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Sazani Trust

Teaching Guide 1

Why we need to eat well

Healthy and Sustainable Schools Programme 2nd Edition

Preface

The Healthy and Sustainable Schools Programme is a result of Sazani Associates UK and Sazani Trust Zanzibar's ongoing partnership with the Ministry of Education to improve the quality of education and learning in Zanzibar.

The project is aligned with the Sustainable Development Goals and actively supports teachers and schools in achieving Global Education Target 4.7.

By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development (UNSD, 2021).

Focusing on the combined importance of key skills and healthy and sustainable life skills, we have revised and updated our series of fifteen Teaching Guides to support competency based curriculum linked learning.

The teaching materials are suitable for use in the last two years of primary across the transition to the first two years of secondary school.

There are fifteen Teaching Guides in this series, themed around topics that contribute to healthy and sustainable life styles within the context of Zanzibar, as follows:

1. Why we need to eat well
2. Getting enough food
3. Keeping food safe and clean
4. Population and health
5. Water
6. Sanitation and waste
7. Tourism
8. Biodiversity
9. Agriculture
10. Fisheries and marine resources
11. Energy
12. Land transport
13. Land use
14. Climate change
15. Participatory action learning

Each Teaching Guide is themed and contextualized to bring Zanzibar and contrasting localities into a classroom setting and to make learning engaging and relevant to local livelihoods. Activities are gender responsive, participatory and proven to support numeracy, literacy, English language and critical thinking.

For more information please visit our website **www.sazani.org**

Acknowledgements

This series of fifteen Teaching Guides has been adapted from Sazani Associates HSSP topic books by Rajab S. Ali, Safia M. Abdalla, Mwanawije M. Makame, Patrick Rutledge, Nicola Shone, Joshua Shawe and Rashid O. Shehe, with editorial review by Marilyn James and Dr Cathryn MacCallum. Graphic design and layout by Seven Six Design.

Contents

1 Introduction

The learning content and activities in this Teaching Guide have been designed to be easily integrated across the curriculum. Throughout the resource, knowledge, skills, attitudes, and values are interlinked and are built into all the topic areas addressed.

We have revised and updated our series of fifteen Teaching Guides to support competency-based, curriculum linked learning and development by focusing on the combined importance of key skills including numeracy, literacy, critical thinking and English language for healthy and sustainable lifestyles. The teaching materials are suitable for use in the last two years of primary across the transition to the first two years of secondary school.

There are different methods of displaying this information, through text, tables, diagrams, images and activities. Each activity includes icons to illustrate which curriculum area and which key skills are used as summarised in the tables below.

Key skills				
Numeracy	Literacy	Critical thinking	English language	Creativity

Activity / STD V-VI	Maths	English	ICT	Civics	Geography	History	Science	Religion	Arabic
Eat well plate		X			X		X		
Type of food tally	X	X	X	X	X	X	X		X
Healthy food game	X	X	X	X	X	X	X	X	
Game of cards	X	X	X	X	X	X	X	X	X
Diets for the whole family!	X	X			X		X		X
Food type game	X	X		X	X		X		X
Three corners	X	X			X		X		
Daily meals	X	X			X		X		
Healthy snacks	X	X		X	X		X		X
Family meal planning	X	X			X		X		
Spot the mistake	X	X	X	X	X	X	X	X	X

Activity / Form 1-2	Maths	English	ICT	Civics	Geography	History	Biology	Chemistry	Physics	Religion	Arabic
Eat well plate		X			X						
Type of food tally	X	X	X	X	X	X	X	X	X		X
Healthy food game	X	X	X	X	X		X	X	X		
Game of cards	X	X	X	X	X	X	X	X	X	X	X
Diets for the whole family!	X	X			X		X	X	X		X
Food type game	X	X		X	X		X	X	X		
Three corners	X	X			X		X	X	X		
Daily meals	X	X		X			X	X			
Healthy snacks	X	X		X	X		X	X	X		
Family meal planning	X	X		X	X		X	X	X		
Spot the mistake	X	X	X	X	X		X	X	X	X	X

2 Topic overview

This Teaching Guide will introduce nutrition, why we need to eat well and in which foods we can find and obtain different types of nutrients. This Teaching Guide will also explore what happens when we do not eat well, for example malnutrition, obesity and general poor health and what causes these.

Key words

Nutrition: the process of providing or obtaining the food necessary for health and growth.

Nutrients: are substances that provide energy for activity and materials for growth and repair of the body.

Malnutrition: refers to deficiencies, excesses or imbalances in a person's intake of energy and / or nutrients.

Obesity: is defined as abnormal or excessive fat accumulation that presents a risk to health.

Digestion: the process of digesting food.

Protein: is a naturally occurring, extremely complex substance that consists of amino acid residues joined by peptide bonds.

Hormones: are your body's chemical messengers. They travel in your bloodstream to tissues or organs. They work slowly, over time, and affect many different processes, including growth and development.

Metabolism: how your body gets energy from the foods you eat.

Osteoporosis: bone disease that occurs when the body loses too much bone, makes too little bone, or both. As a result, bones become weak and may break from a fall or, in serious cases, from sneezing or minor bumps.

Hippocampus: complex brain structure embedded deep into temporal lobe. It has a major role in learning and memory.

