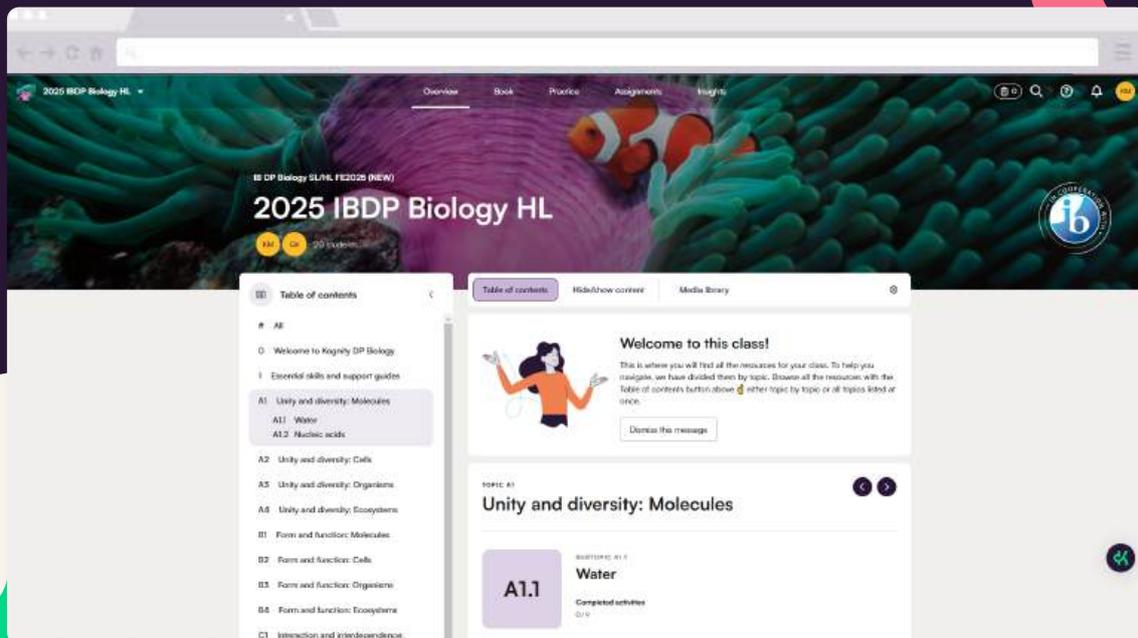


IBDP Biology

Our IBDP Biology SL / HL subject supports the full DP syllabus for the first assessment in 2025.



Key Features

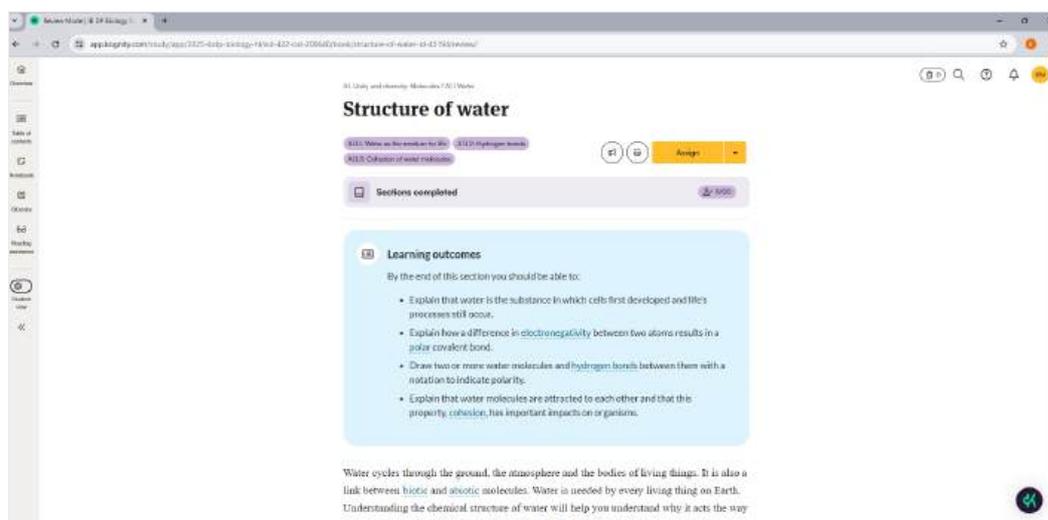
1. The Book

a. Syllabus organisation

This resource has been co-published with the IB. The content has been reviewed by the IB to ensure that it fully aligns with the current IB curriculum and offers high-quality guidance and support for IB teaching and learning.

