COURSE OUTLINE BIOLOGY
SESSION 2014-15


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COURSE DESCRIPTION:

Welcome to IB Biology!

Biology is a broad subject that impart the knowledge of all forms of life. Anyone who is fascinated about the living world, will enjoy the subject.
Studying Biology is always an enthralling & challenging experience in itself & in IBDP Biology, it also helps students in developing numerous generic skills that will always pay them , no matter , whether they go for further higher studies or enter in the world of professionalism. Handling data will be fundamental part of student work, empowering him to manifest statistical retrieval skills along with the use of numeracy and ICT. Student will develop realm of aptitudes that require innovations and perfection as well as developing a strong grasping of health and welfare issues.

IB Diploma Biology will be offered concurrently at both the standard and higher level over the course of a two year class in Sangam school of excellence. Throughout this two-year course, students will cover ecology, evolution, genetics, biochemistry, anatomy and physiology.
Student will acquire an intercontinental interpretation of the biology as well as the essenceof the basic unit of life. Students will cooperate with each other to explore the system that fabricate and support life. Students will participate in group discussions, debates, laboratory investigations, project works, journal research and assignments as they reinforce their perception and bloom as energetic beginner. Students will be evaluated through multiple ways. Formative and summative assessments are the integral part of Sangamschool to judge students escalation and reasoning over time.

After completion of their two years diploma programme, Biology students are qualified to take any one of the following fields as carrier options :

i) Medicinal Sciences
ii) Dentistry
iii) Biotechnology
iv) Bioinformatics
v) Agriculture Science
vi) Dairy Science
vii) Entomology
viii) Microbiology
ix) Molecular Biology
x) Genetic Engineering
xi) Bio medical Engineering
xii) Marine Engineering
xiii) Environmental Engineering
xiv) Biophyscis
xv) Biochemistry
And many more……

For further details see
http://occ.ibo.org/ibis/documents/dp/gr4/biology/d_4_biolo_gui_0903_1_e.pdf

AIMS AND OBJECTIVES:

AIMS:

While studying Biology in Diploma programme, the subject should aim to:

1. Provide opportunities for scientific study and creativity within a global context that will stimulate and challenge students
2. Provide a body of knowledge, methods and techniques that characterize science and technology
3. Enable students to apply and use a body of knowledge, methods and techniques that characterize science and technology
4. Develop an ability to analyse, evaluate and synthesize scientific information
5. Engender an awareness of the need for, and the value of, effective collaboration and communication during scientific activities
6. Develop experimental and investigative scientific skills
7. Develop and apply the students' information and communication technology skills in the study of science
8. Raise awareness of the moral, ethical, social, economic and environmental implications of using science and technology
9. Develop an appreciation of the possibilities and limitations associated with science and scientists
10. Encourage an understanding of the relationships between scientific disciplines and the overarching nature of the scientific method.

OBJECTIVES:

The objectives for Biology reflect those parts of the aims that will be assessed. Wherever appropriate, the assessment will draw upon environmental and technological contexts and identify the social, moral and economic effects of science.

It is the intention of all the Diploma Programme experimental science courses that students achieve the following objectives.

1. Demonstrate knowledge and understanding of: a. facts, concepts and terminology
   b. methodologies and techniques
   c. communicating scientific information.

   2. Apply:
   a. facts, concepts and terminology
   b. methodologies and techniques
   c. methods of communicating scientific information.

   3. Formulate, analyse and evaluate:
   a. hypotheses, research questions and predictions
   b. methodologies and techniques
   c. primary and secondary data
   d. scientific explanations.

   4. Demonstrate the appropriate research, experimental, and personal skills necessary to carry out insightful and ethical investigations.

Command Terms:

These command terms indicate the depth of treatment required for a given assessment statement. These command terms will be used in examination questions, so it is important that students are familiar with the following definitions.