3 Food and nutrition

3.1 Introduction to nutrition

We need to eat well because it is the process of providing or obtaining the necessary nutrients for health and growth. Nutrition is an important part of leading a heathy lifestyle. Combined with physical activities, your diet can help you to reach and maintain a heathy weight, reduce the risk of chronic diseases (like heart disease and cancer), and promote overall body health.

A food is something that provides nutrients. Nutrients are substances that provide:

Energy for activity, growth, and all functions of the body such as breathing, digesting food, and keeping warm.

Foods are the materials for the growth and repair of the body, and for keeping the immune system healthy.

There are many different nutrients. We divide them into two main categories:

Macro (big) nutrients that we need in large amounts. These are:

- Carbohydrates (starches, sugars and dietary fibre).
- Fats – there are several kinds (Box 2. Fats, fatty acids and cholesterol).
- Proteins – there are hundreds of different proteins.

Micro (small) nutrients that we need in small amounts. There are many of these but the ones most likely to be lacking in the diet are:

- Minerals – iron, iodine and zinc.

Malnutrition

People who have poor diets and do not eat the right amount of energy-rich food and nutrients are often sick and become undernourished. The type of malnutrition that occurs depends on which nutrients and how much of the required food energy are lacking (or are in excess) and for how long, and the age of the person.

Obesity

People may eat more food (especially energy-rich foods with plenty of fat and / or oil) than the amount they are supposed to eat. By taking in too much energy they become overweight or obese. These people are at increased risk of chronic conditions, such as heart disease, high blood pressure and diabetes.

Box 1. Macro nutrients in foods

Nutrient	Main uses in the body	Examples of food
Macro-nutrients		
Carbohydrates – starches and sugars	To provide energy needed to keep the body breathing and alive, for movement and warmth, and for growth and repair of tissues. Some starch and sugar are changed to body fat.	Milk, honey, brown sugar, fruits, and vegetables.
Carbohydrates – dietary fibre	Fibre makes faeces soft and bulky and absorbs harmful chemicals, and so helps to keep the gut healthy. It slows digestion and absorption of nutrients in meals and helps to prevent obesity.	Fruits (e.g. berries, pears, melon and orange); cereals (e.g. whole wheat, pasta); and vegetables (e.g. broccoli, carrots and sweet corn).
Fats	To provide a concentrated source of energy and the fatty acids needed for growth and health. Fat aids the absorption of some vitamins such as Vitamin A.	Butter, oil, nuts, meat, fish and some diary products like chocolate, cheese, mayonnaise.
Proteins	To build cells, body fluids, antibodies and other parts of the immune system. Sometimes proteins are used for energy.	Fish, seafood, skinless white-meat poultry, lean beef, skimmed / low-fat milk and eggs.
Water	To build cells, body fluids, antibodies and other parts of the immune system. Sometimes proteins are used for energy.	

Box 2. Micronutrients in food

Nutrient	Main uses in the body	Examples of food
Micro-nutrients		
Iron	To make haemoglobin (the protein in red blood cells that carries oxygen to the tissues). To allow the muscles and brain to work properly.	Beans and lentils, baked potatoes cashews and dark green leafy vegetables such as spinach.
Iodine	To make thyroid hormones that help to control the way the body works. Iodine is essential for the development of the brain and nervous system in the foetus.	Fish and seafood such as tuna and shrimp.
Zinc	For growth and normal development, for reproduction and to keep the immune system working properly.	Oysters, beef, hemp seeds, lentils, low-fat yogurt, oatmeal and shiitake mushrooms.
Vitamin A	To prevent infection and to keep the immune system working properly. To keep the skin, eyes and lining of the gut and lungs healthy. To see in dim light.	Broccoli, spinach, leafy vegetables, fortified skimmed milk, eggs, orange and yellow vegetables and fruits and cereals.
B-Group Vitamin	To help the body use macro-nutrients for energy and other purposes. To help the nervous system to work properly.	Milk, cheese, eggs, liver and kidney, chicken and red meat, tuna, salmon and dark green vegetables like spinach.
Folate	To make healthy red blood cells and to prevent abnormalities in the foetus.	Dark green leafy vegetables, fruits juices, nuts, beans, peas, seafood, eggs, diary products, meat, poultry and grains.
Vitamin C	To aid the absorption of some forms of iron. To destroy harmful molecules (free radicals) in the body. To help wounds heal.	Broccoli, brussels sprouts, cauliflower, green and red peppers, spinach, cabbage, sweet and white potatoes, tomatoes and tomato juice.

4 Food needs of the family

Key words

Immune system: a complex network of cells, tissues, organs, and the substances they make that helps the body fight infections and other diseases.

Haemoglobin: a red protein responsible for transporting oxygen in the blood of vertebrates. Its molecule comprises four subunits, each containing an iron atom bound to a haem group.

Omega-3 fatty acids: a class of essential fatty acids found in fish oils, especially from salmon and other cold-water fish, that acts to lower the levels of cholesterol and LDL (low-density lipoproteins) in the blood.

Free radicals: unstable atoms that can damage cells causing illness and aging.

Flavonoids: help regulate cellular activity and fight off free radicals that cause oxidative stress on your body. In simpler terms, they help your body function more efficiently while protecting it against everyday toxins and stressors. Flavonoids are also powerful antioxidant agents.

Different members of the family need different amounts and types of nutrients. The amounts of different nutrients a person needs varies with age, sex, activity and whether menstruating, pregnant or breastfeeding. Needs also vary during sickness and recovery.

