

SB4: Natural Selection and Genetic Modification (Paper 1)

Lesson	Objectives Tracker Sheet	Date covered	I know this well	I need to do more work on this
SB4a Evidence for human evolution	B4.4 Describe the evidence for human evolution, based on fossils, including: Ardi from 4.4 million years ago Lucy from 3.2 million years ago Leakey's discovery of fossils from 1.6 million years ago.			
	B4.5 Describe the evidence for human evolution based on stone tools, including: the development of stone tools over time how these can be dated from their environment.			
SB4b Darwin's theory	B4.2 Explain Darwin's theory of evolution by natural selection.			
	B4.3 Explain how the emergence of resistant organisms supports Darwin's theory of evolution including antibiotic resistance in bacteria.			
SB4c Development of Darwin's theory	B4.1B Describe the work of Darwin and Wallace in the development of the theory of evolution by natural selection and explain the impact of these ideas on modern biology.			
	B4.6B Describe how the anatomy of the pentadactyl limb provides scientists with evidence for evolution.			
SB4d Classification	B4.7 Describe how genetic analysis has led to the suggestion of the three domains rather than the five kingdoms classification method.			
SB4e Breeds and varieties	B4.8 Explain selective breeding and its impact on food plants and domesticated animals			
	B4.10 Describe genetic engineering as a process which involves modifying the genome of an organism to introduce desirable characteristics.			
SB4f Tissue culture	B4.9B Describe the process of tissue culture and its advantages in medical research and plant breeding programmes.			

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SB4g Genes in agriculture and medicine	B4.11 H Describe the main stages of genetic engineering including the use of: restriction enzymes ligase sticky ends vectors.			
	B4.14 Evaluate the benefits and risks of genetic engineering and selective breeding in modern agriculture and medicine including practical and ethical implications.			
SB4h GM and agriculture	B4.12B Explain the advantages and disadvantages of genetic engineering to produce GM organisms including the modification of crop plants, including the introduction of genes for insect resistance from <i>Bacillus thuringiensis</i> into crop plants.			
SB4i Fertilisers and biological control	B4.13B Explain the advantages and disadvantages of agricultural solutions to the demands of a growing human population, including use of fertilisers and biological control.			