

IGCSE Biology (9-1) Specification 2(e)

(e) Nutrition

Students should:

Flowering plants

- 2.18** understand the process of photosynthesis and its importance in the conversion of light energy to chemical energy
- 2.19** know the word equation and the balanced chemical symbol equation for photosynthesis
- 2.20** understand how varying carbon dioxide concentration, light intensity and temperature affect the rate of photosynthesis
- 2.21** describe the structure of the leaf and explain how it is adapted for photosynthesis
- 2.22** understand that plants require mineral ions for growth, and that magnesium ions are needed for chlorophyll and nitrate ions are needed for amino acids
- 2.23 practical:** investigate photosynthesis, showing the evolution of oxygen from a water plant, the production of starch and the requirements of light, carbon dioxide and chlorophyll

Humans

- 2.24** understand that a balanced diet should include appropriate proportions of carbohydrate, protein, lipid, vitamins, minerals, water and dietary fibre
- 2.25** identify the sources and describe the functions of carbohydrate, protein, lipid (fats and oils), vitamins A, C and D, the mineral ions calcium and iron, water and dietary fibre as components of the diet
- 2.26** understand how energy requirements vary with activity levels, age and pregnancy
- 2.27** describe the structure and function of the human alimentary canal, including the mouth, oesophagus, stomach, small intestine (duodenum and ileum), large intestine (colon and rectum) and pancreas
- 2.28** understand how food is moved through the gut by peristalsis

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2.29 understand the role of digestive enzymes, including the digestion of starch to glucose by amylase and maltase, the digestion of proteins to amino acids by proteases and the digestion of lipids to fatty acids and glycerol by lipases

2.30 understand that bile is produced by the liver and stored in the gall bladder

2.31 understand the role of bile in neutralising stomach acid and emulsifying lipids

2.32 understand how the small intestine is adapted for absorption, including the structure of a villus

2.33B practical: investigate the energy content in a food sample