4.1 Pregnancy nutrition

Pregnancy demands good nourishment for the health of the baby and mother. Well planned balanced meals made with fresh ingredients should provide all the nutrients required. The basic principles of a healthy diet remain the same, which means each meal should provide macro nutrients like proteins, fats and micronutrients including vitamins and minerals in adequate amounts.

1. Proteins:

Proteins are essential for the healthy growth of the fetus and to maintain the mother's health. Proteins form the building blocks for blood, bones, organs, muscles and tissues. Protein can be found in milk, chicken, egg and almonds.

2. Folic acid or folate:

Folic acid is essential for preventing neural tube defect, serious abnormalities of the spinal cord and brain. It is also helpful in increasing birth weight, synthesis of haemoglobin and reducing the incidence of pre-mature births. Folic acids and folate can be found in spinach, papaya, ground nuts and ripe mango.

3. Iron:

In the form of haemoglobin, iron is essential to carry oxygen in our blood. During pregnancy the body needs to increase the blood volume to meet the demands of the growing fetus, hence more iron in the diet is essential. Anemia is one of the leading causes of premature birth and low birth weight. Iron can be found in dry dates, curry leaves, soybeans, and spinach.

4. Calcium:

Calcium is needed to build healthy bones and teeth of the baby and for the production of calcium rich breast milk and prevention of osteoporosis in the mother, milk is the greatest source of calcium.

5. Vitamin A:

Vitamin A is required for healthy vision, immune function and fetal growth and development. Mothers are susceptible to Vitamin A deficiency particularly in the third trimester because of rapid fetal development and an increase in the blood volume. Vitamin A is contained in animals sources such as milk, butter, egg and fish.

4.2 Brain-boosting foods for children

The brain develops quickly during childhood and needs the right nourishment. There are twelve brain development foods for children, namely:

Type of food	How it works	Picture
1. Spinach	Strengthens brain cells and contains antioxidants which help rectify the damage caused by free radicals that damage brain cells. It also consists of folate, which helps in all round brain development.	
2. Eggs	Contain choline, a nutrient that helps in retaining neural pathways to keep memories intact.	
3. Curd	Studies have shown that dairy products boost the part of the brain that controls emotions and sensations. It is believed that curd could help in controlling anxiety and depression.	
4. Fish	Fish is brain food as it contains omega 3 fatty acids. This contributes to 50% of the brain's fat mass and maintains its structural integrity.	
5. Berries	Contain antioxidants that reverse the harmful effects of free radicals. Other brain enhancing components found in berries are flavonoids. These make their way to the hippocampus and improve learning capabilities.	
6. Turmeric	Contains curcumin which has an inflammatory as well as antioxidative properties which reduce any damage the brain may have sustained over time.	

Type of food	How it works	Picture
7. Walnuts	Omega 3 fatty acids present in walnuts help improve memory and reduce inflammations in the brain. They also remove excess protein deposits in the brain which revamps memory power.	
8. Oatmeal	Regulates blood sugar in the body, which boosts brain health and brain function. Low or high blood sugar can disrupt the neural pathways in the brain.	
9. Beans	Are one of the best foods for brain development. They have a high content of omega fatty acids which helps improve memory.	
10. Apples	Helps in the production of acetylcholine, which helps in the transmission of messages between nerves in the brain. They also contain antioxidants that nerves damage caused by free radicals.	
11. Avocados	Apart from Vitamin K and potassium, avocados contain folate which helps brain development. In fact, pregnant women are advised to consume folate to prevent neural birth defects in the fetus.	
12. Amla	It contains antioxidants that helps in fighting off harmful free radicals in the brain.	

5 Malnutrition

Key words

Kwashiorkor: is a severe form of malnutrition. It's most common in some developing regions where babies and children do not get enough protein or other essential nutrients in their diet. The main sign of kwashiorkor is too much fluid in the body's tissues, which causes swelling under the skin (oedema).

Marasmus: undernourishment causing a child's weight to be significantly low for their age.

Apathetic: showing or feeling no interest, enthusiasm, or concern.

Sanitation: conditions relating to public health, especially the provision of clean drinking water and adequate sewage disposal.

Food insecurity: is defined as the disruption of food intake or eating patterns because of lack of money and other resources.

Children and adults may eat food lacking nutrients and become undernourished because they do not have enough food, or they have a poor appetite. These people lack energy and many nutrients which are substances that provide energy for activity and materials for growth and repair of the body, which means:

- They have less energy so they cannot work, study or play as normal.
- Their immune systems are weak, so they become ill easily and / or are seriously ill.
- Children stop growing and may lose weight. If no healthy / nutritious food is eaten (often because of infection), a child may develop severe malnutrition (i.e. kwashiorkor or marasmus).
- Adults lose weight. If a pregnant woman is undernourished, her unborn baby grows poorly.

People may eat unbalanced diets that provide too little of a nutrient. For example:

- The lack of iron in the body can delay one's mental and physical development. This can cause people of all ages to become less active, have less immunity to infections and face the risk of suffering from iron deficiency anemia. Anemic women have an increased risk of dying during and after pregnancy.
- Be apathetic and find it hard to work or study. Sometimes a goitre develops which is an abnormal swelling of the thyroid gland. A woman who lacks iodine in early pregnancy is at high risk of having a child who is mentally and physically disabled. For example, the child may have a lower IQ or be deaf.
- The lack of Vitamin A in the body can damage the immune system, thus causing people to become sick. In severe Vitamin A deficiency, there are eye conditions that range from night blindness to dry eyes (xerophthalmia), to corneal damage and blindness. These eye conditions occur most often in young children and pregnant women.

