CONTINUATION ON FOOD TESTS PART ONE

ACTIVITY 3.5 CARRYING OUT TESTS ON DIFFERENT FOODS

Key Question: Which tests are used to identify different food nutrients
The table below shows a summary of various tests, Test procedures, observations and Possible deductions/ Conclusions After testing different food substances.

Test and Test procedure	Observation	Deduction/ conclusion
odine test; To 1cm3 of food solution was added 3 drops of iodine solution	Turbid/ colourless solution turned blue black	Starch present
	Turbid/ colourless Solution turned brown/ yellow	Starch absent
Benedict's test To 1cm^3 of food solution was added 1cm3 of benedict's solution and then boiled for 2minutes	Turbid/ colourless turns blue, to green solution, yellow precipitate then orange precipitate	Reducing sugars present
	Turbid/ colourless turns blue and remains blue	Reducing sugars absent
To 1cm^3 of food solution was added 1cm3 of dilute hydrochloric acid and boiled for 1minute, cooled and then 1cm^3 of sodium hydroxide solution added followed by 1cm^3 of benedict's solution and boiled for 2 minutes.	Turbid/ colourless turns blue, to green solution, yellow precipitate then orange precipitate and finally brown precipitate	Non reducing sugars present
	Turbid/ colourless turns blue and remains blue.	on reducing sugars absent
DCPIP test: 2cm^3 of DCPIP solution was put in a test tube and drops of food solution added.	The blue DCPIP solution turns colorless or blue DCPIP solution was decolorized	Vitamin C present
	The blue DCPIP solution remains blue	Vitamin C absent
Biuret's test To 1cm^3 of food solution was added 1cm^3 of dilute sodium hydroxide	Turbid solution turns blue and the purple on shaking	Proteins present

solution followed by 3 drops of copper(ii) sulphate solution and shake.		
	Turbid solution / colorless remains blue	Proteins absent
Emulsion test: To 1cm^3 of food solution was added 1cm^3 of ethanol and shake, then distilled water added.	Turbid solution turns to a white emulsion.	Lipids present
	Solution remains clear	Lipids absent

NOTE

The change of colour when reagents are added to food solutions or food solutions to reagents in case of DCPIP depends on the quantity or concentration of food solution i.e little, much or very much as illustrated in the table below.

Observation	Deduction
Solution turns to brown with black sperks	Little starch
Solution turns to black	Much starch
Solution turns to blue then to green solution	Very little reducing or Non reducing sugars
Solution turns to blue , to green solution then to yellow precipitate	ittle reducing or Non reducing sugars
Solution turns to blue, green solution, to yellow precipitate then to orange precipitate	Much reducing or Non reducing sugars
Solution turns to blue , green solution, to yellow precipitate, to orange precipitate then to brown precipitate	Very reducing or Non reducing sugars
Solution turns to blue then purple on shaking	Much proteins
Solution turns to blue and the violet on shaking	Very much proteins

TRIAL ACTIVITY ONE

1. UNIQUE food processing Company wishes to supply Watoto babies home with a food supplement that contains nutrients which will improve greatly the babies healthy far better than the one that has always been supplied. The welfare team leader is looking for some one to help analyse whether the food supplement is ideal or not

TASK:

As a biology student, design a write up of an experiment you would carry out to help the welfare team leader prove that the supplement is ideal or Not

BALANCED DIET

Abalanced diet is a meal containing all food nutrients in their right proportions. The nutrients which make up a balanced diet include; ……. ……. ……. ……. …….

If a person depends on a poor diet (un balanced diet) i.e containing in appropriate quantities of nutrients, then the person suffers from malnutrition.

ACTIVITY 3.4 (b) Understanding the balanced diet of individuals basing on the sex, age and level of activity.

Key Question:

What are the nutrient requirements for individuals of different age, sex and different levels of activity.

What you need : pictures of Various individuals;

