IB Biology
Syllabus and Course Outline
Port Saint Lucie High School
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https://sites.google.com/site/mrstaylorsibbiology/

Text: Biology Seventh Edition by Campbell and Reece
Pearson Baccalaureate Higher Level Biology by Damon and McGonegal
Biology for the IB Diploma by Allott
Online link: http://wps.aw.com/wps/media/access/Pearson_Default/1663/1703422/login.html

Required Supplies:

3 ring binder	Notebook paper
Carbon Lab notebook	Composition book
Colored pencils	Red pen
Pencils	3x5 cards for terms
Highlighter	

Classroom supplies:

Copy paper	Ziploc bags: quart and gallon
Paper towels	Hand soap
Hand Sanitizer	

Calculation of grades for PSLHS:

Laboratory: (30% of grade) There are 60 hours required between your junior and senior year. The following topics will be assessed through hands on manipulation and skill set learning this year.

Formative assessments: (20% of grade) These range from diagram reproductions to article synopsis. These include occasional homework grades and skills that are expected to be mastered within the course but may not appear on a test or quiz.

Tests and Quizzes: (50% of grade) All tests will be in the format of the IB exam. Some quizzes and test questions will be in the format of data based questions, multiple choice and short or extended response to mirror the exam in May. These assessments are graded according to the following calculations:

Junior Year: Week #	Topic	Hrs.	Assessment statement
1 August 19-23	Intro and Stats	4	1.1.1-1.1.6
2 August 26-30	Origin of Life/ Cell Theory/ Prokaryotes	5	D.1.1-D.1.8, 2.1.1-2.1.10, 2.2.1-2.2.4
3 September 2-6	Eukaryotes/ Membranes/ Cell Division	8	2.3.1-2.3.5, 2.4.1-2.4.8, 2.5.1-2.5.6,
4 September 9-13	Lab and Exam		
5 September 16-20	Chemical Elements/ Water/ Carbs, Lipids/ Proteins	7.5	3.1.1-3.1.6, 3.2.1-3.2.7,
6 September 23-27	Proteins and Enzymes	7.5	7.5.1-7.5.4, 3.6.1-3.6.5, 7.6.1-7.6.5
7 September 30-Oct. 4	Lab and Exam		
8 October 7-11	DNA structure/ Replication	7.5	7.1.1-7.1.5, 3.3.1-3.3.5, 7.2.1-7.2.3, 3.4.1-3.4.3
9 October 14-18	Transcription/ Translation	7.5	7.3.1-7.3.4, 7.4.1-7.4.7, 3.5.1-3.5.5
10 October 21-25	Lab and Exam		
11 October 28-Nov. 1	Group 4 and IA		
12 November 4-8	Cellular Respiration/ Lab	6	3.7.1-3.7.4, 8.1.1-8.1.6
13 November 11-15	Photosynthesis	5	3.8.1-3.8.8, 8.2.1-8.2.8
14 November 18-22	Lab		
15 November 25-29	Exam		
16 December 2-6	Plant structure	4	9.1.1-9.1.7
17 December 9-13	Transport	3	9.2.1-9.2.8
18 December 16-20	Semester Exams		
19 January 6-10	Transport/ Reproduction	4	9.2.9-9.2.11, 9.3.1-9.3.6
20 January 13-17	IA and Lab		
21 January 20-24	Exam		
22 January 27-31	Chromosomes/ Genes/ Alleles/	4	4.1.1-4.1.4, 4.2.1-4.2.4

	Mutation/ Meiosis		
23 February 3-7	Meiosis/ Lab	4	4.2.5-4.2.7, 10.1
24 February 10-14	Lab and Exam		
25 February 17-21	Theoretical Genetics	5	4.3.1-4.3.12, 10.2
26 February 24-28	Hardy Weinberg/ Lab	2	D.4.1-D.4.3
27 March 3-7	Genetic Engineering	5	4.4.1-4.4.13
28 March 10-14	Lab and Exam		
29 March 17-21	Evolution	4	5.4.1-5.4.8
30 March 31-April 4	Phylogeny/ systematics	5	D.5.1-D.5.10
31 April 7-11	Lab/ Exam		
32 April 14-18	Classification/ Lab	3	5.5.1-5.5.5
33 April 21-25	Species/ Speciation	5	D.2.1-D.2.11
34 April 28-May 2	IA and Exam		
35 May 5-9	Human Evolution	4	D.3.1-D.3.7
36 May 12-16	Human Evolution	3	D.3.8-D.3.10
37 May 19-23	Labs/ Data Based Question		
38 May 26-30	Review		
39 June 2-6	Final Exams		

