

ST. JOSEPH'S COLLEGE

Department of Biology Secondary 4 (2024-25)

Teaching Syllabus

S4	Content	Remarks
1 st Term	- Human circulatory system (Aristo Bk1B Ch9, Bk5 Ch34.3 A-C)	<i>Knowledge needing attention:</i> - * include initiation of heartbeat, cardiac cycle and cardiac output from E1 <i>Suggested practical:</i> - Dissection of pig's heart <i>Special exam skills:</i> - “compare and contrast” - Revision: “with reference to...”
	- General plant structure - Plant transpiration, transport and support (Aristo Bk2A Ch11)	<i>Knowledge needing attention:</i> - rate of water loss vs rate of water absorption <i>Suggested practical:</i> - Observation of lower epidermis/ free-hand sectioning of dicot stem <i>Special exam skills:</i> - meaning of area under a curve
2 nd Term	- Gas exchange in human (Aristo Bk1B Ch8, Bk5 Ch34.2A)	<i>Knowledge needing attention:</i> - * include control of breathing during normal circumstances - Graph of lung pressure changes during ventilation
	- Regulation of gas content in blood (Aristo Ch5 Ch34)	<i>Knowledge needing attention:</i> - Chemoreceptors detects pH in blood - Stimulus is increase/ decrease CO ₂ concentration in blood - Hormonal control of cardiac output <i>Special exam skills:</i> - Decrease/increase x% does not equal to decrease/increase x percentage points (when teaching change in composition of air after gas exchange)
	- Respiration (Aristo Bk2C Ch22)	<i>Knowledge needing attention:</i>

	<ul style="list-style-type: none"> - Basic concepts of oxidation, reduction <p><i>Special exam skills:</i></p> <ul style="list-style-type: none"> - Essay-type question
<ul style="list-style-type: none"> - Plant nutrition (photosynthesis) (Aristo Bk2A Ch10, Bk2C Ch21) 	<p><i>Knowledge needing attention:</i></p> <ul style="list-style-type: none"> - Modes of nutrition - Gas exchange in plants - “fixation”, “regeneration” <p><i>Special exam skills:</i></p> <ul style="list-style-type: none"> - Describe observations - Describe procedures of food tests
<ul style="list-style-type: none"> - Cell division (Aristo Bk2A Ch12) 	<p><i>Knowledge needing attention:</i></p> <ul style="list-style-type: none"> - Chromosome vs chromatid vs chromatin - Homologous chromosomes vs sister chromatids <p><i>Suggested practical:</i></p> <ul style="list-style-type: none"> - Observe of mitosis at root tip