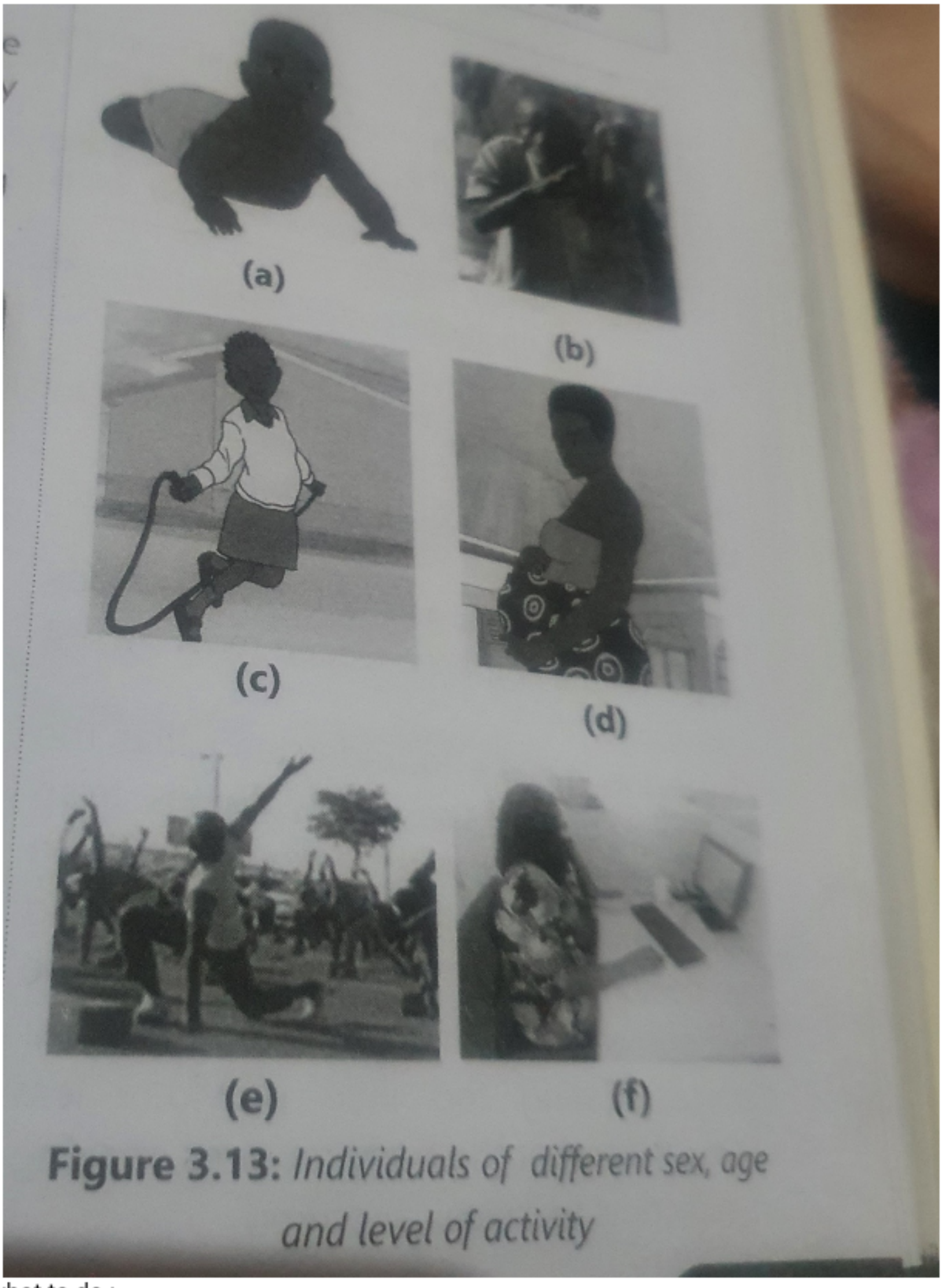

Figure 3.13: *Individuals of different sex, age and level of activity*

what to do :

a) identify what is happening in each picture (a) up to (f)

Picture	What is happening
a	
b	
c	
d	
e	
f	

b) Discuss the food nutrients that should constitute a greater percentage in the diets of the above individuals and give reasons in each case.

c) Suggest what would happen if the individuals in the above figures depend on an imbalanced diet

Picture	Effect of imbalanced diet
a	
b	
c	
d	
e	
F	

NOTE:
The fact that the energy a person uses daily, comes from the food they eat, after eating too much food, the extra food is stored as fat making the person too fat and encouraging other problems like diabetes and eating too little provides less energy than what the body requires, making an individual feel weak and tired.
other TASKS

1. Explain the following observations:

    a) children who are always kept in doors are at risk of rickets

children who are always in doors don't get access to sunlight which is necessary in the formation of vitamin D in the body which helps the body to absorb calcium and phosphates required for strong bones

b) pregnant and menstruating women are at high risk of being anaemia.

A pregnant woman needs more blood to feed the growing feutus while the menstruating woman lose blood which contains haemoglobin a protein containing iron.

c) pellagra is mainly found among individuals who depend on a vegetarian diet.

pellagra is caused by lack of vitamin B in the diet, which is found in animal materials only.

d) An individual whose diet is mainly animal products is most likely to develop sores in the mouth.

mouth sores are mainly caused by lack of vitamin C which is found in plants and not animal material.

MALNUTRITION AND EATING DISORDERS

Malnutrition refers to an unhealthy state of the body resulting from a long term deficiency or excess of one or more of the essential nutrients.

some causes of malnutrition in the community include;

- insufficient supply of right food
- seasonal lack of food e.g dry season
- ignorance of basic principles of good nutrition
- un even geographical distribution of food
- local customs which discourage the eating of certain foods e.g women not eating eggs, certain tribes don't eat fish.

Eating disorders include;

Disorder	Effect on healthy	Effect on social life	prevention
Obesity This is a life style disease brought about by accumulation of	when this fat is deposited around the heart, it makes it difficult for the heart to pump blood hence	Depression increased aggression and violent behavior. Mood swings. Impaired	Regular exercises. Healthy eating plan and regular weight monitoring.