The specific syllabus understandings from the DP Biology guide, along with the associated learning outcomes can be seen at the start of each section. The content is organised by Theme as per the IB syllabus roadmap for DP Biology. Within each theme the content is organised by level of organisation moving from content at the molecular level all the way to the ecosystem level.





The thematic organisation of the syllabus affords educators choice in how they tailor their program for their students and school setting. This has been recognised in the Kognity platform and is supported by the addition of Making Connections boxes. These have hyperlinks to content that is related to the current topic in question. This allows the students to develop a deeper understanding of the interconnectedness of each topic at different levels of organisation in the natural world.

For example, carbon (in the form of carbon dioxide, CO_2) is absorbed by plants to be used in photosynthesis to produce glucose. The glucose is used by plants and other organisms for energy, and carbon is released back to the atmosphere.

Making connections

Nutrient cycling in ecosystems is explained further in [subtopic C4.2](#). See [sections C4.2.17-19](#) for more on the carbon cycle, and [section C4.2.1-4](#) for more on recycling of other chemical elements.

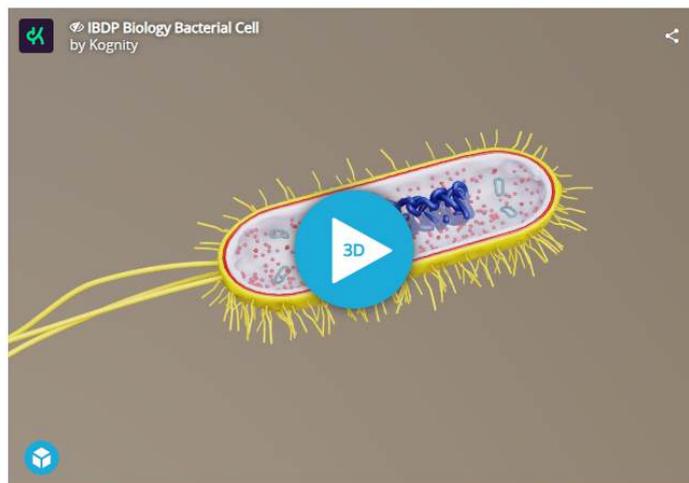
Depletion of nutrients can disrupt the functioning and stability of ecosystems. Recycling nutrients allows for the redistribution and regulation of nutrients. Rather than losing nutrients through leaching or runoff, capturing and retaining nutrients within the ecosystem minimises nutrient losses.



b. Course Content

Diagrams, illustrations, photos and videos add a visual perspective to key concepts of the syllabus. Kognity Biology also contains 3D models that are embedded directly into the text so that students can access them while they read. These clickable, interactive resources make learning fun and engaging.

Explore the 3D animated model of a bacterial cell in **Interactive 2**, by rotating and zooming in and out. Click on the annotations to learn about the different structures.



Interactive 2. Model of a bacterial cell.

c. Practical Skills & Internal Assessment

The 2025 examinations subject guide does not mandate specific lab activities, however there are specific skills that students are expected to develop through their course of study. These skills are addressed throughout the Kognity book with suggested activities which can be undertaken as a class or individually by the student. Each experiment has a detailed procedure with apparatus and safety requirements, as applicable. There are also example calculations and practice questions for students to answer as they work through the experiment.

Activity

Read or View the Guide

Read the following and answer the questions.

A 10-year-old boy accidentally drank up to 50 ml of a radiator coolant containing 55% ethylene glycol. The boy was taken to the doctor with severe headache, fatigue, lack of coordination and slurred speech.

