

Diet

Revision notes · A balanced diet, the sources and importance of each nutrient, and the causes of scurvy and rickets.

For Cambridge IGCSE Biology 0610 (and 0970, which has the same content). **Supplement** is Extended content, only examined on Papers 2 and 4.

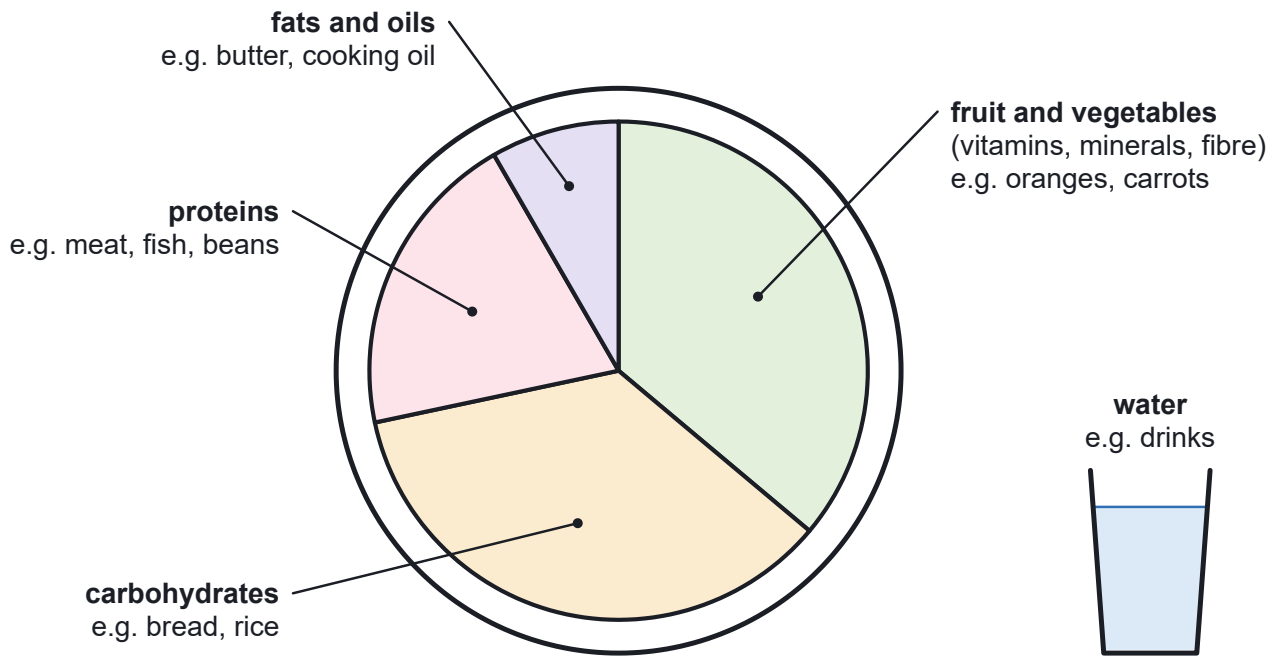
Diet Spec 7.1

A balanced diet and the main nutrients Spec 7.1.1, 7.1.2

A **balanced diet** contains all the nutrients the body needs, in the correct proportions, and gives the right amount of energy for the person. The amount of energy needed depends on age, sex and how active the person is.

You need to know the main source of each nutrient and why the body needs it. Vitamins are limited to C and D, and mineral ions are limited to calcium and iron.

Nutrients: sources and importance		
Nutrient	Main dietary sources	Importance in the body
Carbohydrates	Bread, rice, pasta, potatoes	Provide energy
Fats and oils	Butter, cooking oils, fatty meat, nuts	Provide energy, act as an energy store and give insulation (keeping the body warm)
Proteins	Meat, fish, eggs, beans	Growth and repair of tissues
Vitamin C	Citrus fruits, fresh fruit and vegetables	Needed for healthy skin and gums; prevents scurvy
Vitamin D	Oily fish, eggs, margarine (also made in the skin in sunlight)	Helps the body absorb calcium, so bones and teeth are hard; prevents rickets
Calcium	Milk, cheese, yoghurt	Making bones and teeth
Iron	Red meat, liver, green leafy vegetables	Making haemoglobin in red blood cells
Fibre (roughage)	Wholemeal bread, fruit, vegetables	Provides bulk for the muscles of the gut to push food along, which helps prevent constipation
Water	Drinks and most foods	Needed as a solvent and for the reactions in cells; forms the blood plasma, sweat and urine



A balanced diet contains all the nutrients in the **correct proportions**, plus fibre and water.

Common mistake: Do not say fibre 'gives energy' or is digested. Fibre is not digested by humans; it adds bulk to the food.

Exam tip: Give a specific use, not just 'for health'. Write 'iron for making haemoglobin' or 'calcium for strong bones and teeth'.

Vitamins, minerals, scurvy and rickets Spec 7.1.3

A **deficiency disease** is caused by not getting enough of a particular nutrient over a long period. Two you need to know are scurvy and rickets.

Scurvy and rickets		
Disease	Cause	Effect
Scurvy	Lack of vitamin C in the diet	Bleeding gums, slow healing of wounds and sore, damaged skin
Rickets	Lack of vitamin D (or calcium) in the diet	Bones do not harden properly, so they are soft and may bend, especially in children

Vitamin C is found in fresh fruit and vegetables, so a diet with none of these for a long time can lead to scurvy. Vitamin D helps the body absorb calcium from food. Without enough vitamin D, or without enough calcium, the bones and teeth cannot become hard.

- Scurvy: eat citrus fruits and fresh vegetables.
- Rickets: eat oily fish, eggs and dairy foods, and get some sunlight on the skin.

Common mistake: Do not swap the pairs. Scurvy goes with vitamin C and rickets goes with vitamin D (or calcium). Each is prevented only by eating more of the missing nutrient.

Quick check

- 1 . What is a balanced diet?
- 2 . Which nutrient is needed for growth and repair?
- 3 . What causes scurvy?
- 4 . What causes rickets?
- 5 . Why does the body need iron?

Quick check answers

Diet

- 1 . A diet containing all the nutrients in the correct proportions, giving the right amount of energy for the person.
- 2 . Protein.
- 3 . A lack of vitamin C.
- 4 . A lack of vitamin D (or calcium).
- 5 . To make haemoglobin in red blood cells.