Objective 1

Define	Give the precise meaning of a word, phrase or physical quantity.
Draw	Represent by means of pencil lines.
Label	Add labels to a diagram.
List	Give a sequence of names or other brief answers with no explanation.
Measure	Find a value for a quantity.
State	Give a specific name, value or other brief answer without explanation or calculation.

Objective 2

Annotate	Add brief notes to a diagram or graph.
Apply	Use an idea, equation, principle, theory or law in a new situation.
Calculate	Find a numerical answer showing the relevant stages in the working (unless instructed not to do so).
Describe	Give a detailed account.
Distinguish	Give the differences between two or more different items.
Estimate	Find an approximate value for an unknown quantity.
Identify	Find an answer from a given number of possibilities.
Outline	Give a brief account or summary.

Objective 3

Analyse	Interpret data to reach conclusions.
Comment	Give a judgment based on a given statement or result of a calculation.
Compare	Give an account of similarities and differences between two (or more) items, referring to both (all) of them throughout.
Construct	Represent or develop in graphical form.
Deduce	Reach a conclusion from the information given.
Derive	Manipulate a mathematical relationship(s) to give a new equation or relationship.
Design	Produce a plan, simulation or model.
Determine	Find the only possible answer.
Discuss	Give an account including, where possible, a range of arguments for and against the relative importance of various factors, or comparisons of alternative hypotheses.
Evaluate	Assess the implications and limitations.
Explain	Give a detailed account of causes, reasons or mechanisms.
Predict	Give an expected result.
Show	Give the steps in a calculation or derivation.
Sketch	Represent by means of a graph showing a line and labelled but unscaled axes but with important features (for example, intercept) clearly indicated.
Solve	Obtain an answer using algebraic and/or numerical methods.
Suggest	Propose a hypothesis or other possible answer

HOW THE COURSE ADDRESSES:

INTERNATIONALMINDEDNESS:

Its an important facet of all IB diploma programme. The course belief in understanding and respecting thoughts of people coming from different cultures, ie, embracing diversity.

Science itself has no boundaries. Science findings can be highly progressive only if it is shared across national boundaries. Sharing was there since the beginning of life, but due to poor development of communication system, it was at a slower pace. Now a days, technical development has accelerated the process.

Biology is the science of human welfare. The subject has always been the high zone of researches for making life comfortable, healthy and long lasting.

Scientists all over the world are conjointly indulge in finding solutions for many problems of today like climate change, natural calamities, Cancer, AIDS and many more.

The group 4 project in all science subjects is a tool given by IB, to the group to inculcate the habit of conjoint working by working on the project between schools across the regions.

To focus this aspect, we are teaching the few areas of our subject through some timeline websites like:

- trailblazing.royalsociety.org/
- www2.gsu.edu/~mstnrhx/9870/science.htm
- en.wikipedia.org/wiki/Category:Science_timelines

EXTENDED ESSAY: It's a deep study of a focused topic promoting skills of research, creativity, communication and many more. Student doing extended essay in Biology must have significant biological component; the topic and the research component strongly biological. Extended essay must obey the IB Experimentation Policy.

TOK : Its one of the most challenging task in all the subjects of IB. Biology is one of the natural sciences (An area of knowledge) which ismany times placed in false conflicts with the arts or religious and indigenous knowledge systems.

The natural sciences tend to rely on the ways of knowing of sense perception, reason, language, memory.

There are many examples of discoveries made or inspired by imagination, intuition and emotion – however these are then rigorously tested and explained using the scientific method (falsification).

"in the TOK you are the knower" This concept must challenge the student. After a decade formal education, the student has developed his own knowledge and the IBDP gives him the chance to reflect it.

The aim of TOK is for students is to explore, develop and share their views as well as actively seek the views of his classmates.

