



### Learning Aims and Curriculum Intent:

Year 11 Biology continues to build upon the foundations that were introduced in Year 10. Students are expected to apply knowledge from topics 1-11 to allow them to fully access and understand the new contexts they will be introduced to throughout the second half of the Edexcel IGCSE specification. Students will spend time practising application of knowledge to exam questions, including extended response questions (CORMSS and SCAP).

Term	Content, Key Questions and Knowledge	Skills	Assessment
Michaelmas	<p><b>Topic 12: Excretion</b></p> <ul style="list-style-type: none"> <li>Understand how the leaf acts as an organ of excretion.</li> <li>Understand the excretory organs in humans.</li> <li>Understand the structure and function of the urinary system.</li> <li>Understand the structure of the kidney nephron.</li> <li>Understand the process of filtration in the kidney.</li> <li>Understand the role of ADH in regulating water content of urine.</li> </ul> <p><b>Topic 13: Coordination and Response</b></p> <ul style="list-style-type: none"> <li>Understand how organisms respond to changes in environment.</li> <li>Understand the structure and function of the central nervous system, including synaptic transmission and reflex arcs.</li> <li>Understand the structure and function of the eye.</li> <li>Understand that homeostasis is the maintenance of a constant internal environment, and that body water content and body temperature are both examples of homeostasis.</li> <li>Understand the role of the skin in homeostasis.</li> <li>Understand the role of the endocrine system, including ADH, FSH and LH.</li> <li>Understand the differences between nervous and hormonal communication.</li> <li>Understand phototropic and geotropic responses of plants to stimuli.</li> </ul> <p><b>Topic 14: Reproduction</b></p> <ul style="list-style-type: none"> <li>Understand natural and artificial modes of sexual and asexual reproduction (plants and animals).</li> <li>Understand the process and importance of fertilisation (plants and animals).</li> <li>Understand the structure of the reproductive systems (plants and animals).</li> <li>Understand the processes of pollination, fertilisation, seed formation and germination within plant reproduction.</li> <li>Practically investigate the conditions needed for germination.</li> <li>Understand the role of hormones in the menstrual cycle and puberty.</li> <li>Understand how the developing embryo/foetus is protected and nourished.</li> </ul>	<ul style="list-style-type: none"> <li>Apply prior knowledge to new concepts.</li> <li>Learn definitions for (and practice remembering) new key words.</li> <li>Write methods to validly test hypotheses.</li> <li>Predict expected results of required practicals, explaining reasons.</li> <li>Present data in a scientific way (tables, graphs).</li> <li>Interpret information and results of experiments to draw conclusions and explain them using scientific understanding.</li> <li>Suggest the limitations of an experimental procedure.</li> <li>Suggest ways to improve experimental validity, accuracy and reliability (distinguishing between each one).</li> <li>Select and apply appropriate mathematical skills to new / biological contexts.</li> </ul>	<p>All of the Biology teachers at Forest will use some or all of the following modes of assessment throughout the IGCSE course:</p> <ul style="list-style-type: none"> <li>Retrieval quizzes.</li> <li>Online topic progress multiple choice quizzes.</li> <li>Exam questions from Edexcel IGCSE board.</li> <li>Extended-response questions.</li> <li>End of topic tests composed of IGCSE exam questions.</li> </ul>

<b>Lent</b>	<p><b>Topic 15: Inheritance</b></p> <ul style="list-style-type: none"> <li>Understand the location, role and structure of DNA and RNA.</li> <li>Understand the process of protein synthesis, and the involvement of RNA.</li> <li>Understand the involvement of genes and the environment on determination of the phenotype.</li> <li>Understand how to demonstrate and predict outcomes of inheritance from monohybrid cross diagrams, including determination of biological sex.</li> <li>Understand how to interpret a family pedigree diagram.</li> <li>Understand the process and purpose of mitosis and meiosis.</li> <li>Understand the types of variation, including the impact of mutations.</li> <li>Understand the process of evolution by natural selection, including the process and implications of antibiotic resistance.</li> </ul> <p><b>Topic 16: Biotechnology</b></p> <ul style="list-style-type: none"> <li>Understand how various agricultural methods and types of pest control can be used to increase crop yield, including greenhouses and polytunnels.</li> <li>Understand the roles of microbes used in food production.</li> <li>Understand the use of fish farms in food (protein) production.</li> <li>Understand the use of selective breeding in increasing yield.</li> <li>Understand the methods, benefits and risks/concerns of genetic modification of microbes, animals and plants.</li> <li>Understand the process, benefits and risks of cloning plants and animals.</li> </ul>	<ul style="list-style-type: none"> <li>Apply prior knowledge to new concepts.</li> <li>Learn definitions for (and practice remembering) new key words.</li> <li>Write methods to validly test hypotheses.</li> <li>Predict expected results of required practicals, explaining reasons.</li> <li>Present data in a scientific way (tables, graphs).</li> <li>Interpret information and results of experiments to draw conclusions and explain them using scientific understanding.</li> <li>Suggest the limitations of an experimental procedure.</li> <li>Suggest ways to improve experimental validity, accuracy and reliability (distinguishing between each one).</li> <li>Select and apply appropriate mathematical skills to new / biological contexts.</li> </ul>	<p>All of the Biology teachers at Forest will use some or all of the following modes of assessment throughout the IGCSE course:</p> <ul style="list-style-type: none"> <li>Retrieval quizzes.</li> <li>Online topic progress multiple choice quizzes.</li> <li>Exam questions from Edexcel IGCSE board.</li> <li>Extended-response questions.</li> <li>End of topic tests composed of IGCSE exam questions.</li> </ul>
<b>Trinity</b>	<p>Any remaining lessons to be caught up on.</p> <p>Revision of content from year 10 and 11.</p> <p>Study leave commences.</p>	<ul style="list-style-type: none"> <li>Apply prior knowledge to new concepts.</li> <li>Learn definitions for (and practice remembering) new key words.</li> <li>Write methods to validly test hypotheses.</li> <li>Predict expected results of required practicals, explaining reasons.</li> <li>Present data in a scientific way (tables, graphs).</li> <li>Interpret information and results of experiments to draw conclusions and explain them using scientific understanding.</li> <li>Suggest the limitations of an experimental procedure.</li> <li>Suggest ways to improve experimental validity, accuracy and reliability (distinguishing between each one).</li> <li>Select and apply appropriate mathematical skills to new / biological contexts.</li> </ul>	<p>All of the Biology teachers at Forest will use some or all of the following modes of assessment throughout the IGCSE course:</p> <ul style="list-style-type: none"> <li>Retrieval quizzes.</li> <li>Online topic progress multiple choice quizzes.</li> <li>Exam questions from Edexcel IGCSE board.</li> <li>Extended-response questions.</li> <li>End of topic tests composed of IGCSE exam questions.</li> </ul>

