

BIOLOGY
Key Stage 3
Programme of Study

KS3 Nutrition and digestion

Bi1	To know the contents of a healthy human diet: carbohydrates, lipids (fats and oils), proteins, vitamins, minerals, dietary fibre and water, and why each is needed
Bi2	To know about the consequences of imbalances in the diet, including obesity, starvation and deficiency diseases
Bi3	To be able to calculate energy requirements in a healthy diet
Bi4	To know how the digestive system digests food
Bi5	To know the tissues and organs of the human digestive system, including adaptations to function
Bi6	To be able to describe the role of enzymes as biological catalysts
Bi7	To be able to explain the importance of bacteria in the human digestive system
Bi8	To explain how the digestive system digests food
Bi9	To know that plants make carbohydrates in their leaves by photosynthesis and gain mineral nutrients and water from the soil via their roots

KS3 Photosynthesis

Bi10	Know the reactants in and products of, photosynthesis, and a word summary for photosynthesis
Bi11	To understand the dependence of almost all life on Earth on the ability of photosynthetic organisms such as plants and algae, to use sunlight in photosynthesis to build organic molecules that are an essential energy store and to maintain levels of oxygen and carbon dioxide in the atmosphere
Bi12	To be able to describe the adaptations of leaves for photosynthesis
Bi13	To know about the role of leaf stomata in gas exchange in plants

KS3 – Gas exchange systems

Bi14	To be able to describe the structure and functions of the gas exchange system in humans, including adaptations to function
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Bi15	To be able to explain the impact of exercise, asthma and smoking on the human gas exchange system
Bi16	To investigate the mechanism of breathing and how air moves in and out of the lungs, using a pressure model to explain the movement of gases, including simple measurements of lung volume
Bi17	To know about the role of leaf stomata in gas exchange in plants
KS3 - Reproduction - Know how a new life if is formed from fertilisation to birth	
Bi18	To know and be able to label the structure of the male and female reproductive systems
Bi19	To be able to explain the menstrual cycle (without details of hormones)
Bi20	To be able to explain how fertilisation occurs, using the word gametes
Bi21	To be able to explain the gestation period, birth, and how maternal lifestyle can have an effect on the foetus.
Bi22	To understand and be able to describe the process of reproduction in plants, including the flower structure, wind and insect pollination, fertilisation, seed and fruit formation and dispersal including quantitative investigation of some dispersal mechanisms
Relationships in an ecosystems	
Bi23	To understand the interdependence of organisms in an ecosystem, including food webs and insect pollinated crops
Bi24	To understand the importance of plant reproduction through insect pollination in human food security
Bi25	To be able to describe how organisms affect, and are affected by, their environment, including the accumulation of toxic materials
KS3 Cells and Organisation	
Bi26	To know that cells are the fundamental unit of living
Bi27	To know how to observe, interpret and record cell structure using a light microscope
Bi28	To be able to label a cell diagram and describe the functions of the cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts
Bi29	To be able to list the similarities and differences between plant and animal cells
Bi30	To be able to explain the role of diffusion in the movement of materials in and between cells

Bi31	To be able to describe the structural adaptations of some unicellular organisms
Bi32	To be able to describe the organisation of multicellular organisms: from cells to tissues to organs to systems to organisms
The Skeletal and Muscular Systems	
Bi34	To be able to describe the structure and function of the human skeleton: to include support, protect, allow movement and the making of blood cells
Bi35	Understand the term 'biomechanics' as the interaction between skeleton and muscles and the measurement of force exerted by different muscles
Bi36	To be able to explain the function of muscles and examples of antagonistic muscles
KS3 - Recreational drugs - Know the names of the common recreational drugs and their effect on human behaviour, health and life processes.	
Bi37	Understand the effects of recreational drugs (including substance misuse) on behaviour, health and life processes
KS3 – Cellular Respiration	
Bi38	To know about aerobic and anaerobic respiration in living organisms, including the breakdown of organic molecules to enable all the other chemical process necessary for life
Bi39	To know a word summary for aerobic respiration
Bi40	To know about the process of anaerobic respiration in humans and micro-organisms including fermentation and a word summary for anaerobic respiration
Bi41	To be able to describe the differences between aerobic and anaerobic respiration in terms of the reactants, the product formed and the implications for the organism
KS3 - Inheritance, chromosomes, DNA and Genes	
Bi42	To know heredity as the process by which genetic information is transmitted from one generation to the next
Bi43	To know about a simple model of chromosomes, genes and DNA in heredity, including the part played by Watson, Crick, Wilkins and Franklin in the development of the DNA model
Bi44	To be able to recognise and label a simple model of chromosomes, genes and DNA
Bi45	Know how the model of DNA was developed by Watson, Crick, Wilkins and Franklin

Bi46	To know about differences between species
Bi47	To be able to explain that the variation between individuals within a species and between individuals of the same species means some organisms compete more successfully, which can drive natural selection
Bi48	To know that changes in an environment may leave individuals of the same species and some entire species less well adapted to compete successfully and reproduce, which in turn may lead to extinction
Bi49	To know the importance of maintaining biodiversity and the use of gene banks to preserve heredity material