Chapter 3 – Food

Food is any substance that supplies the body with energy, minerals and materials for growth.

The function of food is to supply energy to the body along with the minerals for growth and repair. The food is broken down in the digestive system into small components which are circulated in the blood stream to where they are needed in the body. The five different types of food are: protein, carbohydrate, fat, vitamins and minerals.

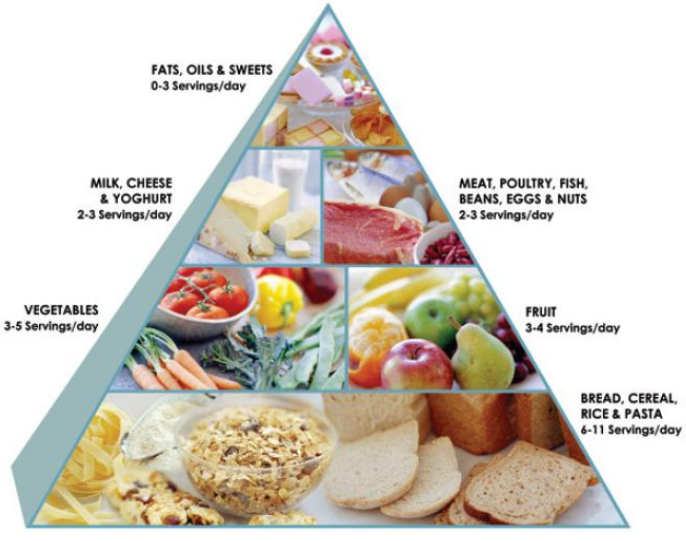
Nutrient	Source	Function
Protein	Meat, fish, dairy products	Growth and repair of body tissue
Carbohydrates	Honey, bread, vegetables such as potatoes	Providing energy
Fats	Butter, margarine	Energy and heat insulation
Vitamins		
A	Carrots	Prevents night blindness
C	Oranges (citrus fruit)	Prevents the deficiency disease called scurvy (poor skin and gums)
D	Milk	Prevents the deficiency disease called rickets (abnormal bone formation)
Minerals		
Iron	Liver	Red blood cells
Calcium	Milk	Teeth and bones
Water	Food and from the tap	Allows materials to dissolve and flow
Fibre (roughage)	Wholemeal bread, bran	Helps keep the digestive system moving

Vitamins are chemicals needed in tiny amounts for healthy growth **e.g.** vitamin C is found in oranges and is needed for healthy gums.

Minerals are also chemicals needed in tiny amounts for healthy growth **e.g.** iron is found in liver and is needed for making red blood cells and calcium is found in milk and is needed for strong bones.

A balanced diet and the food pyramid

A balanced diet is one that contains the correct amounts of the right food. The constituents of a balanced diet are protein; carbohydrates; fats; vitamins; minerals; roughage and water. If a person does not eat a balanced diet, they will miss out on vital nutrients and could suffer from a *deficiency disease*. A **deficiency disease** is caused by the lack of some particular vitamin or mineral **e.g.** *anaemia* is caused by a lack of iron and *scurvy* by a lack of vitamin C.



A **food pyramid** is a diagram that shows the healthy amounts of each food type that makes up a balanced diet. The guide is to eat more of the food at the bottom and less of the food at the top.

The energy in food

Nutritional information given on the side of a food packet is arranged according to how much is present. The food at the top is present in the largest quantity.

Food energy is released in units called kilojoules (kj). The old unit is the calorie and is still widely used. A food that is high in energy can be a cause of weight gain as it is stored in the body as fat. The energy content of any food is normally expressed as kj per 100 g or calories per 100 g. Fats are the highest in energy; sugary foods are high and proteins are low in energy.

NUTRITION INFORMATION
NUTRITIONNELLE
Per 2 oz / 56 g serving
Par portion de 2 oz / 56 g

Energy/Énergie	326 kj/77cal
Fat/Matières grasses	2.3 g
Saturated Fat Saturés	1.8 g
Cholesterol/Cholestérol	17 mg
Sodium	512 mg
Carbohydrates/Glucides	0 g
Dietary Fibre/Fibres alimentaires	0 g
Sugars/Sucres	0 g
Protein/Protéines	14 g

*Percentage of Recommended Daily Intake
Pourcentage de l'apport quotidien recommandé

Vitamin A/Vitamine A	2 %
Calcium	3 %
Vitamin C/Vitamine C	0 %
Iron/Fer	3 %

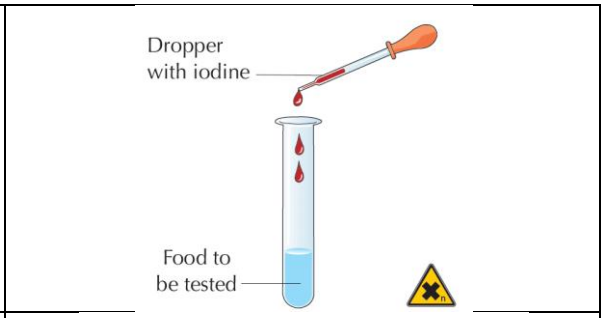
INGREDIENTS: SMOKED PINK SALMON, SALT.
INGRÉDIENTS: SAUMON ROSE FUMÉ , SEL.

Experiments

Test for Starch

Add two drops of iodine solution to a food sample.

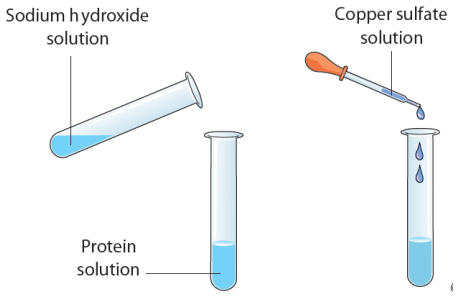
Result: if the starch solution turns from brown/orange to blue/black we can say that starch is present.



Test for Protein

Add sodium hydroxide solution to a food sample, then add 3 drops of copper sulfate solution

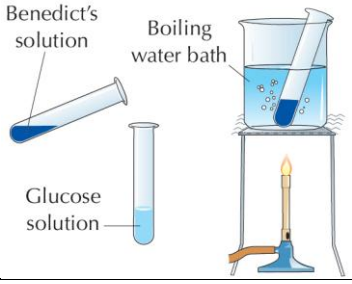
Result: if the solution turn a pink/purple colour then protein is present



Test for reducing sugars (carbohydrates)

Add a few drops of Benedict's solution to a food sample and heat gently in a water bath.

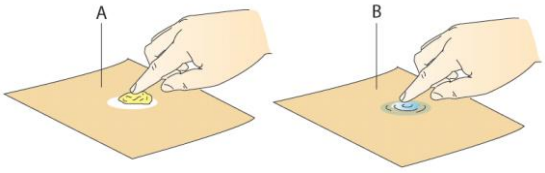
Result: If the solution turns a brick red colour then we can say that a reducing sugar is present.



Test for fats

Rub a food sample on a piece of brown paper.

Result: if a transparent (greasy) spot appears then we can say fat is present.



To investigate the chemical energy found in food

Set up the equipment as shown in the diagram
Set the food sample alight and hold it under the test tube
Note the rise in temperature

Result: foods high in energy **e.g.** fats will burn for longer and will cause a higher rise in temperature.