Malnutrition (due to both lack and excess of food energy and / or nutrients) is one of the biggest health problems in the world, especially in developing countries.

- More than half the deaths of children aged 0 – 5 years are associated with malnutrition.
- In many countries a third of the young children have abnormal growth and 10 percent are too thin (acute malnutrition).
- About a sixth of newborns have low birth weights, which makes them more likely to become ill, grow slowly or die.
- Anemia caused by lack of iron is the biggest nutrition disorder in the world. In many places half the women are anemic.
- Vitamin A, iodine and zinc deficiencies and disorders are widespread in many countries.

Malnutrition is a condition that results from eating a diet in which one or more nutrients are either not enough or are too much. There are many reasons why a child or adult becomes undernourished. The causes vary from person to person, but we can divide them into immediate, underlying, and basic causes.

Major causes of malnutrition include poverty and food prices, dietary practices, agricultural productivity, and disease.

Poor socio-economic position is associated with chronic malnutrition where families cannot afford to purchase nutritious foods such as milk, meat, poultry, vegetables and fruits. This is because widespread poverty and shortage of employment opportunities, the low status and education among families, and low concentration of energy and nutrients in meals.

Another cause is a lack of dietary practices. These include family food shortages, inadequate care and feeding practices, especially of children and women, poor living conditions and poor health services.

- Family food shortages, which may be due to:
  - lack of money for food;
  - low production of family food;
  - poor food storage and preservation;
  - poor budgeting.
- Inadequate care and feeding practices:
  - the way families feed young children and encourage them to eat;
  - the way families care for women (especially during pregnancy, childbirth and breastfeeding) and for sick and old people;
  - the way food is prepared and the level of hygiene in the home;
  - the ways families prevent and treat illnesses at home and use health facilities.
- Poor living conditions e.g. insufficient water, inadequate sanitation and overcrowded housing and poor health services. Shortages of medicines and skilled health staff increase the risk of disease. Inadequate environmental sanitation services increase the risk of food-borne infections.

5.1 Agricultural productivity

Agriculture and nutrition share a common entry point 'food'. Food is a key outcome of agricultural activities, and in turn, is key input into good nutrition. Without agriculture there is little food or nutrition. Lower farming skills such as crop rotation, lack of technology or resources needed, fertilizers, irrigations can cause low productivity and thus, families will go unnourished.

Also, through agriculture people can sell their products and earn money to buy food as well as be self-employed and be able to provide food for their families with necessities.

5.2 Diseases

Malnutrition can be a consequence of health issues such as chronic illness, especially the HIV / AIDS pandemic. Diarrhea and other infections can cause malnutrition through decreased nutrient absorption, decreased intake of food, increased metabolic requirements and direct nutrient loss.

How HIV / AIDS causes malnutrition

HIV / AIDS can be an immediate cause of malnutrition because:

- A person living with HIV / AIDS:
  - may have a poor appetite, sore mouth or nausea and so eats less;
  - absorbs fewer nutrients due to diarrhoea and a damaged gut;
  - uses nutrients faster because the immune system is working harder than usual.
- A HIV+ mother who decides not to breastfeed may be unable to give adequate replacement feeds.

HIV / AIDS can be an underlying cause of food insecurity and malnutrition if:

- Productive adults become sick and are less able to farm or earn money for food, or if they die.
- A family sells its assets (e.g. cattle, tools) to get money for food and medicines.
- Family members stop farming or paid work to care for a sick relative.
- Orphaned children must care for younger brothers and sisters. These children often lack the skills and resources to produce enough food or provide good meals. They may have to stop going to school and so reduce their chances of a good job in the future.
- Older people who must care for young orphans may not have enough energy or money to feed them well.
- Children often become malnourished if one or more parents are sick or dead. In this situation they may lack food and care, or they may eat less because of grief and depression.

6 Obesity

Key words

Developing country: a poor agricultural country that is seeking to become more advanced economically and socially.

Socio-economic: relating to or concerned with the interaction of social and economic factors.

Cardiovascular diseases: is the name for the group of disorders of heart and blood vessels, and include: hypertension (high blood pressure) coronary heart disease (heart attack) cerebrovascular disease (stroke) peripheral vascular disease.

Micronutrient: a chemical element or substance required in trace amounts for the normal growth and development of living organisms.

Obesity is now a worldwide epidemic, with more than 1 billion adults overweight and at least 300 million adults are obese. Obesity affects almost all ages and socio-economic groups, and the increasing numbers of obese children is a major cause for concern. In many developed and developing countries the obese proportion of the population has increased threefold since 1980. This increase is often faster in developing countries than in developed ones. In most developing countries obesity and under-nutrition are now major problems. The increase in obesity is one of the main reasons for the increase in diet-related chronic disease and disability.

Obesity is principally caused by regularly:

- Eating too much food, particularly energy-rich food (often containing large amounts of fat and sugar).
- Having a lifestyle (work, sports, travel) that does not involve enough physical activity.

The non-fatal, but debilitating health problems linked to obesity include respiratory difficulties, chronic musculoskeletal problems, skin problems and infertility.

