

New Stage 6 Syllabus

BIOLOGY



The new Biology syllabus has been developed using the established NSW Education Standards Authority (NESA) syllabus development process. The syllabus includes Australian curriculum content and reflects the new directions of the *Stronger HSC Standards* reforms.

The *Stronger HSC Standards* reforms include:

- supporting the achievement of high minimum standards for all students
- ensuring the flexibility and versatility of the Higher School Certificate (HSC) to cater for the full range of students
- encouraging every student to achieve at their highest possible level
- a focus on the acquisition of deep knowledge, understanding and skills for students.

NSW Stage 6 syllabuses are inclusive of the learning needs of all students. The syllabuses accommodate teaching approaches that support student diversity, including students with special education needs, gifted and talented students and students learning English as an additional language or dialect (EAL/D).

Many of the features of the current Stage 6 syllabuses have been retained, including:

- rationale
- aim
- objectives
- outcomes
- content for Year 11 and Year 12 courses.

New features of Stage 6 syllabuses include:

- Australian curriculum content identified by codes
- Learning across the curriculum content, including cross-curriculum priorities and general capabilities
- publication in an interactive online format
- an interactive glossary.

What is similar?

Students will continue to be provided with opportunities to:

- build on the knowledge, understanding and skills of the Living World in Stage 5 Science
- apply Working Scientifically skills in an integrated way
- design and conduct practical investigations
- participate in fieldwork in Year 11 and Year 12.

What is different?

- Contexts have been removed to provide flexibility for teaching content.
- Inquiry questions provide a focus for teaching and learning.
- The introduction of depth studies in Year 11 and in Year 12 provides opportunities to investigate areas of interest in more depth.
- New content includes:
 - cell requirements relating to light energy and chemical energy
 - investigating extinction events
 - Aboriginal and Torres Strait Islander Peoples, paleontological and geological evidence of past changes in ecosystems
 - Single Nucleotide Polymorphism
 - gene flow and genetic drift
 - disease as a disruption of homeostasis
 - pharmaceuticals and the control of infectious diseases
 - Aboriginal and Torres Strait Islander Peoples' protocols for medicines.

Why is assessment changing?

The *Stronger HSC Standards* reforms provide new directions for assessment practices in all Stage 6 courses to:

- rebalance the emphasis on assessment to allow more time for teaching and learning
- maintain rigorous standards
- provide opportunities to assess students' depth of knowledge and their conceptual, analytical and problem-solving skills.

School-based assessment requirements for Biology have changed to reflect new outcomes, course structure and content.

How are the school-based assessment requirements for Biology changing?

NESA continues to promote a standards-referenced approach to assessing and reporting student achievement. The approaches of assessment for, assessment as and assessment of learning are important to guide future teaching and learning opportunities and to provide students with ongoing feedback.

Changes to school-based assessment requirements for each course include:

- mandated components and weightings for Year 11 and Year 12
- capping the number of school-based assessment tasks to three in Year 11 and four in Year 12
- specified minimum and maximum weightings for formal tasks
- a variety of tasks to assess student knowledge, understanding and skills.

What is the plan for implementation?

2017	2018		2019
	Term 1	Term 4	
Familiarisation and planning	<p>Start teaching new Year 11 courses for English, Mathematics, Science and History</p> <p>Start implementing new Year 11 school-based assessment requirements for all Board Developed Courses (excluding VET, Life Skills and Content Endorsed Courses)</p>	<p>Start teaching new Year 12 courses for English, Mathematics, Science and History</p> <p>Start implementing new Year 12 school-based assessment requirements for all Board Developed Courses (excluding VET, Life Skills and Content Endorsed Courses)</p> <p>Start implementing new HSC examination specifications</p>	First HSC examinations for new English, Mathematics, Science and History courses

What materials will be provided to support implementation?

Many existing resources will continue to be useful and relevant. Teaching units will need modification to meet the requirements of the new syllabus.

Support materials will assist teachers in familiarisation and planning for implementation of the syllabus and assessment requirements. Program Builder, an online programming tool, will be available for teachers in Term 1, 2017.

Initial materials released with the syllabus include:

- school-based assessment requirements
- assessment advice
- a parent guide to new syllabuses and assessment.

Additional materials to be released throughout 2017 include:

- sample scope and sequences
- sample teaching units
- sample assessment schedules
- sample assessment tasks
- advice on making adjustments for students with special education needs.