IB LEARNER PROFILE

Inquirers	We nurture our curiosity, developing skills for inquiry and research. We know how to learn independently and with others. We learn with enthusiasm and sustain our love of learning throughout life.	Biology is taught in a"hook" style ,where the teacher delivers the topic in such a that students become curious & then we provide tools to find out the answers themselves. Thus inculcating the habit of becoming an inquirer.
Knowledgable	We develop and use conceptual understandings, exploring knowledge across a range of disciplines. We engage with issues and ideas that have local and global significance.	IBDP guide instruct not to teach Biology in a factual recall manner only. It must be understandable, skill based & should be applicable in daily life.
Thinkers	We use critical and creative thinking skills to analyze and take responsible action on complex problems. We exercise initiative in making reasoned, ethical decisions.	In Biology, students are able to evaluate data & experimental methods using analytical skills learned during the course hence learning through reasoning is ingrained.
Communicators	We express ourselves confidently and creatively in more than one language and in many ways. We collaborate effectively, listening carefully to the perspectives of other individuals and groups.	Communication is one of the most prominent listed 21st century skill. In Biology, students gets enough opportunities to communicate their learning through group discussions, presentations, debates &during labs.
Principled	We act with integrity and honesty, with a strong sense of fairness and justice, and with respect for the dignity and rights of people everywhere. We take responsibility for our actions and their consequences.	Students are encouraged to show academic honesty & integrity during researching, experimenting and report findings. Students will consider ethics and morals in all scientific ventures.
Open---minded	We critically appreciate our own cultures and personal histories, as well as the values and traditions of others. We seek and evaluate a range of points of view, and we are willing to grow from the experience.	This profile is nurtured in students during activities on ethical decisions and on applications of Biology in society.
Caring	We show empathy, compassion and respect. We have a commitment to service, and we act to make a positive difference in the lives of others and in the world around us.	Students will learn to have concern for every one including environment as returning pond samples to ponds after examining, disposing off chemical solutions in an appropriate way, helping patients in hospitals, giving due concern to biodiversity.

Risk---takers	We approach uncertainty with forethought and determination; we work independently and cooperatively to explore new ideas and innovative strategies. We are resourceful and resilient in the face of challenges and change.	Students should incorporate new ideas and challenges. In Biology class, this imbibe in students unknowingly during designing experiments, making presentations, raising questions from each others. But during laboratory work, risk-taking is minimized for the safety of everyone in the lab.
Balanced	We understand the importance of balancing different aspects of our lives —intellectual, physical, and emotional— to achieve well-being for ourselves and others. We recognize our interdependence with other people and with the world in which we live.	Students must learn to manage time well, organize thoughts & plan well before commencement of any work. Students implant this attribute by meeting out their deadlines during their work submissions.
Reflective	We thoughtfully consider the world and our own ideas and experience. We work to understand our strengths and weaknesses in order to support our learning and personal development.	Assessing their own progress is the ultimate goal of this profile. In Biology class, students are asked to do corrections of wrong answers in tests of various topics and also review their strengths and weaknesses as a learner during the topic.

Syllabus Content

The syllabus for the Diploma Programme biology course is divided into three parts: the core, the AHL material and the option. A syllabus overview is provided below.

S. No:	Syllabus Component	Teaching hours		
	Course Part	**SL**	**SL / HL**	**HL**
	Core		**95**	
1.	Cell biology		15	
2.	Molecular biology		21	
3.	Genetics		15	
4.	Ecology		12	
5.	Evolution & biodiversity		12	
6.	Human physiology		20	
	Additional Higher Level (AHL)			**60**
7.	Nucleic acids			9
8.	Metabolism , cell respiration & photosynthesis			14
9.	Plant biology			13
10	Genetics & evolution			8
11.	Animal physiology			16
	Option	**15**		**25**
12.	Neurobiology &behaviour	15		25
13.	Biotechnology & bioinformatics	15		25
14.	Ecology & conservation	15		25
15.	Human physiology	15		25
	Practical Scheme of Work	**40**		**60**
	Practical activities	20		40
	Individual investigation (internal assessment-IA)	10		10
	Group 4 project	10		10
	TOTAL	**150**		**240**

