

Year 11 Overview of Scheme of Work for Science GCSE Biology

Please note that there may be some slight variation on topics taught in which weeks dependent on each class taught

Week	Topic titles	Key Assessments
1	B2.1 Plant & animal cells <ul style="list-style-type: none"> • Know that plants and animals are built out of cells. • Know the parts of cells and their functions. 	Cells assessment
2	B2.2 Bacterial & fungal cells <ul style="list-style-type: none"> • Know the structure of bacterial cells. • Know the structure of fungal cells, like yeast. • Appreciate how different cellular organisation still maintains life. 	Cells assessment
3	B2.3 Specialist cells <ul style="list-style-type: none"> • Know that cells become specialised to perform different functions. • Appreciate that specialising cells develop special structures to perform the function. 	Cells assessment
4	B2.4 Diffusion <ul style="list-style-type: none"> • Understand the process of diffusion. • Know how diffusion allows molecules to enter and leave cells. 	Cells assessment
5	B2.5 Animal tissue & organs <ul style="list-style-type: none"> • Know that cells work together as tissues. • Know that tissues work together as organs. • Appreciate the working of some animal tissues and organs. 	Cells assessment
6	B2.6 Animal organ systems <ul style="list-style-type: none"> • Know that organs work together in organ systems. • Know the major organs of the digestive system. 	Cells assessment
7	B2.7 Plant issues & organs <ul style="list-style-type: none"> • Know that animal and plant cells are organised into tissues and organs. • Know the main organs of the plant. • Understand the distribution of tissues inside the plant. 	Cells assessment
8	Controlled assessment - Planning	<i>GCSE Controlled assessment</i>
9	Controlled assessment - Reporting on the planning research Assessment	<i>GCSE Controlled assessment</i>
10	Controlled assessment - Practical work	<i>GCSE Controlled assessment</i>

11	Controlled assessment - Processing primary data	<i>GCSE Controlled assessment</i>
12	Controlled assessment - Analysing results Assessment	<i>GCSE Controlled assessment</i>
13	B2.8 Photosynthesis <ul style="list-style-type: none"> • Know that photosynthesis is the process by which plants make their own food. • Appreciate the source of the raw materials for photosynthesis. • Understand the fate of the products of photosynthesis. 	Photosynthesis assessment
14	B2.9 The leaf & photosynthesis <ul style="list-style-type: none"> • Know that the leaf is the site of photosynthesis. • Appreciate the internal and external structure of the leaf. • Understand the adaptations of the leaf for photosynthesis. 	Photosynthesis assessment
15	B2.10 Rates of photosynthesis <ul style="list-style-type: none"> • Know how some factors affect the rate of photosynthesis. • Understand limiting factors. 	Photosynthesis assessment
16	B2.11 Controlling photosynthesis <ul style="list-style-type: none"> • Understand that the factors needed for photosynthesis can be controlled. • Appreciate that there are commercial benefits to controlling photosynthesis in glasshouses. 	Photosynthesis assessment
17	B2.12 Sampling techniques <ul style="list-style-type: none"> • Know about common sampling techniques. • Understand how to use sampling techniques to collect good quality data. 	Photosynthesis assessment
18	B2.13 Handling environmental data <ul style="list-style-type: none"> • Know that environmental work can generate considerable data. • Review some of the methods used to process data. 	Photosynthesis assessment
19	B2.14 Proteins <ul style="list-style-type: none"> • Know that proteins are made of long chains of amino acids. • Understand how the shape of proteins enables them to carry out their functions. 	Enzymes & respiration assessment
20	B2.15 Enzymes Know that enzymes <ul style="list-style-type: none"> • are proteins that catalyse chemical reactions in living cells • have high specificity for their substrates • work best at particular temperatures and pH. 	Enzymes & respiration assessment
21	B2.16 Enzymes & digestion	Enzymes & respiration assessment

	<ul style="list-style-type: none"> • Understand that enzymes for digesting food work outside body cells. • Know the roles of hydrochloric acid and bile in helping digestion. 	
22	B2.17 Enzymes in the home - detergents <ul style="list-style-type: none"> • Know that enzymes obtained from microorganisms are used in biological detergents. 	Enzymes & respiration assessment
23	B2.18 Enzymes in industry <ul style="list-style-type: none"> • Understand why enzymes are used in industry. • Consider some examples of using enzymes in industry. 	Enzymes & respiration assessment
24	B1.19 Energy & life processes <ul style="list-style-type: none"> • Know that energy needed for all life processes is provided by respiration. • Understand that respiration can take place aerobically or anaerobically in living cells. 	Enzymes & respiration assessment
25	B2.20 Aerobic respiration <ul style="list-style-type: none"> • Know the summary equation for aerobic respiration. • Know that most of the reactions in aerobic respiration take place in mitochondria. • Understand the changes that take place in the body during exercise. 	Enzymes & respiration assessment
26	B2.21 Anaerobic respiration <ul style="list-style-type: none"> • Know that muscles use anaerobic respiration when they do not receive enough oxygen. • Understand why muscles become fatigued after a long period of vigorous activity. 	Enzymes & respiration assessment
27	B2.22 Cell division – Mitosis <ul style="list-style-type: none"> • Know that mitosis is a type of cell division in body cells producing two genetically identical cells. • Know that organisms that reproduce asexually use mitosis. 	Inheritance assessment
28	B2.23 Cell division – Meiosis <ul style="list-style-type: none"> • Know that gametes are made by meiosis for sexual reproduction. • Know that gametes are haploids and combine to give a diploid zygote. • Understand that meiosis produces genetic variation. 	Inheritance assessment
29	B2.24 Inheritance – what Mendel did <ul style="list-style-type: none"> • Be familiar with the principles used by Mendel in his investigations of monohybrid inheritance. 	Inheritance assessment
30	B2.25 The importance of Mendel's work	Inheritance assessment

	<ul style="list-style-type: none"> • Know that other scientists rediscovered Mendel's work. • Understand that there are different forms of gene, called alleles. • Be able to interpret genetic diagrams of monohybrid inheritance. 	
31	B2.26 The inheritance of sex <ul style="list-style-type: none"> • Know that one of the 23 pairs of human chromosomes carries the genes for sex. 	Inheritance assessment
32	B2.27 How genes control characteristics <ul style="list-style-type: none"> • Know that chromosomes are made of DNA. • Know that a gene is a small section of DNA. • Understand that each gene codes for a particular protein. 	Inheritance assessment
33	B2.28 Genetic disorders <ul style="list-style-type: none"> • Know that some genetic disorders are inherited. • Consider two genetic disorders – polydactyly and cystic fibrosis. 	Inheritance assessment
34	B2.29 Embryo screening, stem cells & DNA fingerprinting characteristics <ul style="list-style-type: none"> • Know that embryos can be screened for alleles that cause genetic disorders. • Understand that stem cells from embryos can be used for medical research. • Explain how DNA fingerprinting can be used to identify individuals. 	Inheritance assessment
35	B2.30 Fossil evidence <ul style="list-style-type: none"> • Know that organisms have changed over time. • Know that there is evidence for evolution such as fossils. • Know how fossils were formed. • Evaluate fossil evidence. 	Extinction & evolution assessment
36	B2.31 Extinction <ul style="list-style-type: none"> • Understand extinction. • Offer reasons for the causes of extinction. • Understand what we mean by an endangered species. 	Extinction & evolution assessment
37	B2.32 Forming new species <ul style="list-style-type: none"> • Know that during evolution new species form. • Understand the mechanism by which a new species develops. 	Extinction & evolution assessment
38	GCSE Revision	
39	GCSE Revision	