Summer Reading: Junior Year

The Selfish Gene by Richard Dawkins

The Hot Zone by Robert Preston

Summer Work: Senior Year

Internal Assessment: Seed Germination

Assigned Chapter of The Genome by Matt Ridley

IB Biology HL Labs

1. Units of Measurement
2. Diffusion and Osmosis and Solubility
3. Enzyme Catalysis
4. Organic molecules: Carbs and Lipids
5. Organic molecules: Proteins and Amino Acids
6. Organic molecules: Chromatography of Amino Acids
7. Organic molecules: Analyzing unknown qualitatively
8. DNA extraction
9. Cellular Respiration
10. Chromatography pigments and Photosynthesis
11. Vascular Land Plants
12. Angiosperm development
13. Plant Anatomy
14. Transpiration
15. Plant Growth
16. Mitosis and Meiosis
17. Mitosis and Meiosis
18. Genetics of Drosophila
19. Human Genetic Traits
20. DNA: The Genetic Material (RTT modeling and Karyotype)
21. Molecular Genetics: Recombinant DNA
22. Dichotomous Keys
23. Population Genetics and Evolution
24. Terrestrial Ecology: Biotic components
25. Terrestrial Ecology: Abiotic components
26. Human Physiology: Transport
27. Human Physiology: Kidneys

Group 4 Project: Data collection and analysis in the Savannas State Preserve Park

IA Lab Conversions for 9 week grading period for Group 4

Internal Assessment #1		Internal Assessment #2	
I.A. Total	Out of 100	I.A. Total	Out of 100
18	100	18	100
17	98	17	98
16	96	16	96
15	94	15	94
14	92	14	90
13	90	13	85
12	85	12	80
11	80	11	75
10	75	10	65
9	70	9	55
8	65	8	50
7	60	7	45
6	55	6	40
5	50	5	35
4	45	4	30
3	40	3	25
2	35	2	15
1	30	1	5
0	20	0	0

Overall grade boundaries

Higher level Grade:	1	2	3	4	5	6	7
Mark range:	0 - 26	27 - 36	37 - 49	50 - 61	62 - 74	75 - 87	88 - 100
	F	D	C	B	B	A	A

These are subject to change from year to year and are guided by IBO scales.

Internal assessment

Component grade boundaries

Higher level Grade:	1	2	3	4	5	6	7
Mark range:	0 - 8	9 - 16	17 - 22	23 - 27	28 - 33	34 - 38	39 - 48
	F	D	C	B	B	A	A

These are subject to change from year to year and are guided by IBO scales.

Calculation of Grades for IBO:

External Paper 1 - multiple-choice questions that test knowledge of the core only for students at SL and the core and AHL material for students at HL.

External Paper 2 - of the core only for students at SL and the core and AHL material for students at HL. The questions address objectives 1, 2 and 3 and the paper is divided into two sections.

In section A, there is a data-based question that requires students to analyze a given set of data. The remainder of section A is made up of short-answer questions.

In section B, students at SL are required to answer one question from a choice of three, and students at HL are required to answer two questions from a choice of four. These extended-response questions may involve writing a number of paragraphs, solving a substantial problem, or carrying out a substantial piece of analysis or evaluation. A calculator is required for this paper.

External Paper 3 - knowledge of the options and addresses objectives 1, 2 and 3. Students at SL are required to answer several short-answer questions in each of the two options studied.

Internal Assessment - There are five assessment criteria that are used to assess the work of both SL and HL students.

- Design—D
- Data collection and processing—DCP
- Conclusion and evaluation—CE
- Manipulative skills—MS
- Personal skills—PS

The first three criteria—design (D), data collection and processing (DCP) and conclusion and evaluation (CE)—are each assessed twice.

Manipulative skills (MS) are assessed summatively over the whole course and the assessment should be based on a wide range of manipulative skills.

Personal skills (PS) are assessed once only and this will be during the group 4 project.

Each of the assessment criteria can be separated into three **aspects** as shown in the following sections. Descriptions are provided to indicate what is expected in order to meet the requirements of a given aspect **completely (c)** and **partially (p)**. A description is also given for circumstances in which the requirements are not satisfied, **not at all (n)**.

A **"complete"** is awarded 2 marks, a **"partial"** 1 mark and a **"not at all"** 0 marks. The maximum mark for each criterion is 6 (representing three "completes").

D × 2 = 12

DCP × 2 = 12

CE × 2 = 12

MS × 1 = 6

PS × 1 = 6

This makes a total mark out of 48.The marks for each of the criteria are added together to determine the final mark out of 48 for the IA component. This is then scaled at IBCA to give a total out of 24%.

Group 4 Project - The group 4 project is an interdisciplinary activity in which all Diploma Programme science students must participate. The intention is that students from the different group 4 subjects analyze a common topic or problem. The exercise should be a collaborative experience where the emphasis is on the **processes** involved in scientific investigation rather than the **products** of such investigation