Antifreeze is used in vehicle radiators to prevent the liquid coolant from freezing. It typically contains ethylene glycol, methanol and propylene glycol. If it is accidentally ingested the body can metabolise it into toxic alcohol products. Symptoms of antifreeze intoxication may take time to develop and can be similar to alcohol intoxication and can cause kidney failure.

The first step in metabolism involves an enzyme called alcohol dehydrogenase (Figure 4). Two inhibitors of this enzyme used in treating antifreeze poisoning are fomepizole and fomepizole. The chemical structures of antifreeze and the two inhibitors are shown in Figure 7.

Figure 4. Ethylene glycol metabolic pathway.

Figure 7. Chemical structures of antifreeze and the two inhibitors.

- State if the metabolic pathway is linear or cyclic and justify your answer.
- State the name of the substrate, the enzyme and the product of the first reaction in the metabolic pathway.
- Determine which inhibitor is competitive and which one is non-competitive, justify your answer.

Along with practical skills, there is also ample support for students in their Internal Assessment with a whole section dedicated to guiding the students through the process of conducting their internal assessment with a focus on how to meet the demands of the IA assessment criteria.

2025 IB DP Biology HL | Class 11

app.kognity.com/study/app/2025-ibdp-biology-hl/aid-422-cid-200540/overview?node=40819

2025 IB DP Biology HL

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B2 Form and function: Cells

B3 Form and function: Organisms

B4 Form and function: Ecosystems

C1 Interaction and interdependence: Molecules

C2 Interaction and interdependence: Cells

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1.2 INTERNAL ASSESSMENT GUIDE

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d. TOK, NoS, CAS and International mindedness

Within Kognity Biology you will find TOK boxes that help students make connections between their cross curricular TOK course and DP Biology. These provide interesting discussion points together with examples of knowledge questions. Nature of Science boxes are also incorporated throughout to demonstrate connections between subject content, TOK links and the overarching theme of the natural sciences in terms of how scientific knowledge is generated, tested, communicated and used.

 **Theory of Knowledge**

Do the natural sciences rely on any assumptions that are themselves unprovable by science?

 **Nature of Science**

[Show or hide attributes](#)

Why does falsification of an established theory not always lead to the immediate acceptance of a new theory?

Until 1978, production of ATP by respiration was believed to be a direct consequence of the transfer of phosphate groups from molecules in the respiratory pathway to ADP. In 1961, Peter Mitchell proposed the chemiosmotic theory linking the mitochondrial membrane and electron transport to ATP synthesis. This was a paradigm shift, a radical departure from the previous theory and, as such, met considerable resistance. His theory was initially disregarded, as the previous theory seemed to explain the observed facts. This led to almost 20 years of 'Chemiosmotic Wars', eventually leading to the acceptance of his theory following new evidence. He received the Nobel Prize for his discovery 17 years after his original proposal. In his speech at the Nobel Banquet he said, 'Meanwhile, the originator of a theory may have a very lonely time, especially if his colleagues find his views of unfamiliar nature, and difficult to appreciate. The final outcome cannot be known, either to the originator of a new theory, or to his colleagues and critics, who are bent on falsifying it. Thus, the scientific innovator may feel all the more lonely and uncertain.'

In addition to direct curriculum based content and skills, there are boxes throughout the book which give students ideas for their CAS (Creativity, Activity, Service) component of the IB diploma. These are linked to the curriculum and support the CAS model with reflection questions.

 **Creativity, activity, service**

[Show or hide attributes](#)

Climate change awareness campaign

Consider the anthropogenic causes of climate change and raise awareness within your community to take action towards environmental sustainability.

Engage in research and planning to understand the anthropogenic causes and impacts of climate change, then design a creative and informative campaign using media such as posters, social media, presentations, videos or workshops. You could also execute the campaign by organising events, workshops or presentations within your school or local community to spread awareness of how human action impacts climate change.

Once complete, you can evaluate your efforts and reflect on the effectiveness of your campaign.

While international mindedness is an underlying theme throughout these different boxes and the book as a whole, there are some topics that lend themselves particularly to specific discussion under this theme. Boxes highlighting these can be found throughout.

