




This half term: Skills, Knowledge and Understanding to be developed:

- **Skills (students WILL BE ABLE to by the end of the Learning Programme):** Identify the structure of a leaf; describe the structure of stomata and function of xylem, phloem and root hair cells; describe the importance of water and mineral nutrients to plants.
- **Knowledge (students WILL KNOW by the end of the Learning Programme):** the conditions needed for photosynthesis to take place and the factors which affect its rate.
- **Understanding (students WILL DEMONSTRATE their understanding):** of the dangers and effects of cardiovascular disease; advantages and disadvantages of treatments for cardiovascular disease; the importance of photosynthesis.

Key Terms / Words: Veins Angioplasty Capillaries	Cardiovascular disease Statins		Phloem Xylem	Transpiration Photosynthesis	Exam command words Name, Describe, Explain, Discuss
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<p>LP 4 – Week 1 & 2 Learning Outcomes: Students will be able to:</p> <ul style="list-style-type: none"> • Identify the structure of a leaf and be able to label the following structures: cuticle, epidermis, stomata, palisade layer, spongy layer, xylem and phloem; • Describe the structure of stomata to include guard cells and stoma; • Describe how stomata can open and close to regulate transpiration and allow gas exchange. <p>Students will be able to</p> <ul style="list-style-type: none"> • Describe the importance of water to plants • Describe how the root hair cell is adapted to absorb water. • Describe the role osmosis plays in the absorption of water. • Describe the role active transport plays in the absorption of mineral salts. <p>Students will be able to:</p> <ul style="list-style-type: none"> • Describe the adaptations of xylem tissue to transport water. • Describe the processes of transpiration and the environmental factors that affect it. <p>Students will be able to:</p> <ul style="list-style-type: none"> • describe the role of phloem in carrying sucrose from the photosynthetic areas to other parts of the plant for use in respiration or converted into starch for storage <p>describe the effects of plant nutrient deficiencies on plant growth: lack of nitrates results in poor growth; deficiency of potassium results in yellowing of the leaf; deficiency of phosphate results in poor root growth; the use of NPK fertilisers.</p> <p>Students will apply and demonstrate new knowledge and skills in APP1 assessment</p>	 <div style="border: 2px solid blue; padding: 2px; display: inline-block;">APP1</div> <div style="border: 2px solid red; padding: 2px; display: inline-block;">Mark</div>	<p>Success criteria:</p> <p>Students will recognise and label the structure of a leaf.</p> <p>Students will describe how water is absorbed into the root and is transported up the stem</p> <p>Students will describe the environmental factors that affect transpiration.</p> <p>Students will describe the role of phloem and use their knowledge to describe the effects of plant nutrient deficiencies.</p> <p style="text-align: center;">APP1 (~10 marks)</p>	<p>Homework LP 4 1/2</p> <p>Answer a GCSE question on transpiration</p>
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<p>LP 4 – Week 3 & 4 Learning Outcomes: Students will understand:</p> <ul style="list-style-type: none"> • the importance of photosynthesis, whereby green plants and other photosynthetic organisms use chlorophyll to absorb light energy and convert carbon dioxide and water into glucose, producing oxygen as a by-product and be able to state the word equation for photosynthesis. <p>Students will know:</p> <ul style="list-style-type: none"> • the conditions needed for photosynthesis to take place and the factors which affect its rate, including temperature, carbon dioxide and light intensity; these as limiting factors of photosynthesis. • the practical techniques used to investigate photosynthesis: the use of sodium hydroxide to absorb carbon dioxide; how to test a leaf for the presence of starch; how oxygen and carbon dioxide sensors and data loggers could be used. • the uses made by plant cells of the glucose produced in photosynthesis: respired to release energy; converted to starch for storage; used to make cellulose, proteins and oils. 		<p>Success criteria:</p> <p>Students will describe the importance of the reactants, chlorophyll and light in photosynthesis.</p> <p>Students will describe conditions needed for photosynthesis to take place and the factors which affect its rate.</p> <p>Students will describe how to test a leaf for starch and how to investigate photosynthesis.</p>	<p>Homework LP 4 2/2</p> <p>Revise for Summative assessment. Produce a revision summary of what you have learnt this half term e.g. topic summary/mind map</p>
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<p>LP 4 – Week 5 & 6 Learning Outcomes:</p> <p>(SUMMATIVE assessment based on ~30 marks. Questions will consist of a variety of short 1, 2, 3, and 4-mark questions)</p> <p>Students will review and respond to the feedback that was given on the Summative Assessment.</p> <p>Students will be able to:</p> <ul style="list-style-type: none">recall the the carbon cycle.describe the importance of micro-organisms in nutrient cycles and describe the effect of the carbon cycle on the atmosphere. <p>Students will be able to recall and describe what happens during the nitrogen cycle and the factors that could lead to denitrification.</p> <p>Students will understand that in a stable community the processes which remove materials in cycles are balanced by processes which return materials to the environment.</p>	<p style="text-align: center;">Assessment </p> <div style="border: 2px solid blue; padding: 2px; text-align: center; margin-bottom: 5px;">SA</div> <div style="border: 2px solid red; padding: 2px; text-align: center; margin-bottom: 5px;">Mark</div> <div style="border: 2px solid red; padding: 2px; text-align: center;">Grade:</div>	<p>Success criteria: SA (~30 marks)</p> <p>Students will be able to draw and label the carbon and nitrogen cycle and describe the processes that are involved at the various stages.</p> <p>Students will describe the importance of nutrient cycles.</p>	<p>Homework LP 4</p> <p>Revise for Summative assessment. Produce a revision summary of what you have learnt this half term e.g. topic summary/mind map</p>
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