

# Subject: Biology

**Year 11**

## Scheme of Learning 2025-2026

**Subject leader: Mr S Brock**

Topics by term	Topic overview for Year 11					
	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<b>Topics taught</b>	<b>Biology –</b> Topic 6a – DNA and Reproduction	<b>Biology –</b> MOCKS Paper 1 and Topic 6b – Evolution and Classification	<b>Biology –</b> Topic 6b – Evolution and Classification And MOCKS Paper 2	<b>Biology –</b> Topic 7a – Organisms and their environment	<b>Biology –</b> Topic 7b – Human impacts on the environment	<b>Biology –</b> Revision

**Exam Board AQA**

<b>Topic Big question</b>	<b>Lesson questions</b>	<b>Lesson objective</b>	<b>Outcomes</b>	<b>Key Terms</b> <b>Literacy</b> <b>Numeracy</b> <b>Practical activities</b>	<b>Assessment and homework tasks</b>	<b>Resources</b>	<b>Personal Development curriculum links (SMSC, British Values, PSHE)</b>
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**Term 1**

**6a DNA and Reproduction**

<b>How do our genes determine our characteristics?</b>	1) How does two metres of DNA fit inside a cell?	To be able to describe the structure of DNA.	<ul style="list-style-type: none"> <li>- To describe a gene as a small section of DNA that codes for a protein.</li> <li>- To explain the importance of understanding the human genome.</li> <li>- To define the terms genome and chromosomes.</li> <li>- To explain what is meant by a double-helix.</li> </ul>	<b>DNA</b> <b>Chromosomes</b> <b>Genome</b> <b>Polymer</b> <b>Gene</b> <b>Double-helix</b>	Homework tasks linked to the lesson question.  Plenary questions at the end of every lesson.  End of unit multiple choice question set and teacher assessed exam style questions.	Knowledge organiser  CGP textbook  Standardised lesson presentations  GCSE Pod for homework setting.  Exampro for Exam style questions with M/S.	British values – respect through silence is a key aspect of the Abbey science lessons. – Students are expected to listen to, and respect others’ opinions.
	2) What are the differences between sexual and asexual reproduction?	To be able to compare and contrast sexual and asexual reproduction.	<ul style="list-style-type: none"> <li>- To define sexual and asexual reproduction.</li> <li>- To explain that sexual reproduction involves two parents and generally produces unique offspring.</li> <li>- To explain that asexual reproduction involves just one parent and produces genetically identical offspring.</li> </ul>	<b>Fertilisation</b> <b>Sexual reproduction</b> <b>Asexual reproduction</b> <b>Gametes</b> <b>Mitosis</b>		SMSC – discussion around sexual reproduction and can link to contraception and IVF.	

			- To define the term gametes.			
3) How are sex cells made?	To be able to explain the stages of Meiosis.	<ul style="list-style-type: none"> <li>- To recall that meiosis halves the number of chromosomes for gamete production.</li> <li>- To understand that fertilisation restores the chromosome number.</li> <li>- To explain how in meiosis the cell divides twice to form four gametes, each with a single set of chromosomes, and that all gametes are genetically different.</li> <li>- To compare meiosis with mitosis.</li> </ul>	<p>Meiosis</p> <p>Gametes</p>			
4) Why does 70% of the global population have brown eyes?	To be able to explain the difference between dominant and recessive alleles.	<ul style="list-style-type: none"> <li>- To define the term phenotype and genotype.</li> <li>- To explain what is meant by homozygous and heterozygous alleles.</li> <li>- To understand that for the dominant allele to be expressed only one copy is needed.</li> <li>- To understand that for the recessive allele to be expressed two copies of the allele are needed.</li> </ul>	<p>Alleles</p> <p>Characteristics</p> <p>Genotype</p> <p>Phenotype</p> <p>Dominant allele</p> <p>Recessive allele</p> <p>Homozygous</p> <p>Heterozygous</p>			SMHC – Link to tongue rolling – dominant or recessive?
5) How do we draw genetic diagrams to show	To be able to fill in a Punnett Square accurately.	<ul style="list-style-type: none"> <li>- To understand that dominant alleles are represented by capital letters.</li> </ul>	<p>Punnett Square</p> <p>Alleles</p> <p>Genotype</p> <p>Phenotype</p>			