Case study: the extinction of moas

Megafauna literally means large animals. Moas, **mammoths** and giant kangaroos are examples of extinct megafauna. There has been a lot of debate around what led to the extinction of these megafauna, with causes ranging from volcanic eruptions to diseases to climate change. The case of the North Island moas is particularly compelling with reference to anthropogenic extinction as their extinction was clearly caused by humans.

The moas were flightless birds (**Figure 2**) endemic to the islands of New Zealand. One of the nine species that became extinct, the North Island giant moas (*Dinornis novaezealandiae*) were tall, slender birds with long, shaggy, hair-like feathers. These herbivorous birds thrived for millions of years, yet about 600 years ago, they became extinct.

International Mindedness

In the case of the moas, the oral traditions or *whakatauki* of the early Māori provide interesting clues about these species and their decline. A large number of these describe the moas and their habitat, the best way to eat them and then their disappearance.

A particularly compelling line translates to 'The people will disappear like the moas'. The arrival of the early Europeans was associated with the introduction of new diseases and habitat loss, sparking an intense fear in the Māori about their own existence.

2. Assignments

The assignments section allows teachers to assign either book, question or exam-style question assignments. This can be used in many different ways including a flipped classroom approach, a review approach or a support approach.

Assignments
IB DP Biology SL/HL, IBC2025 (HL/SL)

Download all question assignment data (xlsx) Create assignment

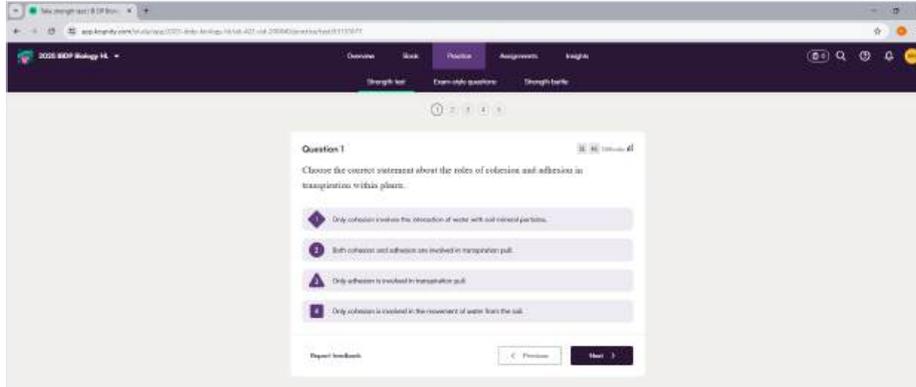
Active assignments Past assignments (34) Draft assignments (5) Archived

Past assignments
34 assignments

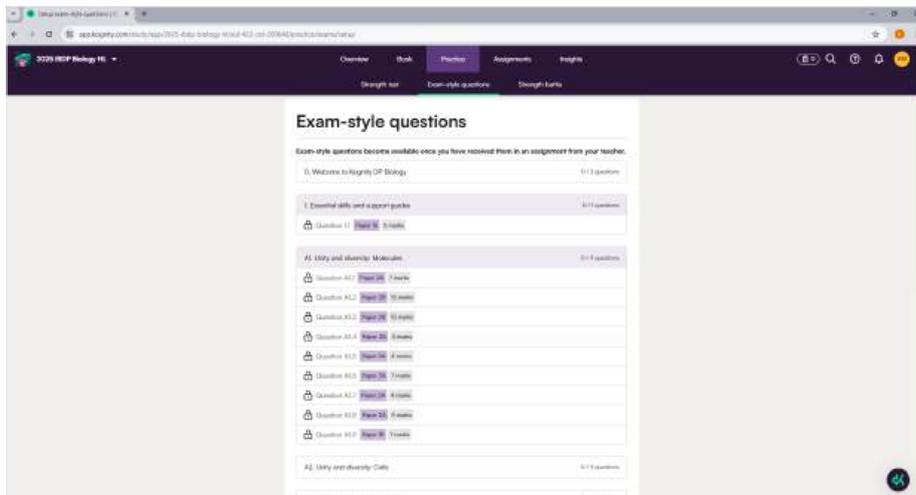
Assignment name	Type	Subject class	Sent	Deadline
A13.6 Origin of water (HL)	Book	2025 IB DP Biology HL	2024-04-12 09:42	2024-04-15 09:00
A13.14-15 Heritay-Chen, Changfeng and checklist reading activity	Book	2025 IB DP Biology HL	2024-06-04 09:29	2024-06-19 08:00
A12 Nucleic Acid homework questions	Question	2025 IB DP Biology HL	2024-06-04 15:00	2024-06-19 08:00
A2.3.3 Developments in microscopy scaling	Book	2025 IB DP Biology HL	2024-05-20 04:43	2024-04-18 08:48
A 2.2 Cell Structure Homework	Question	2025 IB DP Biology HL	2024-04-11 21:38	2024-04-15 09:00
Assignment 2024-02-05	Book	2025 IB DP Biology HL	2024-02-05 13:45	2024-02-13 09:00
ATP and cellular respiration	Book	2025 IB DP Biology HL	2024-06-25 09:00	2024-04-29 08:00
B 11 Carbs and Lipids Homework	Question	2025 IB DP Biology HL	2024-02-15 11:00	2024-02-26 09:00
B 1.2 Proteins Homework	Question	2025 IB DP Biology HL	2024-02-22 09:28	2024-02-27 09:00
B2.1.7 CMM and cell adhesion reading	Book	2025 IB DP Biology HL	2024-02-09 09:00	2024-02-14 08:48