Two Year Break Up Of The SL Syllabus

Sr. No.	Month	Contents	Teaching hrs
1	July ,14	Cell biology, orientation of Internal assessment	12.75
2	August,14	Cell biology, Molecular biology	9
3	September,14	Molecular biology	9
4	October,14	Molecular biology Term 1st Exam	5
5	November,14	Molecular biology &Internal assessment	7
6	December,14	Human physiology, Option D	9
7	January,15	Human physiology, Option D& Internal assessment	3
8	February,15	Human physiology, Option D Term 2nd	12
9	March,15	Human physiology, Option D	11.25
10	April,15	Human physiology, Option D &Ecology	10
11	June,15	Ecology& Internal assessment	6
		TOTAL	94

May remains the month of Final Examinations and remains a summer break for Students of 1st year.

The school splits for a Summer break for teachers by 25th May and reopens on 16th June.

Syllabus Break up (IB DP 2nd year)

Sr. No.	Month	Contents	Teaching Hrs
1	July ,15	Ecology &Genetics	12.75
2	August,15	Genetics& Internal assessment	9
3	September,15	Genetics& Orientation of group 4 project.	9
4	October,15	Evolution & biodiversity & group 4 project Term 3rd	5
5	November,15	Evolution & biodiversity & group 4 project & Internal assessment submission	7
6	December,15	Evolution & biodiversity	9
7	January,16	Revision	3
8	February,16	Revision	12
9	March,16	Revision	11.25
10	April,16	Revision	10
		TOTAL	88

Two Year Break Up Of The HL Syllabus

Syllabus Break up (IB DP 1st year)

Sr. No.	Month	Contents	Teaching Hrs
1	July ,14	Cell biology, Molecular biology & orientation of Internal assessment	19.5
2	August,14	Molecular biology &Nucleic acids	15
3	September,14	Molecular biology &Nucleic acids	13
4	October,14	Metabolism, cell respiration & photosynthesis Term Exam 1st	8
5	November,14	Plant biology & Internal assessment	12
6	December,14	Plant biology , Human physiology & option D	15
7	January,15	Human physiology , option D & Internal assessment	4.5
8	February,15	Human physiology , option D Term Exam 2nd	18
9	March,15	Human physiology , option D	18
10	April,15	Human physiology , option D & Animal physiology.	18
11	June,15	Animal physiology & Internal assessment.	10
		TOTAL	151

May remains the month of Final Examinations and remains a summer break for Students of 1st year.

The school splits for a Summer break for teachers by 25th May and reopens on 16th June.

Syllabus Break up (IB DP 2nd year)

Sr. No.	Month	Contents	Teaching Hrs
1	July ,15	Animal physiology & Ecology	19.5
2	August,15	Ecology & Internal assessment.	15
3	September,15	Genetics& Orientation of group 4 project.	13
4	October,15	Genetics, Genetics & evolution& group 4 project. Term Exam 3rd	8
5	November,15	Genetics & evolution, Evolution& biodiversity . Group 4 project & Internal assessment submission	12

6	December,15	Evolution & biodiversity	15
7	January,16	Revision	4.5
8	February,16	Revision	18
9	March,16	Revision	18
10	April,16	Revision	18
		TOTAL	141

ASSESSMENT CRITERIA

SL assessment specifications – First assessment 2016

Component	Overall weighting (%)	Approximate weighting of objectives (%) 1+2	3	Duration (hours)	Format and syllabus coverage
Paper 1	**20**	**10**	**10**	**¾**	30 multiple-choice questions on the core
Paper 2	**40**	**20**	**20**	**1¼**	Section A: one data-based question and several short-answer questions on the core (all compulsory) Section B: one extended-response question on the core (from a choice of three)
Paper 3	**20**	**10**	**10**	**1**	Several short-answer questions in each of the two options studied (all compulsory)
Internal assessment	**20**	Covers objectives 1,2,3 & 4		**10**	

External assessment details—SL

Paper 1

Duration: 3/4 hour
Weighting: 20%
Marks: 30

30 multiple-choice questions on core, about 15 of which are common with HL.

