish, poultry, whole milk
Sugar & Jaggery		

2. Functions & Sources of Fat soluble Vitamins

Vitamin A	Vitamin D	Vitamin E	Vitamin K
Functions			
Proper functioning of eyes	Formation & maintenance of healthy bones & teeth	Prevents oxidation	Necessary for clotting of blood
Promotes health of all internal linings of the body	Helps in absorption of calcium & phosphorous	Helps in the formation of sex hormones	
Sources			
Liver, eggs, fish oils	Exposure of skin to sunlight	All cereals	Egg, liver
Milk & milk products	Eggs, liver, fish oils	Pulses	Green leafy vegetables
Yellow and red fruits & vegetables	Milk & butter	Vegetable oils	
Green leafy vegetables	Fortified oils & ghee		

3. Functions & Sources of water-soluble Vitamins

Vitamin B Complex group	Vitamin C
Functions	
Proper utilization of carbohydrates in the body	Helps in fighting infections
Normal functioning of nervous system	Required for healthy gums and all internal linings
Growth and proper functioning of organs	Improves immunity
Helps in digestion	
Food Sources	
Whole grain cereals & pulses	Citrus fruits
Meat, fish, egg, poultry	Amla
Milk, vegetables & fruits	Sprouted Legumes
	Green Leafy vegetables

4. Functions & sources of some specific minerals

Calcium	Iron	Iodine
Functions		
Formation of healthy bones & teeth	Important constituent of haemoglobin in red blood cells	Important constituent of thyroxin produced by thyroid gland
Required for muscle contraction	Oxygen carrier required for oxidation of food and release of energy	
Food Sources		
Milk & milk products	Meat, fish, poultry	Sea food
Green leafy vegetables	Pulses & legumes	Iodised salt
Ragi & oil seeds	Green leafy vegetables	

What is Important to Know

1. Factors influencing Nutritional Requirement are:
   - Age
   - Sex
   - Height& Weight
   - Climatic conditions
   - Physiological state
   - Occupation
2. ICMR has divided individuals into three categories depending on the kind of work they do viz
   - Sedentary Workers: who do sitting jobs e.g. bank clerks,librarians
   - Moderate Workers: who do manual work but the work is not strenuous e.g. teachers,factory workers
   - Heavy Workers:who do strenuous jobs e.g. farmers,labourers

Did you know:

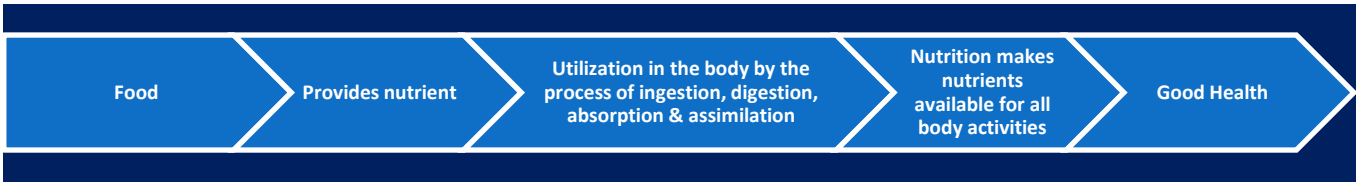
1. Energy given by Macronutrients
   - 1gm Carbohydrate: 4Kcal
   - 1gm Protein: 4Kcal
   - 1gm Fats: 9Kcal
2. AminoAcids are the building blocks of Proteins.They are 22 in number
   - Essential Amino-Acids cannot be synthesized in our body hence have to be part of our diet
   - Non–Essential Amino Acids can be synthesized by our body
3. Fats are classified as:
   - Saturated Fats: solid at room temperature e.g. butter,ghee, margarine
   - Unsaturated Fats: liquid at room temp e.g. vegetable oils
4. Some common deficiency diseases

Name of the Disease	**Nutrient Deficient**
Anaemia	Iron
Goitre	Iodine
Night Blindness	Vitamin A
Scurvy	Vitamin C
PEM	Carbohydrates and Proteins

5. Goitrogens: substances which interfere with the production of Thiamine. Raw cabbage, cauliflower,ladies finger are a few examples
6. Importance of Water in our body:
   - Helps in all metabolic functions
   - Helps in disposal of waste from the body
   - Present in all body fluids
   - Prevents drying of cells / tissues
   - Prevents organs from shock due to impact
   - Maintains body temperature

Extend your Horizon

Inter relationship between Food- Nutrition- Health



Evaluate yourself:

- **Your diet lacks milk and milk products.List the nutrient/nutrients which are likely to be deficient in your body**
- **Adolescent girls usually suffer from Anaemia.Which foodstuffs should be included in their diet to make it rich in Iron?**

Maximize your marks:

- **Attempt all the exercises given in the lesson**
- **Explain: Water and dietary fibre do not give any nutrients,yet they are a vital component of our diet, Why?**