	inheritance of characteristics?		<ul style="list-style-type: none"> <li>- To understand that recessive alleles are represented by lower-case letters.</li> <li>- To understand the dominant allele is always written first.</li> <li>- To define the term Punnett Square.</li> </ul>	<p>Dominant allele</p> <p>Recessive allele</p> <p>Homozygous</p> <p>Heterozygous</p>			
	6) What happens when mutations arise in the genome?	- To state what happens when mutations occur in the genome.	- To use family tree diagrams to determine if a characteristic is likely to be recessive or dominant.	<p>Polydactyl</p> <p>Cystic fibrosis</p> <p>Dominant allele</p> <p>Recessive allele</p> <p>Homozygous</p> <p>Heterozygous</p> <p>Genetic carriers</p>			
	7) What are the arguments for and against genetic testing?	- To be able to provide arguments for and against genetic testing.	<ul style="list-style-type: none"> <li>- To define the term genetic testing, antenatal testing and neonatal testing.</li> <li>- To explain how embryo screening works.</li> <li>- To explain the advantages of genetic testing.</li> <li>- To explain the disadvantages of genetic testing.</li> </ul>	<p>Genetic testing</p> <p>Antenatal testing</p> <p>Neonatal testing</p> <p>Embryo screening</p> <p>False positives</p> <p>False negatives</p>			SMSH – Is genetic testing ethical?
	8) How do our genes determine our sex?	- To be able to use a Punnett Square to predict the probability that a child will be either male or female.	<ul style="list-style-type: none"> <li>- To state that female chromosomes are XX and male chromosomes are XY.</li> <li>- To demonstrate the probability of male or female is 50% using a Punnett square.</li> <li>- To use a Punnett square to show a proportion of 0.5 and a</li> </ul>	<p>Punnett Square</p> <p>Chromosomes</p> <p>Probability</p> <p>Ratio</p> <p>Proportion</p>			SMSH – Link to the difference between sex and gender.

			ratio of 1:1 for a child being male or female.				
<b>New topic 6b Evolution and Classification</b>							
<b>Why is evolution important for the survival of species?</b>	9) Why are we different from one another?	- To be able to explain the difference between environmental and genetic variation.	<ul style="list-style-type: none"> <li>- To state the definitions for variation, genetic variation, environmental variation and mutation.</li> <li>- To give examples of inherited characteristics.</li> </ul>	Variation Genetic Variation Inherited Characteristics Environmental Variation Mutation			<b>SMHC – What characteristics have you inherited? Hitchhikers thumb, rolling your tongue, dimples.</b>
	10) How does evolution happen?	- To be able to explain the stages of the theory of evolution	<ul style="list-style-type: none"> <li>- To state the definitions for the theory of evolution, natural selection and speciation.</li> <li>- To understand that new genetic variations occur due to mutations and this can give rise to phenotypes that are suited to the environment.</li> <li>- To understand that speciation can lead to two different species that would not be able to produce fertile offspring if they reproduced.</li> </ul>	Theory of Evolution Natural Selection Speciation			
	11) Why do humans use selective breeding?	- To be able to explain the advantages and disadvantages of selective breeding.	<ul style="list-style-type: none"> <li>- To explain the process of selective breeding.</li> <li>- To state the advantages and disadvantages of selective breeding.</li> <li>- To understand the detrimental impacts of inbreeding.</li> </ul>	Inbreeding Selective breeding			<b>SMHC – Overbreeding of dogs has led to dogs with breathing difficulties.</b>

			- To state the definitions for selective breeding and inbreeding.				
	12) How can desired characteristics be manipulated?	- To be able to explain the advantages and disadvantages of genetic engineering.	<ul style="list-style-type: none"> <li>- To state the definition for genetic engineering.</li> <li>- To provide examples of genetic engineering.</li> <li>- To understand the difference between selective breeding and genetic engineering.</li> <li>- To state the disadvantages of advantages of genetic engineering.</li> </ul>	Genetic Engineering			

**Term 2**

**MOCKS PAPER 1 6b Evolution and Classification continued**


**Term 3**

**6b – Evolution and Classification and MOCKS Paper 2**

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<b>Term 4</b>							
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<b>7a – Organisms and their environment</b>							
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<b>Term 5</b>							
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<b>7b – Human Impacts on the Environment</b>							
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**Term 6**  
**Revision - Use data to assess gaps in knowledge and build revision lessons around this specific to your class.**