The life-threatening problems are cardiovascular diseases, including hypertension and stroke, type 2 diabetes, certain types of cancers, and gallbladder disease.

The health consequences of these conditions range from premature death to disabilities that reduce the quality of life.

Eating good food, especially with family and friends, is one of the pleasures of life. We all know that people who eat healthy, balanced diets are likely to have:

- Plenty of energy to work and enjoy themselves.
- Fewer infections and other illnesses.

Children who eat well usually grow well. Pregnant women who eat well are likely to produce healthy babies. It is important to know which combinations of foods make good meals and what the different food needs of different members of the family are.

7 Different types of food

Healthy plate

6 food groups every day

Percentages refer to amounts **by weight** (not energy contribution).

1 **40% vegetables** (unprocessed) with ample healthy fats.

2 **10% fruits** (unprocessed).

3 **10% grains** (gluten-free whole grains and pseudo-grains) e.g. amaranth, buckwheat, millet, oats, quinoa, teff, rice, sorghum).

4 **10% high 'healthy fat' foods** e.g. avocado, tree nuts (almond, walnut, brazil, macadamia, etc.), seeds (chia, flax, etc.), coconut (or dairy, if tolerant) yoghurt, egg (yolk).

6 **5% concentrated nutrients** e.g. non-irradiated herbs and spices, herbal teas, food supplements.

5 **25% protein-rich foods** with ample healthy fats

7.1 Foods contain different nutrients

Staple foods are usually cheap and supply plenty of starch (for energy), some protein, some micro-nutrients (especially some of the B-group Vitamins) and dietary fibre.

Circle the staple foods used locally and add others to the list.

Cereals	Starchy roots and fruits
Maize / corn meal	Potato
Millet	Sweet potato
Sorghum	Yam
Wheat flour	Fresh cassava
Rice	Cassava flour
	Plantain

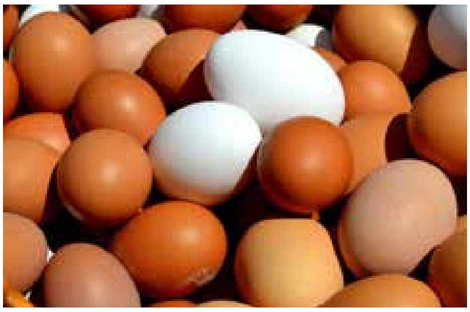
Legumes and oilseeds

Legumes are good sources of protein, some micro-nutrients and dietary fibre. High fat legumes and oilseeds provide fat. Circle the legumes and oilseeds used locally and add others to the list.

Low fat legumes	High fat legumes and oilseeds
Cowpea	Groundnut
Pigeon pea	Soybean
Kidney bean	Pumpkin seed
Lentil	Sunflower seed
Chickpea	Sesame (sim sim)
	Melon seed

Milk

Breast milk can supply all the nutrients needed for the first six months of life and a useful proportion of the nutrient needs up to at least 2 years of age. Animal milks, and milk foods, such as curds, yoghurt and cheese, are excellent sources of protein, fat and many micro-nutrients, such as calcium.



Eggs

Eggs are a good source of protein, fat and several micro-nutrients.

Meat, poultry, fish and offal

Meat, poultry, fish and offal are excellent sources of protein and often of fat. They supply important amounts of iron (especially red meat and red offal) and zinc, and many other micro-nutrients including some B-Group Vitamins. Liver of all types is a very rich source of iron and Vitamin A.

The best sources of iron are meat, offal, poultry and fish.

Circle the animal foods used locally and add others to the list.

Milk and eggs	Meat, offal, poultry and fish
Fresh cow milk	Beef
Fresh goat milk	Goat
Curds	Sheep
Yoghurt	Pork
Cheese	Liver
Eggs	Other offal
	Fresh, dried and canned fish

Fats and oils

Fats and oils are concentrated sources of energy. For example, one spoon of cooking oil contains twice as much energy as one spoon of starch or one spoon of sugar. Fats contain fatty acids, some of which are needed for growth. In addition to 'pure' fats (e.g. butter) and 'pure' oils (e.g. maize oil), other rich sources of fats and oils are oilseeds, cheese, fatty meat and fish, avocados and fried foods.

Sugar gives only energy and no other nutrients. It is useful for making foods taste nice and for improving appetite, for instance during illness. However, eating sugary foods too often can be harmful to health for several reasons. Sweet, sticky foods, such as ice lollies, or snacks and pastries prepared with plenty of sugar, honey, or syrup, are bad for the teeth if eaten often. Many sugary foods also contain much fat, which increases the risk of 'overeating' for those who should limit their energy intake. People who often eat sugary foods and consume sweet drinks such as sodas (bottled fizzy drinks) are more likely to become overweight and to develop diabetes. These people also often eat less of other, more nutrient-rich foods. There is a lot of sugar in sweets (candy), lollies, sodas, jam, sweet cakes and biscuits.

Circle the fats, oils and sugars used locally and add other to the list.

Fats	Oils	Sugars
Butter	Coconut oil	Table sugar
Margarine	Sunflower oil	Honey
Fat from meat	Groundnut oil	Jam
Ghee	Maize oil	Sugar cane

Vegetables and fruits

Vegetables and fruits are important sources of micro-nutrients and dietary fibre but the amounts vary according to the type of vegetable or fruit. Orange vegetables, such as orange sweet potato and carrots, and orange fruits, such as mango and pawpaw but not citrus fruits (e.g. oranges and lemons), are excellent sources of Vitamin A. Most fruit and fresh (not overcooked) vegetables provide Vitamin C. Dark green vegetables supply folate and some Vitamin A. Many vegetables (e.g. tomatoes, onions) provide additional important micro-nutrients that may protect against some chronic conditions such as heart disease. The best way to make sure we get enough of each micro-nutrient and enough fibre is to eat a variety of vegetables and fruits every day.