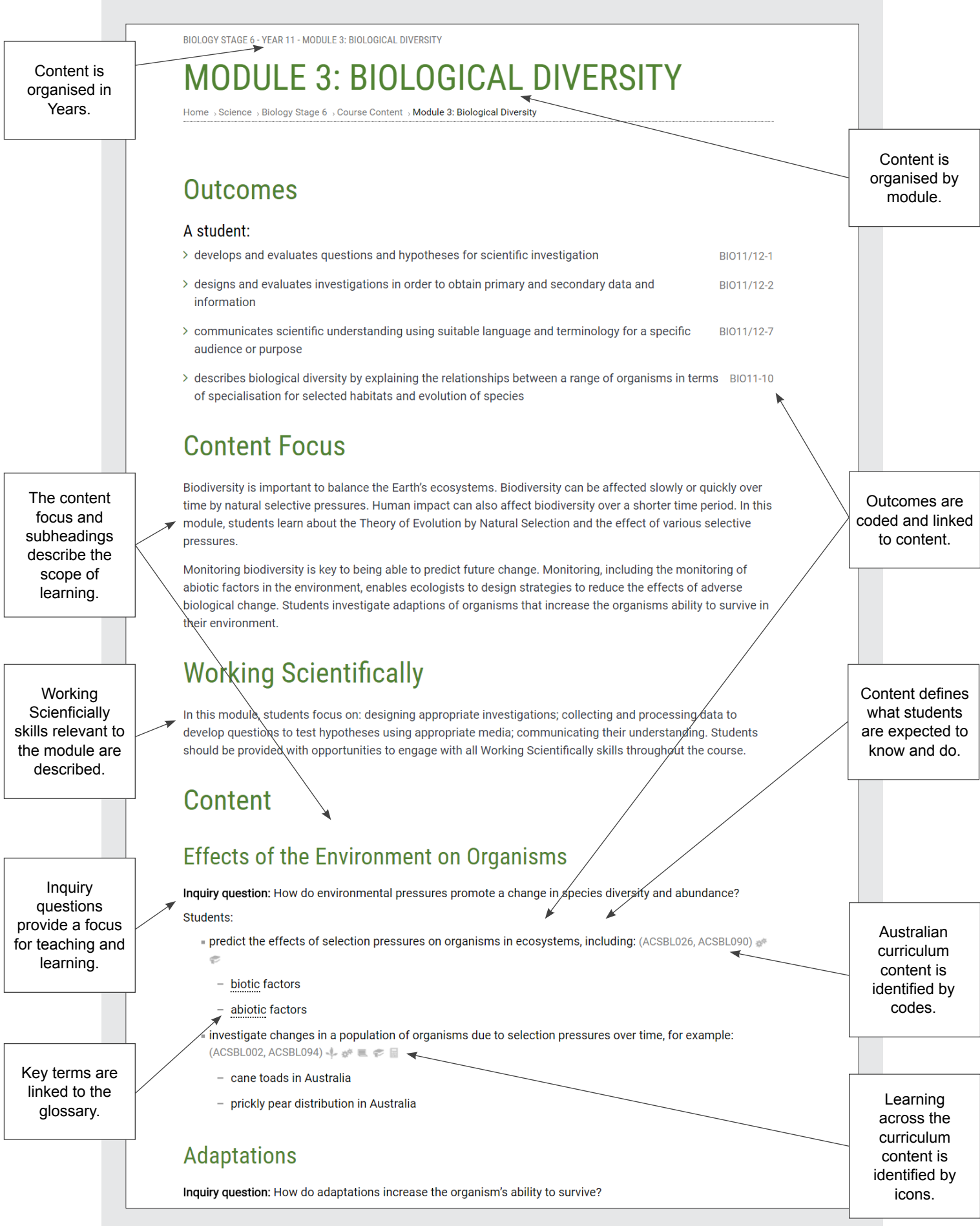
HSC Examination Specifications with sample materials will be released in Term 3, 2017.

The NSW Department of Education, the Catholic Education Commission NSW, the Association of Independent Schools of NSW and other school systems and professional teacher associations will continue to assist and support implementation of the syllabus.

How can I access the new Biology syllabus?

The Biology syllabus is available on the NESA website.

Features of Biology content pages



MODULE 3: BIOLOGICAL DIVERSITY

Outcomes

A student:

- > develops and evaluates questions and hypotheses for scientific investigation BIO11/12-1
- > designs and evaluates investigations in order to obtain primary and secondary data and information BIO11/12-2
- > communicates scientific understanding using suitable language and terminology for a specific audience or purpose BIO11/12-7
- > describes biological diversity by explaining the relationships between a range of organisms in terms of specialisation for selected habitats and evolution of species BIO11-10

Content Focus

Biodiversity is important to balance the Earth's ecosystems. Biodiversity can be affected slowly or quickly over time by natural selective pressures. Human impact can also affect biodiversity over a shorter time period. In this module, students learn about the Theory of Evolution by Natural Selection and the effect of various selective pressures.

Monitoring biodiversity is key to being able to predict future change. Monitoring, including the monitoring of abiotic factors in the environment, enables ecologists to design strategies to reduce the effects of adverse biological change. Students investigate adaptations of organisms that increase the organisms ability to survive in their environment.

Working Scientifically

In this module, students focus on: designing appropriate investigations; collecting and processing data to develop questions to test hypotheses using appropriate media; communicating their understanding. Students should be provided with opportunities to engage with all Working Scientifically skills throughout the course.

Content

Effects of the Environment on Organisms

Inquiry question: How do environmental pressures promote a change in species diversity and abundance?

Students:

- predict the effects of selection pressures on organisms in ecosystems, including: (ACSBL026, ACSBL090)
 - biotic factors
 - abiotic factors
- investigate changes in a population of organisms due to selection pressures over time, for example: (ACSBL002, ACSBL094)
 - cane toads in Australia
 - prickly pear distribution in Australia

Adaptations

Inquiry question: How do adaptations increase the organism's ability to survive?