<b>What consolidation looks like in this subject</b>	Use of departmental checklists (on SharePoint), using flashcards and/or quizlet regularly, CenturyTech, mind-mapping, using past paper questions.	
<b>Examples of Homework</b>	Practice question booklets, past paper questions, extended response questions (CORMMSS and SCAP), research tasks, experimental planning, experimental conclusion/evaluation, other worksheets.	
<b>Key terminology</b>	<p><u>Topic specific key words:</u> excretion, diffusion, gas exchange, homeostasis, nephron, ultrafiltration, selective reabsorption, osmoregulation, thermoregulation, glucoregulation, reflex, synapse, neurone, neurotransmitter, stimulus, sexual reproduction, asexual reproduction, germination, DNA, double helix, chromosome, genotype, phenotype, allele, dominant, recessive, homozygous, heterozygous, variation, transcription, translation, codominance, mutation, mitosis, meiosis, natural selection, evolution, crop yield, pest, biological control, chemical control, bioaccumulation, biomagnification, clone, selective breeding.</p> <p><u>Practical skills key words:</u> accuracy, reliability, validity, precision, concordance, control variable, independent variable, dependent variable, control experiment.</p>	
<b>Super-curricular enrichment and scholarly extension</b>	<p><b>Read:</b> The Selfish Gene (Richard Dawkins), Genome (Matt Ridley), The Sixth Extinction: An Unnatural History (Elizabeth Kolbert), Entangled Life (Merlin Sheldrake), Silent Spring (Rachel Carson), Sapiens (Yuval Noah Harari), The Sound of a Wild Snail Eating (Elisabeth Tova Bailey), The Man Who Mistook His Wife For A Hat (Oliver Sacks), The Aquatic Ape Hypothesis (Elaine Morgan), The Blind Watchmaker (Richard Dawkins).</p> <p><b>Watch:</b> Frozen Planet (BBC, David Attenborough), Racing Extinction, How To Survive a Plague, A Plastic Ocean, Life in the Undergrowth, Unnatural Selection (Netflix), Seaspiracy (Netflix), One Strange Rock (Apple TV, Amazon Prime).</p> <p><b>Listen:</b> 28(ish) Days Later (BBC Sounds),</p> <p><b>Visit:</b> The Wellcome Trust, Natural History Museum, The Science Museum, Home of Charles Darwin (Down House), The Faraday Museum, Francis Crick Institute, The Grant Museum of Zoology, ZSL London Zoo, London Wetland Centre, Hunterian Museum, Royal Society of Biology Headquarters (occasionally hosts events, talks, and exhibitions).</p>	
<b>Useful websites</b>	Websites for revision/catch up are all linked onto the topic checklists (on SharePoint).	
<b>Who can I contact?</b>	<b>Head of Department</b>	<b>Mrs Annie Plumb, <a href="mailto:amp@forest.org.uk">amp@forest.org.uk</a></b>
	<b>Teachers</b>	<b>Mr Luke Bouzguenda (<a href="mailto:lb@forest.org.uk">lb@forest.org.uk</a>), Mrs Katie Brosnan (<a href="mailto:key@forest.org.uk">key@forest.org.uk</a>), Mr Daniel Cawley (<a href="mailto:dac@forest.org.uk">dac@forest.org.uk</a>), Mr Matthew Clifford (<a href="mailto:mc@forest.org.uk">mc@forest.org.uk</a>), Mr Simon Firek (<a href="mailto:sf@forest.org.uk">sf@forest.org.uk</a>), Mrs Vicki-Ann Jermutus (<a href="mailto:vj@forest.org.uk">vj@forest.org.uk</a>), Mr Martin Bassett-Jones (<a href="mailto:mgb@forest.org.uk">mgb@forest.org.uk</a>), Ms Jill White (<a href="mailto:jrw@forest.org.uk">jrw@forest.org.uk</a>)</b>