Flavouring foods

Salt is commonly used in cooking and there is salt in many processed foods. Too much salt is harmful and can lead to high blood pressure. Iodised salt is an important source of iodine. Herbs, spices, garlic and onions are examples of other flavouring foods that help to make meals tasty.

Water

We need about eight cups of water each day and more if we are sweating or have a fever or diarrhea. In addition to drinking water, we get water from tea, coffee, juices and soups, and from fruits and vegetables.

Circle the vegetables and fruits used locally and add others to the list.

Vegetables	Fruits
Tomato	Mango
Pumpkin	Pawpaw
Carrot	Passion fruit
Spinach	Orange
Other leaves	Pineapple
Orange sweet potato	Banana
Sweet pepper	Dates
Eggplant	
Okra	

8 What we have learned:

Food and drink are important for the survival of the human body.

A good diet is important to avoid malnutrition and to ensure a nourished energised body.

Different types of food contain different nutrients which are needed for the body to grow and repair itself.

A lack of physical activity and too much food especially those rich in energy can lead to obesity.

Knowledge and skills	Attitudes and values
Understand what constitutes a healthy diet and why it is important to eat a healthy balanced diet; the nutritional needs of the family and how to ensure that each member of the family receives the nutrients they require.	Appreciate the role of food in nourishing our bodies and delivering energy to the body. Appreciating the variety and different types of food and the nutrients that it provides and how a mixture can provide a wholesome diet.

9 Learning activities

Before sharing this information with students, you may need to:

Find out:

- What different types of local foods are eaten?
- What people already know about foods and nutrients.

Prioritise:

Decide which information is most important to share with the class.

Choose communication methods:

For example: illustrated talks, discussions, and demonstrations of foods.

How How How activity

Refer to the **How How How activity** detailed in the "Participatory Action Learning" book to help the student explore different ideas and concepts and challenge each other's points of view.

Activity 1: Eat well plate

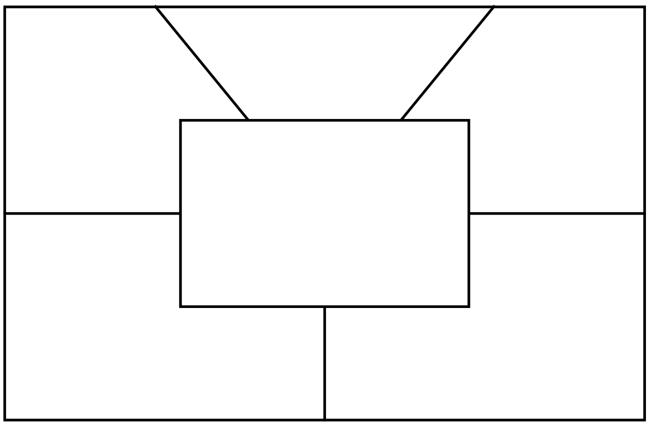
Resources required:

- One large piece of paper per group
- A pen / pencil for each learner

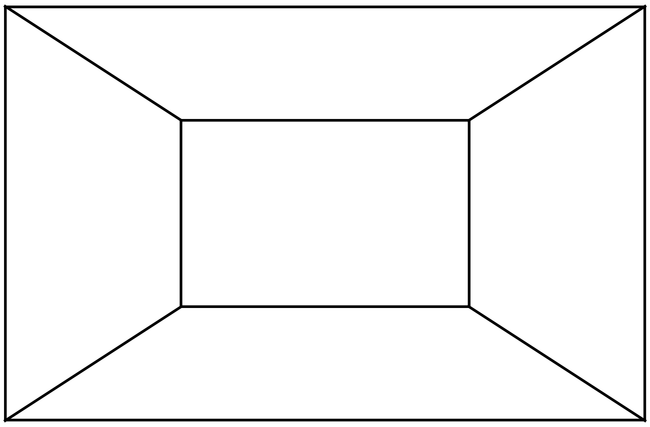
Set up:

Arrange the classroom with tables of four or five. Draw the placemats (refer to diagram below) and place them on the table.

Placemat for a five member group



Placemat for a four member group



Activity:

- Refer to the eat well plate. Explain to the learners that our bodies need different proportions of the different food types.
- Proportions are: 40% vegetable, 10% fruits, 10% grains, 10% high 'healthy fat' foods, 25% protein-rich foods, 5% concentrated nutrients.
- Place learners into groups of four or five. Ask them to discuss different foods they have eaten that week.
- On the placemat in front of the learners ask them to write the food they have eaten into the section in front of them leaving the middle section blank.
- Next, ask the learners to discuss which of the foods from the groups are the most important to us.
- Then ask the learners to select five of these foods and write them into the middle section of the placemat.
- The learners can then present their eat well plate to the rest of the class.

Review:

The following questions or points may be used to review the activity:

- What proportions of different food types do we need?
- Put your hand up if you think your usual meal plate has the right amount of proportions. If not, what do you need to change to make it a balanced plate?