3. The Practice Centre

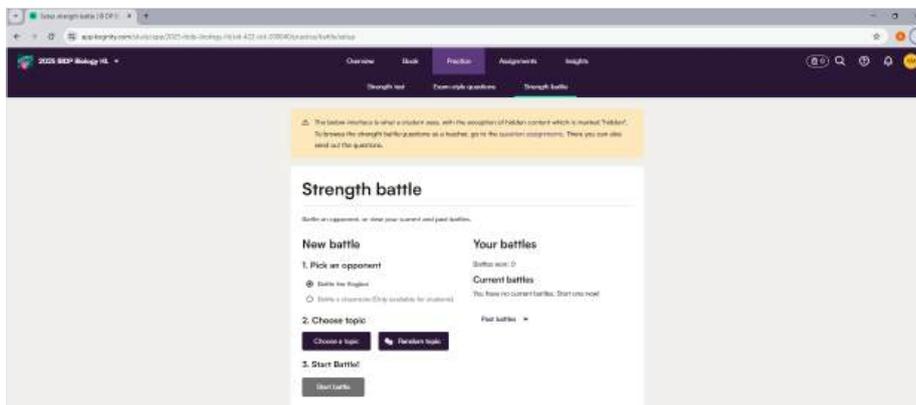
In addition to the fully syllabus-aligned textbook, Kognity Biology includes a fully-equipped practice centre. Students can complete strength tests using IB style questions. Questions can be assigned by the teacher in the assignments portal.



Exam style questions are available in a lockable format so that teachers can decide how to use this feature to suit their students and program best, for example to give access before mock exams, final exams or throughout the program.



Students can also have battles with the Kogbot or their classmates!



4. Insights

The Kognity platform allows teachers to monitor and track engagement and performance easily on student reflections (from readings), textbook reading progress, questions attempted (correct and incorrect) and activity times.

Insights

Reflections | Textbook | Questions | Last activity

Show all students | Show all topics | Export data

Student	Level	A1.1 Water	A1.2 Nucleic acids	A2.1 Origins of e...	A2.2 Cell structure	A2.3 Viruses (161)	A3.1 Diversity of ...	A3.2 Classificati...	A4.1 Evolution an...	A4.2 Conservati...	B1.1 Carbohy...
All students: Flagged											
All students: Submissions		0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10
Tom Sherry Aozouff	HL	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10
Rachel Adams	HL	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10
Chiranjeevi Anagelac	HL	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10
Hugo Castro	HL	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10
Chiranjeevi Cencan	HL	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10
Jimmy McOll	HL	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10
Emma Miller	HL	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10
Isabel Reyes	HL	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10
Nikolina Salveanu	HL	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10
Vicky Sharma	HL	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10	0/10