The questions on paper 1 test assessment objectives 1, 2 and 3.

The use of calculators is not permitted.

No marks are deducted for incorrect answers.

A physics data booklet is provided.

Paper 2

Duration: 1¼ hours
Weighting: 40%
Marks: 50

Short-answer and extended-response questions on core material.

The questions on paper 2 test assessment objectives 1, 2 and 3.

The use of calculators is permitted. (See calculator section on the OCC.)

A physics data booklet is provided.

Paper 3

Duration: 1 hour
Weighting: 20%
Marks: 35

This paper will have questions on core and SL option material.

Section A: one data-based question and several short-answer questions on experimental work.

Section B: short-answer and extended-response questions from one option.

The questions on paper 3 test assessment objectives 1, 2 and 3.

The use of calculators is permitted. (See calculator section on the OCC.)

A physics data booklet is provided.

HL assessment specifications

Component	Overall weighting (%)	Approximate weighting of objectives (%) 1+2	3	Duration (hours)	Format and syllabus coverage
Paper 1	**20**	**10**	**10**	**1**	40 multiple-choice questions (• }15 common to SL plus about five more on the core and about 20 more on the AHL)
Paper 2	**36**	**18**	**18**	**2¼**	Section A: one data-based question and several short-answer questions on the core and the AHL (all compulsory) Section B: two extended-response questions on the core and the AHL (from a choice of four)
Paper 3	**24**	**12**	**12**	**1¼**	Several short-answer questions and one extended-response question in each of the two options studied (all compulsory)
Internal assessment	**20**	Covers objectives 1, 2, 3 and 4		**10**	

A clean copy of the *Physics data booklet* is required for papers 1, 2 and 3 at both SL and HL.

External assessment details—HL

Paper 1

Duration: 1 hour
Weighting: 20%
Marks: 40

40 multiple-choice questions on core and AHL, about 15 of which are common with SL.

The questions on paper 1 test assessment objectives 1, 2 and 3.

The use of calculators is not permitted.

No marks are deducted for incorrect answers.

A physics data booklet is provided.

Paper 2

Duration: 2¼ hours
Weighting: 36%
Marks: 95

Short-answer and extended-response questions on the core and AHL material.

The questions on paper 2 test assessment objectives 1, 2 and 3.

The use of calculators is permitted. (See calculator section on the OCC.)

A physics data booklet is provided.

Paper 3

Duration: 1¼ hours
Weighting: 24%
Marks: 45

This paper will have questions on core, AHL and option material.

Section A: one data-based question and several short-answer questions on experimental work.

Section B: short-answer and extended-response questions from one option.

The questions on paper 3 test assessment objectives 1, 2 and 3.

The use of calculators is permitted. (See calculator section on the OCC.)

A physics data booklet is provided.

Practical (Internal) Assessment

Criterion	Marks
Personal engagement	2 (8%)
Exploration	6 (25%)
Analysis	6 (25%)
Evaluation	6 (25%)
Communication	4 (17%)
	24 (100%)

***Practical Assessment is internally assessed by the teacher and externally moderated by the IBO.**

Personal engagement

Mark	Descriptor
0	The student's report does not reach a standard described by the descriptors below.
1	**The evidence of personal engagement with the exploration is limited with little independent thinking, initiative or creativity.** The justification given for choosing the research question and/or the topic under investigation does not demonstrate **personal significance, interest or curiosity**. There is little evidence of **personal input and initiative** in the designing, implementation or presentation of the investigation.
2	**The evidence of personal engagement with the exploration is clear with significant independent thinking, initiative or creativity.** The justification given for choosing the research question and/or the topic under investigation demonstrates **personal significance, interest or curiosity**. There is evidence of **personal input and initiative** in the designing, implementation or presentation of the investigation.

