

IBDP Biology

Teacher to Teacher Tips

Kognity is designed to help you prepare your students for success in their studies, while saving you time in the process. We have taken some of the most frequently asked questions from IBDP Biology teachers and asked other IBDP Biology teachers to provide the answers to them. Explore them below!



What should students focus on when reading the textbook?

All subtopics are divided into sections, just as they are in the IB Biology curriculum. Each section has words which could be new to the student hyperlinked to the glossary so that a small definition pop up appears.

The pre-biotic carbon compounds

Molecules that contain carbon and hydrogen. Most biological molecules, including proteins, carbohydrates, lipids and nucleic acids are organic molecules.

[See entire glossary](#)

A necessary precursor to the formation of simple, carbon-based compounds. These are the precursors to more complex carbon compounds, [organic molecules](#) that provide the structural and functional components for cells to survive and replicate.

Due to the lack of oxygen, and the high proportion of [reducing gases](#), including methane and ammonia, the early Earth had a reducing atmosphere. The reducing gases in the atmosphere would have been able to donate electrons to other molecules, enabling chemical reactions to take place. These reactions resulted in the formation of more complex carbon compounds, including simple amino acids and hydrocarbons. These building blocks would have eventually joined

Learning outcomes are in a blue box at the start of every section. This gives the student a success criteria to work towards while going through the section. The last section in each subtopic is a checklist - these highlight key concepts from the entire subtopic and, together with the learning outcomes boxes, provide a clear and valuable focus for the student.

When completing book assignments or during self study, have students focus on these specific features, so they can be as efficient as possible.

A2. Unity and diversity: Cells / A2.1 Origins of cells (HL)

Conditions on early Earth (HL)

A2.1.1 Pre-biotic formation of carbon compounds (HL) Assign

Sections completed 2/20

Higher level (HL)

Learning outcomes

By the end of this section you should be able to describe the conditions of early Earth and outline that these conditions may have led to the spontaneous generation of carbon compounds.

This is the learning outcome for the very first section within the subtopic A2.1 Origin of cells.

A2. Unity and diversity: Cells / A2.1 Origins of cells (HL)

Checklist (HL)

Assign

Sections completed 4/20

Higher level (HL)

What you should know

After studying this subtopic you should be able to:

- Describe the conditions of early Earth and outline that these conditions may have led to the spontaneous generation of carbon compounds.
- Explain why cells are the smallest units of self-sustaining life.
- Outline some of the challenges of explaining the spontaneous origins of cells.
- Outline and evaluate the Miller-Urey experiment.
- Outline how vesicles may have spontaneously formed by the coalescence of fatty acids into spherical bilayers.
- Explain the hypothesis that RNA was the first genetic material and catalyst in the earliest cells.
- Describe how it is likely that other life forms evolved, but were outcompeted by a last universal common ancestor.
- Outline approaches to estimate the time over which life has been evolving on Earth.
- Outline the evidence that supports the existence of a LUCA.

This is the checklist for the whole of subtopic A2.1. Origins of cells.





How can Kognity Biology help prepare students to achieve success in the Internal Assessment?

Kognity Biology has a detailed section on how to write the Biology Internal Assessment. Within this section, students can find numerous hints and tips on how to achieve the best mark possible in the Internal Assessment. Concepts such as independent, dependent and control variables are covered and the IB Assessment Criteria rubrics are included with clear explanations of the descriptors to make them more accessible to all students.

1.2 SUBTOPIC 1.2
Internal assessment guide
Completed activities
0 / 9

Sections

- 1.2.0 Introduction 2/20
- 1.2.1 Getting started 2/20
- 1.2.2 Research design 0/20
- 1.2.3 Planning 0/20
- 1.2.4 Data analysis 0/20
- 1.2.5 Conclusion 0/20
- 1.2.6 Evaluation 0/20
- 1.2.7 The report 0/20
- 1.2.8 Checklist for final report 0/20

The process of the scientific investigation is broken down into sections based on a combination of the scientific method and the IB IA criteria.

Table 2. Mark allocation for the recording and processing of data.

Mark band	Descriptor	Descriptor explained
1-2	The recording and processing of the data is communicated but is neither clear nor precise.	The raw data contains missing information, missing or incorrect units, and inconsistent precision in the quantitative data.
3-4	The communication of the recording and processing of the data is either clear or precise.	The raw data contains missing information, missing or incorrect units, or inconsistent precision in quantitative data.
5-6	The communication of the recording and processing of the data is both clear and precise.	The raw data contains all required qualitative and quantitative information, correct units, and correct precision in the quantitative data.

The IB IA descriptors are explained clearly to help students understand what is required and where the marks would be allocated.





How can Kognity Biology help students with their practical skills?

The 2025 examinations Biology Guide does not mandate specific labs; however it does outline many skills that an IB DP Biology student would be expected to develop throughout the progression of the course. Kognity Biology contains a Collected Practicals section where students can find example experiments for several lab activities which would address many of the Tools and Inquiry Process requirements found in the Biology Guide. Each example features the appropriate guiding questions, curriculum subtopic hyperlinks, embedded related videos, TOK and Nature of Science boxes as applicable and a detailed procedure together with a list of apparatus and chemicals required for the experiment. Once the student has completed the activity, there are discussion points related to their own IA development and checklist to assist them with their own independent scientific investigation.

TOPIC 1

Essential skills and support guides

SUBTOPIC 1.1

1.1 Collected practicals

Completed activities
0 / 9

Sections

1.1.0	Introduction	4 / 20
1.1.1	Using microscopes and calculating magnification	2 / 20
1.1.2	Investigating the osmolarity of plant tissues	0 / 20
1.1.3	Investigating the activity of enzymes	0 / 20
1.1.4	Investigating pigments present in plant leaves through chromatography	2 / 20
1.1.5	Observing a sustainable ecosystem using a mesocosm	0 / 20
1.1.6	Investigating the effect of physical activity on heart rate	0 / 20
1.1.7	Measuring percentage cover to assess the distribution and abundance of plants in a habitat	0 / 20
1.1.8	Using seedlings to investigate tropic responses in plants	0 / 20





How can students prepare for the IB exams using Kognity Biology?

There are many exam type questions in the textbook that have detailed mark schemes from papers 1B, 2A and 2B. Students can attempt the questions and check the answers themselves using the markschemes. Teachers must unlock exam style questions as an assignment for students to have access to them. This is a useful feature as giving unlimited access to all the questions could be overwhelming for some students. It also allows the teacher to use the sample exam questions for different purposes, for example to focus on particular command terms as a group or to look at markschemes and mark allocation. Teachers could also give students an assignment with particular questions in a particular topic as a timed test to allow practice of an actual exam situation.

Name

Tip: Name it something re-usable in the future

Recipients 

Send to **all students** in 2025 IB DP Biology HL

[Change recipients](#)

Mark scheme control

Locked during the assignment and can be **unlocked manually** by you

[Change](#)

Arrange 3 questions

1.	Paper 1B: Data-based questions Answer all questions. Multiple sclerosis is a disorder of the nervous system that is usually diagnosed between the age...	Paper 1B	8	x
2.	Paper 2B: Extended response questions Answer all questions. The nervous system allows signals to be sent rapidly around the body in order to ...	Paper 2B	15	x
3.	Paper 2A: Data-based and short-answer questions Answer all questions. (a) State the type of membrane transport used by sodium—potassium ...	Paper 2A	5	x

[Show less](#) ^

Instructions

When assigning exam style questions you can select specific questions, control when the markscheme is released, give specific instructions to the students for the assignment and also give students a specific amount of time in which to complete the questions.

