

Human Biology (2017) (4HB1)

2-year course planner



This section contains a 2-year course planner for the **International GCSE Human Biology (2017)** qualification. It follows the specification and scheme of work to cover each of the units.

The course planner summarises what can be covered in each term to enable completion of the content and preparation for assessment at the end of each year. It assumes that each year is split into 3 terms and that each week accounts for roughly 2 Guided Learning Hours over 60 weeks of teaching to give a total of roughly 120 hours for Human Biology (2017).

This is only a suggested course planner with suggested timings, and it does not need to be followed. You may decide to start teaching content earlier if you would like more time.

Year	Term	Week	Topic	Spec points/practicals
1	1	1	<u>Topic 1: Cells and Tissues</u> Cell structures and functions Investigating cells	1.2 1.1
1	1	2	Structure of DNA and RNA DNA replication	1.3, 1.6 1.4
1	1	3	Protein synthesis and mutations Genetic engineering	1.5, 1.7, 1.8 1.9
1	1	4	Mitosis Stem cells and ethics	1.10, 1.11 1.12, 1.13
1	1	5	Cells, tissues, and organs Specialised cells	1.14 1.15, 1.16
1	1	6	Consolidation and assessment Feedback	
1	1	7	<u>Topic 2: Biological Molecules</u> Structure of biological molecules Testing for biological molecules	2.1, 2.2 2.3
1	1	8	Core prac – Vitamin C content in food Core prac – investigate the energy content of food	2.4 <i>Practical: investigate the qualitative and quantitative content of vitamin C in food</i> 2.5 <i>Practical: investigate the energy content of food</i>
1	1	9	Enzymes and factors affecting enzyme activity	2.6, 2.7
1	1	10	Core prac – effect of temperature and pH on enzyme activity	2.8 <i>Practical: investigate the effect of temperature and pH on enzyme activity</i>

International GCSE



International GCSE

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1	1	11	Immobilised enzymes Core prac – immobilised enzymes	2.9 2.10 <i>Practical: Investigate the action of immobilised enzymes including the preparation of alginate beads</i>
1	2	1	Consolidation and assessment Feedback	
1	2	2	Topic 3: Movement of substances Diffusion Osmosis	3.1, 3.2, 3.3
1	2	3	Active transport Topic 4: Bones, Muscles and Joints The skeleton	3.1, 3.2, 3.3 4.1
1	2	4	Joints and Muscles Diet and health	4.2, 4.3, 4.4 4.5, 4.6
1	2	5	Consolidation and assessment Feedback	
1	2	6	Topic 5: Coordination Neurone structure and the CNS The brain	5.1, 5.2 5.3
1	2	7	Reflex arcs Core prac – sensory receptors	5.4, 5.5, 5.6 5.7 <i>Practical: investigate the number and position of sensory receptors, such as touch and temperature receptors in the skin</i>
1	2	8	Synapses Nervous and hormonal systems	5.8 5.9, 5.10
1	2	9	The eye Eye defects and treatments	5.11 5.12
1	2	10	The ear Core prac – range of frequency audible to the human ear	5.13, 5.14 5.15 <i>Practical: investigate the range of frequency audible to the human ear.</i>
1	3	1	Legal and illegal drugs Mental illness	5.16, 5.17 5.18
1	3	2	Neurological disorders Consolidation and assessment	5.19
1	3	3	Feedback Topic 6: Nutrition and energy Balanced diets and deficiencies	6.1, 6.2, 6.3, 6.4



International GCSE

Year	Term	Week	Topic	Spec points/practicals
1	3	4	Teeth Digestion	6.10 6.5, 6.6
1	3	5	Digestive enzymes Absorption in digestion	6.7 6.8, 6.9
1	3	6	BMI and food hygiene Topic 7: Respiration Aerobic respiration	6.11, 6.12 7.1, 7.3, 7.6
1	3	7	Core prac – respiration Anaerobic respiration	7.2 <i>Practical: investigate the difference between inspired and expired air for carbon dioxide concentration</i> 7.4, 7.5
1	3	8	Consolidation and assessment Feedback	
1	3	9	Topic 8: Gas exchange Breathing and ventilation Gas exchange	8.1, 8.2 8.3
1	3	10	Lung capacity Core prac – lung capacity	8.4 8.5 <i>Practical: investigate the effect of exercise on the rate of breathing and measure lung capacity</i>
2	1	1	Chemoreceptors Exercise	8.6 8.7, 8.8
2	1	2	Heart rate Core prac – exercise and heart rate	8.9, 8.10, 8.12 8.11 <i>Practical: investigate the effect of exercise on the pulse rate</i>
2	1	3	Smoking Consolidation and assessment	8.13
2	1	4	Feedback Topic 9: Internal transport Blood	9.1, 9.2
2	1	5	Tissue fluid Red blood cells and blood clotting	9.3 9.4, 9.7
2	1	6	White blood cells and blood groups Blood vessels	9.5, 9.6 9.8, 9.9
2	1	7	The heart Heart disease	9.10 9.11, 9.12
2	1	8	Circulatory disorders Blood pressure	9.13, 9.14 9.15, 9.16, 9.17
2	1	9	Monoclonal antibodies Monoclonal antibodies applications	9.18 9.19



International GCSE

Year	Term	Week	Topic	Spec points/practicals
2	1	10	Consolidation and assessment Feedback	
2	1	11	Topic 10: Homeostatic mechanisms Homeostasis and negative feedback Skin and thermoregulation	10.8 10.1
2	2	1	Excretion and the renal system Osmoregulation	10.2, 10.3, 10.4 10.5, 10.6
2	2	2	Kidney disease treatments Core prac – diffusion and partially permeable membrane	10.9 10.10 <i>Practical: investigate diffusion using a partially-permeable membrane such as Visking tubing</i>
2	2	3	Blood glucose control The liver	10.7 10.11
2	2	4	Consolidation and assessment Feedback	
2	2	5	Topic 11: Reproduction and Heredity Variation Reproductive systems	11.23, 11.24 11.4, 11.7
2	2	6	Menstrual cycle Meiosis	11.5 11.3
2	2	7	Fertilisation and pregnancy Birth, growth and development	11.1, 11.2, 11.6 11.8, 11.9
2	2	8	Contraception and IVF Sex determination and genetics	11.10, 11.11, 11.12 11.13, 11.14, 11.15, 11.16, 11.17
2	2	9	Genetic diagrams Sex-linked disorders	11.18, 11.19, 11.20 11.21
2	2	10	Genetic disorders and gene therapy Consolidation and assessment	11.22
2	3	1	Feedback Topic 12: Disease Disease and pathogens	12.1, 12.2, 12.3
2	3	2	Bacteria Bacterial and viral diseases	12.5, 12.6 12.4, 12.7, 12.8
2	3	3	Fungal diseases, malaria and typhoid Immunity and vaccines	12.9, 12.10, 12.11 12.12, 12.13, 12.14



Year	Term	Week	Topic	Spec points/practicals
2	3	4	Antibiotics Decomposers and sewage	12.15, 12.16 12.17, 12.18
2	3	5	Consolidation and assessment Feedback	
2	3		Revision	

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