Activity 2: Type of food tally

Resources required:

- Placemats from Activity 1
- Coloured pens / pencils / crayons
- Paper

Set up:

If using as an immediate follow on activity from 'Activity 1', keep learners in their tables of four or five and hand out additional paper and coloured pens / pencils / crayons.

Draw the below tally chart on the board.

Type of food	Tally
Carbohydrates	
Proteins	
Fats	
Vitamins and minerals	
Fibre	

Activity:

- Using the placemats produced in Activity 1, identify which foods belong to different food groups.
- The learners can then colour code the different groups of food in their placemat.
- Ask the learners to draw the tally chart that is on the board.
- Learners can then use the tally chart to show the number of each food type named in the placemat activity.
- Each learner can then create a bar chart to show the information from the tally chart.

Review:

The following questions or points may be used to review the activity:

- Have a learner from each placemat group show their graph to the rest of the class. If there are any food groups that are much higher or much lower, pose the question: 'why do you think this is?'
- Once the learner has answered the questions ask a different learner if they can explain their answer further.

Activity 3: Healthy food game

Resources required:

- Black / white board
- Chalk / pens

Set up:

Put the following chart on the board:

Food Group	Why you need them	Which foods have them
Carbohydrates (1. Starches)	For energy	Bread, pasta, cereals
Carbohydrates (2. Sugars)	For energy	Biscuits, cakes, sweets
Proteins	For cell growth and repair	Fish, milk, eggs
Fats	For energy	Milk, cheese, meat, butter
Vitamins and minerals	For healthy cells	Fruit, vegetables, dairy product
Fibre	Helps move food through the gut	Cereals, fruit, vegetables
Water	70% of the body is water	Drinks, some foods

Activity:

- Ask learners: why do we need different food groups?
- Follow this with asking them which foods belong to each food group?
- Ensure the learners understand that our bodies need a balanced diet, and that a mixture of the food groups on the board is necessary for us all.
- Instruct learners to work in groups to discuss what extra foods might be added to the lists on the board.
- Ask learners to feedback to the class about their additions and add them to the board.

Review:

The following questions or points may be used to review the activity:

- Give learners a series of statements and ask them to vote on if they are true or false to check their understanding.

  For example:
  - 'Fish are a good source of carbohydrates' (False)
  - 'Proteins are good for cell growth and repair' (True)
  - 'Milk, cheese, meat and butter are examples of fats' (True)

Activity 4: Game of cards

Resources required:

- Question cards

Set up:

Prepare individual cards of questions (questions below) and put them in a box or container.

Questions:	
Which vitamins does the body provide itself?	What is the problem with eating too much sugar?
A lack in which mineral can cause the development of goitre?	A balanced diet is important. Explain what percentages we need to eat of staple foods, fruits, snack and legumes.
What types of food do people like more in Zanzibar than other types of foods? Why? Can you list some?	Why are nutrients such as minerals and vitamins important to humans?
What nutrients do we need a large amount of to maintain a balanced diet? Why?	What kind of minerals do we need a small amount of to maintain a balanced diet? Why?

Activity:

- Split learners into 4 groups of A, B, C and D.
- Ask one member from each group to pick out a card from the container.
- Group A will ask their question to Group B who will have 1 minute to discuss before answering.
- Group B will ask their question to Group C who will have 1 minute to discuss before answering.
- Group C will ask their question to Group D who will have 1 minute to discuss before answering.
- Group D will ask their question to Group A who will have 1 minute to discuss before answering.
- Repeat the cycle for a 2nd question.

Review:

The following questions or points may be used to review the activity:

- Ask learners: were there any questions that they would have given different answers to?
- Ask learners: were there any answers they thought were particularly good from other learners? Why?

Activity 5: Diets for the whole family!

Resources required:

- Paper
- Pencils / pens

Set up:

Lay out paper, pens and pencils on the tables. Potentially create an example to display on the board.

Activity:

- Ask learners to look at the information about the food needs of different family members.
- Each learner will select a family member and produce a labelled poster to show the foods needed by that person.
- Learners can then split into pairs and discuss their completed work with a partner.

Review:

- Ask learners to leave their posters on the table.
- Invite learners to go to other tables and look at posters other learners have produced.
- Ask learners if there is any one poster that stands out. If there is, ask the learner to show and present their poster to the class.
- Ask learners to return to their tables and update their posters with any ideas they have from looking at other learners' posters.

Activity 6: Food type game

Resources required:

- Paper
- Pencils / pens

Set up:

Place the paper and pencils on tables, one per group or pair.

Activity:

- This activity can either be carried out in pairs or groups.
- Ask the learners to write down examples of foods, which belong in each food group of fruits and vegetables, starchy food, dairy, protein, fat, with a time limit of 5 minutes.
- After 5 minutes, ask the groups to stand up behind their chairs.
- Name one food group (fruit and vegetables, starchy food, dairy, protein, fat).
- Go around each group and ask them to state one food that belongs to the food group you have named. If a group is unable to state a food belonging to the food group they must sit down for that round.
- OPTIONAL – A prize could be given to each group that is the last standing.
- Repeat for each food group.

Review:

The following questions or points may be used to review the activity:

- Were there any food groups you found easier to name foods for? Why?
- Are there any foods that belong in multiple food groups?

Activity 7: Three corners

Resources required:

- Paper
- Pencils / pens

Set up:

Prepare a list of foods before playing the game.

