

*****H420 Module 1-Development of practical skills in Biology**
will be integrated within other modules of the specification***

Calendar	Big Question/ Theme	Small Questions	Assessment Opportunities and Criteria. Teacher feedback point (TFP)	Homework
<p><u>Autumn 1</u></p> <p>Module 2</p> <p>Foundations in Biology</p> <p><i>Chapter2</i></p> <p><i>Basic components of living organisms</i></p>	<p>What are living organisms made up of?</p>	<p>2.1 Microscopy</p> <p>What is the history of the microscope?</p> <p>How did cell theory develop?</p> <p>How do you use a light microscope?</p> <p>How do you prepare a slide to view using a light microscope?</p> <p>Why do we use stains?</p> <p>2.2 Magnification and calibration</p> <p>What is the difference between magnification and resolution?</p> <p>How do we calculate magnification?</p> <p>How do you convert units of measurement?</p> <p>How do you use a graticule to calibrate a light microscope?</p> <p>2.3 More microscopy</p> <p>How do electron microscopes work?</p> <p>What are the 2 types of electron microscopes?</p> <p>How do light and electron microscopes compare?</p> <p>How are specimens prepared to view under an electron microscope?</p> <p>What does a laser scanning confocal microscope do?</p> <p>2.4 Eukaryotic cell structure</p> <p>What is the ultrastructure and function of eukaryotic cellular components?</p> <p>Why is the cytoskeleton important?</p> <p>What is the relationship between the organelles involved in the production and secretion of proteins?</p> <p>2.5 The ultrastructure of plant cells</p> <p>What is the ultrastructure and function of eukaryotic (plant) cellular components?</p> <p>2.6 Prokaryotic and eukaryotic cells</p> <p>What is the ultrastructure and function of prokaryotic cells?</p> <p>How does the structure of prokaryotic and eukaryotic cells compare?</p>	<p>Topic tests these are from OCR and include short answer questions that test student misconceptions in the topic area. Teacher will mark exam questions and provide a class feedback sheet.</p> <p>Students will NTG by responding to marking.</p> <p>Practical assessments (PAGs)</p> <p>Optional: Zig Zag end of topic tests are available to use</p>	<p>Homework: Revision of the topic's knowledge organiser.</p> <p>Students will be quizzed weekly /10 Student results will be recorded on a tracking sheet.</p> <p>Students to make Cornell notes of sections covered in class and complete summary questions in the text book. Students complete any extra exam questions set by the teacher.</p>

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<p><u>Autumn 1</u></p> <p>Module 2</p> <p>Foundations in Biology</p> <p><i>Chapter 3</i></p> <p><i>Biological Molecules</i></p>	<p>Why are the biological macromolecules essential for life?</p>	<p>3.1 Biological elements</p> <p>What chemical elements make up biological molecules?</p> <p>What is an ion?</p> <p>What are the key organic ions involved in biological processes?</p> <p>What are the bonding rules?</p> <p>What is the difference between a monomer and a polymer?</p>	<p>MCQ Topic tests are available from OCR and these test student misconceptions within each topic area.</p> <p>Teacher will mark exam questions and provide a class feedback sheet. Students will NTG by responding to marking.</p> <p>Practical assessments (PAGs)</p> <p>Optional: Zig Zag end of topic tests are available to use</p>	<p>Homework: Revision of the topic's knowledge organiser.</p> <p>Students will be quizzed weekly /10 Student results will be recorded on a tracking sheet.</p> <p>Students to make Cornell notes of sections covered in class and complete summary questions in the text book. Students complete any extra exam questions set by the teacher.</p>
		<p>3.2 Water</p> <p>How does hydrogen bonding occur between water molecules?</p> <p>How does the properties of water relate to its roles in living organisms?</p>		
		<p>3.3 Carbohydrates</p> <p>What is the ring structure and properties of glucose?</p> <p>What is the structural difference between an α- and a β-glucose molecule?</p> <p>What is the difference between a hexose and a pentose monosaccharide?</p> <p>How are glycosidic bonds formed in the synthesis and breakdown of a disaccharide and polysaccharide?</p> <p>What is the structure of starch (amylose and amylopectin), glycogen and cellulose molecules?</p> <p>How the structures and properties of glucose, starch, glycogen and cellulose molecules relate to their functions in living organisms?</p>		
		<p>3.4 Testing for carbohydrates</p> <p>How do you carry out and interpret the results of the following: Benedict's test; reagent test strips; iodine test?</p> <p>What quantitative methods are there that determine the concentration of a chemical substance in a solution?</p>		
		<p>3.5 Lipids</p> <p>What is the structure of a triglyceride and a phospholipid?</p> <p>How are triglycerides synthesised and broken down?</p> <p>What are the properties of triglyceride, phospholipid and cholesterol molecules?</p> <p>How do we carry out and interpret the results of an emulsion tests for lipids?</p>		

3.6 Structure of proteins

What is the general structure of an amino acid?
What are the levels of protein structure?
What happens in the synthesis and breakdown of dipeptides and polypeptides?
How do you carry out and interpret the results of the bieuret test for proteins?
What are the principles for paper chromatography?

3.7 Types of proteins

What is the structure and function of globular proteins including conjugated protein?
What are the properties of fibrous proteins?

3.8 Nucleic acids

What is the structure of a nucleotide?
What happens in the synthesis and breakdown of polynucleotides?
What is the structure of DNA?
How can we extract DNA?

3.9 DNA replication and the genetic code

How does DNA replicate?
What is the difference between continuous and discontinuous replication?
What is meant by and the nature of the genetic code?

3.10 Protein synthesis

How are polypeptides synthesised?
What happens in transcription?
What happens in translation?

3.11 ATP

What is the structure of ADP and ATP?
What happens in the hydrolysis and condensation reactions involving ATP and ADP?