Exploration

Mark	Descriptor
0	The student's report does not reach a standard described by the descriptors below.
1-2	The topic of the investigation is identified and a research question of some relevance is **stated but it is not focused**. The background information provided for the investigation is **superficial** or of limited relevance and does not aid the understanding of the context of the investigation. The methodology of the investigation is only appropriate to address the research question to a very limited extent since it takes into consideration few of the significant factors that may influence the relevance, reliability and sufficiency of the collected data. The report shows evidence of limited awareness of the significant safety, ethical or environmental issues that are **relevant to the methodology of the investigation.**
3-4	The topic of the investigation is identified and a relevant but not fully focused research question is described. The background information provided for the investigation is mainly appropriate and relevant and aids the understanding of the context of the investigation. The methodology of the investigation is mainly appropriate to address the research question but has limitations since it takes into consideration only some of the significant factors that may influence the relevance, reliability and sufficiency of the collected data. The report shows evidence of some awareness of the significant safety, ethical or

	environmental issues that are **relevant to the methodology of the investigation.**
5-6	The topic of the investigation is identified and a relevant and fully focused research question is clearly described. The background information provided for the investigation is entirely appropriate and relevant and enhances the understanding of the context of the investigation. The methodology of the investigation is highly appropriate to address the research question because it takes into consideration all, or nearly all, of the significant factors that may influence the relevance, reliability and sufficiency of the collected data. The report shows evidence of full awareness of the significant safety, ethical or environmental issues that are **relevant to the methodology of the investigation.**

Analysis

Mark	Descriptor
0	The student's report does not reach a standard described by the descriptors below.
1-2	The report includes **insufficient relevant** raw data to support a valid conclusion to the research question. Some **basic** data processing is carried out but is either too **inaccurate or too insufficient to lead to a valid** conclusion. The report shows evidence of little consideration of the impact of measurement uncertainty on the analysis. The processed data is incorrectly or insufficiently interpreted so that the conclusion is invalid or very incomplete.
3-4	The report includes relevant but incomplete quantitative and qualitative raw data that could support a simple or partially valid conclusion to the research question. Appropriate and sufficient data processing is carried out that could lead to a broadly valid conclusion but there are significant inaccuracies and inconsistencies in the processing. The report shows evidence of some consideration of the impact of measurement uncertainty on the analysis. The processed data is interpreted so that a broadly valid but incomplete or limited conclusion to the research question can be deduced.
5-6	The report includes sufficient relevant quantitative and qualitative raw data that could support a detailed and valid conclusion to the research question. Appropriate and sufficient data processing is carried out with **the accuracy** required to enable a conclusion to the research question to be drawn that is fully **consistent** with the experimental data. The report shows evidence of full and appropriate consideration of the impact of measurement uncertainty on the analysis. The processed data is correctly interpreted so that a completely valid and detailed conclusion to the research question can be deduced.

Evaluation

Mark	Descriptor
0	The student's report does not reach a standard described by the descriptors below.
1-2	A conclusion is **outlined** which is not relevant to the research question or is not supported by the data presented. The conclusion makes superficial comparison to the accepted scientific context. Strengths and weaknesses of the investigation, such as limitations of the data and sources of error, are **outlined** but are restricted to an **account** of the **practical** or **procedural issues** faced. The student has **outlined** very few realistic and relevant suggestions for the improvement and extension of the investigation.
3-4	A conclusion is **described** which is relevant to the research question and supported by the data presented. A conclusion is described which makes some relevant comparison to the accepted scientific context. Strengths and weaknesses of the investigation, such as limitations of the data and sources of error, are **described** and provide evidence of some awareness of the **methodological issues*** involved in establishing the conclusion. The student has **described** some realistic and relevant suggestions for the improvement and extension of the investigation.
5-6	A detailed conclusion is **described and justified** which is entirely relevant to the research question and fully supported by the data presented. A conclusion is correctly **described and justified** through relevant comparison to the accepted scientific context. Strengths and weaknesses of the investigation, such as limitations of the data and sources of error, are **discussed** and provide evidence of a clear understanding of the **methodological issues*** involved in establishing the conclusion. The student has **discussed** realistic and relevant suggestions for the improvement and extension of the investigation.