Inside the Classroom: Clear an unobstructed space in the classroom by moving the chairs and desks to the side. On three of the walls of the classroom post on paper options of “Very occasionally”, “Some every day” and “As much as you like”.

Outside the Classroom: Find three points outside with equal distance from each other and unobstructed ground in-between. These points could be trees, fences and / or playground equipment. Post on paper three different option of “Very occasionally”, “Some every day” and “As much as you like”. Prepare a list of foods before playing the game.

Draw the below columns on either the board or flow chart paper that can be taken outside.

Very occasionally	Some every day	As much as you like
Low nutrients	High nutrients	High nutrients
Eat very occasionally	Eat some every day	Eat as much as you like
High sugar foods	Foods with protein or starch	Fruit and vegetables

Activity:

- Explain each of the columns to the learners and how they relate to the paper posted at each point.
- Learners must decide whether the food being read out goes in the “Very ocassionally”, “Some every day” or “As much as you like” column.
- To demonstrate their choice, ask learners to run and stand by the point where they think the food will go.
- Ask learners to discuss with other learners why they have chosen this column and come up with two or three reasons why they made this choice.
- Call on a learner from each point to provide a summary of why they chose this column for the food.
- Reveal which column the food goes in by writing it on the column.
- Repeat for all the food in your list.

Review:

The following questions or points may be used to review the activity:

- Were there any foods that were in columns you did not expect? Why?
- Are there any foods you think could go in two columns? Why?

Activity 8: Daily meals

Resources required:

- Black / white board
- Chalk / marker pen

Set up:

Draw the below table onto the board:

Breakfast	Lunch	Dinner	Snacks between meals

Activity:

- Ask learners for examples of typical daily foods they eat and write them on the board.
- Once you have a list of foods in each column, ask the students if any of the foods contain; a staple food e.g. maize, fruit, vegetables, protein, healthy snacks and water.

Review:

The following question or points may be used to review the activity:

- Ask learners: what combination of daily meals (from the food on the board) would make the healthiest diet? Why?

Activity 9: Healthy snacks

Resources required:

- Black / white board
- Chalk / marker pen

Set up:

Clear the Black / White Board and have a marker pen ready to note down learners' ideas.

Activity:

- Ask learners for examples of snacks they enjoy eating and write them on the board.
- Go through the snacks on the board and ask learners to consider whether they are healthy or unhealthy.
- Ask learners: what makes a healthy snack?
- Ask learners: why do we eat snacks?
- Ask learners: when do they eat snacks?

Review:

- Following discussing what makes a healthy snack, go through the snacks on the board and ask learners to vote on whether a snack is healthy or not.
- Cross out any snacks voted as unhealthy and ask learners: are there any snacks they think are fine in small amounts?

Activity 10: Family meal planning

Resources required:

- Black / white board
- Chalk / marker pen
- Paper
- Pens / pencils

Set up:

Draw family members up on the board of **Adult male**, **Adult female**, **Baby** and **Young children**.

OPTIONAL – prepare a list of local prices for ingredients.

Activity:

- Ask learners: what foods are available to them?
- Ask them to consider how much money a week they have to spend on food.
- Refer to the family members on the board. Discuss with learners what each family member needs individually.
- **Adult male** – will need food which gives him energy.
- **Adult female** – will need food that contains iron found in proteins. Older girls will also need iron rich foods.
- **Baby** – will rely on mother's breast milk so it is important that the mother is well nourished.
- **Young children** – should not have foods high in salt and sugar.
- Ask learners to come up with a week's worth of healthy dinner meals for their family. They can write this out on their sheet of paper.
- Remind learners of what qualifies as a healthy meal.
- Once learners have created their menus ask them to list the ingredients they need and in what quantities.
- Once learners have a list point out to them that this is now their shopping list.
- OPTIONAL – If you are able to find out the local prices for ingredients you can provide a list for learners to check their list against their budget.

Review:

The following questions or points may be used to review the activity:

- What are the benefits to planning your meals beforehand?
- How might you make the most out of your ingredients? Are there any ingredients you could buy in larger quantities to reduce cost?

Activity 11: Spot the mistake

Resources required:

- Black / white board
- Chalk / marker pen

Set up:

To improve transition times a script could be prepared by the teacher ahead of time that a learner can edit with deliberate mistakes or extracts from the Teaching Guide.

Activity:

- The teacher will introduce the activity where one learner will be explaining nutrients and food. While they are talking, they will make three deliberate mistakes in what they are saying that learners must listen out for and correct.
- The teacher can help guide the learner by discussing with the learner what they are going to say and agree upon the three deliberate mistakes they might make.
- The learners will listen to the learner playing the child and when they hear a mistake will put their hand up.
- The first learner that puts their hand up and identifies a mistake correctly will switch with the learner explaining.
- Learners are given points for how many deliberate mistakes they are able to make without the other learners catching them out. They are also given point if another learner incorrectly questions a statement that is true.
- This activity can cycle through as many learners as the teacher would like or until the content of the Teaching Guide has been appropriately reviewed. This activity could also be completed in smaller groups with the teacher circling between.
- At the end of their explanation learners must point out to other learners their deliberate mistakes and clarify what the correct information is.

Review:

The following questions or points may be used to review the activity:

- Were there any explanations that you were surprised were correct? Why?
- The learner which gained the most points should be acknowledged and (optional) given a prize.

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