Communication

Mark	0Descriptor
0	The student's report does not reach a standard described by the descriptors below.
1-2	**The presentation of the investigation is unclear, making it difficult to understand the focus, process and outcomes.** The report is not well structured and is unclear: the necessary information on focus, process and outcomes is missing or is presented in an incoherent or disorganized way. The understanding of the focus, process and outcomes of the investigation is obscured by the presence of inappropriate or irrelevant information. There are many errors in the use of subject specific terminology and

	conventions*.
3-4 ***Instructions may be in a variety of forms: oral, written worksheets, diagrams, photographs, videos, flow Charts, audio tapes, models, computer programs, and so on, and need not originate from the teacher.**	**The presentation of the investigation is clear. Any errors do not hamper understanding of the focus, process and outcomes.** The report is well structured and clear: the necessary information on focus, process and outcomes is present and presented in a coherent way. The report is relevant and concise thereby facilitating a ready understanding of the focus, process and outcomes of the investigation. The use of subject-specific terminology and conventions is appropriate and correct. Any errors do not hamper understanding.

*For example, incorrect/missing labelling of graphs, tables, images; use of units, decimal places. For issues of referencing and citations refer to the "Academic honesty" section.

The Group 4 Project

Another major component of Internal Assessment is the Group 4 Project. This is a collaborative activity where students from different group 4 subjects (Biology and Chemistry) work together on a scientific or technological topic, allowing for concepts and perceptions from across the disciplines in an effort to encourage and understanding of the relationships between scientific disciplines and the overarching nature of the scientific method. The project can be practically or theoretically based.

The group 4 project allows students to appreciate the environmental, social and ethical implications of science and technology and to understand the limitations of scientific study, for example, the shortage of appropriate data and/or the lack of resources. The emphasis is on interdisciplinary cooperation and the processes involved in scientific investigation, rather than the products of such investigation. Each student is evaluated on their self-motivation and perseverance, their ability to work within their team and their ability to reflect on the process

Final grades

The final grade awarded for an IB subject is from 1-7. The schools receive a breakdown of the grade achieved in each part of the exam.

The requirements to achieve the IB diploma are fairly complex and may be found here: IB diploma award requirements

Academic Honesty & Plagiarism:
All work must be the students own work. References and citations must be included where other work has been referred to or where work has been collaborative. If plagiarism by a student is discovered they will be subject to the school's disciplinary code. Plagiarism can result in Diplomas not being awarded and the ultimate loss of college/university places.

Resource and References:

1. Biology for the IB Diploma by Brenda Walpole, Ashby Merson-Davies & Leighton Dann.

2.Biology for the IB Diploma by C. J. Clegg.

3.Pearson Baccalaureate Standard / Higher Level Biology

Web links

http://ibbiologyhelp.com/MainPage/index.html

http://www.mrgscience.com/

http://www.sciencefairprojects.co.in/index.php#.VRRltI6Uc1M

http://www.biologyjunction.com/

http://www.ib.bioninja.com.au/ib-home/

http://learn.genetics.utah.edu/

http://www.thinkib.net/biology

http://www.brainfacts.org/

http://ibdiploma.cambridge.org/

http://www.bio-alive.com/animations/biology.htm

http://highered.mheducation.com/sites/0072495855/student_view0/index.html