BOSTES | BOARD OF STUDIES TEACHING & EDUCATIONAL STANDARDS NSW

Senior Science
Stage 6

Draft Writing Brief

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Contents

1. Introduction

In 2014, the Board of Studies, Teaching and Educational Standards NSW (BOSTES) commenced a review of NSW senior secondary syllabuses for English, Mathematics, Science and History learning areas to determine directions for the incorporation of senior secondary Australian curriculum. BOSTES conducted consultation in August and September 2014 on proposed directions outlined in the *NSW Senior Secondary Review & Evaluation: English, Mathematics, Science and History* document.

The broad directions for each learning area, developed following consultation, were endorsed by BOSTES in December 2014 and are available in Section 2 of this Draft Writing Brief.

The development of the *Senior Science Stage 6 Draft Writing Brief* takes account of the broad directions.

The Draft Writing Brief:

- proposes the nature and number of courses within each learning area
- proposes options for course structures
- provides information about how Australian curriculum content may be modified, reordered and supplemented for inclusion in the draft syllabus.

Following consultation on the Draft Writing Brief, a Consultation Report, detailing feedback received and the key matters arising from consultation will be published. The BOSTES endorsed final Writing Brief will inform the directions for draft syllabus development.

The draft syllabus for Senior Science will be available for consultation during 2016. It will include the elements of a syllabus and Australian curriculum content identified with codes, learning across the curriculum content identified by icons, further information about meeting the diversity of learners and internal and external assessment.

A summary of the BOSTES syllabus development process is available at http://www.boardofstudies.nsw.edu.au/syllabuses/syllabus-development/.

Diversity of learners

NSW senior secondary syllabuses will be inclusive of the learning needs of all students. The draft syllabuses will be designed to accommodate teaching approaches that support student diversity under the sections ‘Students with special education needs’, ‘Gifted and Talented Students’ and ‘Students Learning English as an additional language or dialect (EAL/D)’.

For example:

Special education needs

All students with special education needs are entitled to participate in and progress through the curriculum. Some students may require additional support or adjustments to teaching, learning and assessment activities. Adjustments are measures or actions taken in relation to teaching, learning and assessment that enable a student to access syllabus outcomes and content and demonstrate achievement of outcomes.

Most students with special education needs will undertake regular Board Developed courses and/or Board Endorsed courses. Students with special education needs can access Years 11 and 12 outcomes and content in a range of ways. They should choose the most appropriate courses for the HSC in keeping with their goals, interests and learning needs.

Students may engage with:

- syllabus outcomes and content with adjustments to teaching, learning and/or assessment activities
- selected outcomes and content appropriate to their learning needs
- selected Years 11–12 Life Skills outcomes and content appropriate to their learning needs.

Related Life Skills outcomes and content will be included and will align with the Years 11 and 12 content in the Senior Science Stage 6 Draft Syllabus.

2. Broad directions

The following broad directions for syllabus development have been informed through consultation with stakeholders. These broad directions will guide future development of the NSW Science Stage 6 syllabuses.

1. In the revision and development of the courses, consideration be given to how the courses provide flexibility to meet the needs of all students.
2. In the revision of the current content-heavy courses, provision be made for the reduction and integration of content. This may be organised using the concept of 'Big Ideas' of science.
3. The nature and practice of Science be reflected in the inclusion of working scientifically using first-hand investigations, secondary sources, models and modelling.
4. The Science courses be reviewed to allow flexibility of pedagogy and delivery. This may include cross-disciplinary study, project-based research and STEM learning.
5. Opportunities be considered to extend students' learning in Science by revising each course's content and requirements.
6. The Senior Science course rationale, structure and assessment requirements be reviewed to focus on developing scientifically literate students.
7. The Senior Science course rationale, structure and assessment requirements be reviewed with a focus to support a range of post-school contexts.
8. Assessment and HSC examination specifications be reviewed to ensure appropriate opportunities for assessment of a wide range of student performance including assessing analytical and critical thinking, first-hand investigations, the use of secondary sources and research projects.
9. The Science syllabuses should provide for the continual inclusion of contemporary and relevant material.
10. The rationale, outcomes and content of the Science Life Skills Stage 6 course be reviewed to better meet the needs of the students for whom the course is intended, as well as to provide an appropriate progression from Science Life Skills Stage 5 outcomes and content and alignment with the regular Science Stage 6 courses where appropriate.

Australian curriculum

BOSTES began its syllabus development process for Stage 6 English, Mathematics, Science and History in 2014. This follows state and territory education Ministers' endorsement of senior secondary Australian curriculum in these learning areas as the agreed and common base for development of state and territory senior secondary courses. It was also agreed that states and territories would have the flexibility to integrate the approved senior secondary Australian curriculum as appropriate. The development of Draft Writing Briefs will determine how Australian curriculum content can be modified, reordered and supplemented in each learning area while remaining compatible with the NSW senior years assessment and examinations structures.

3. Rationale

ⓘ for your information

The rationale describes the distinctive nature of the subject and outlines its relationship to the contemporary world and current practice. It explains the place and purpose of the subject in the curriculum:

- why the subject exists
- what the theoretical underpinnings are
- what makes the subject distinctive
- why students would study the subject
- how it contributes to the purpose of the Stage 6 curriculum.

 consult

Proposed rationale for Senior Science Stage 6

The Senior Science Stage 6 course is designed to cater for all students, assisting them in becoming scientifically literate citizens with the means to investigate personally relevant local and global scientific issues. The course is designed to engage all with a need to investigate the world around them.

The course promotes active inquiry and explores key concepts, models and phenomena of the disciplines of science. It draws upon and builds on the values and attitudes, skills and knowledge and understanding developed in Science Stage 5.

The processes of science and the specific skills of working scientifically and working technologically have led humans to accumulate an evidence based body of knowledge about how we have, are and intend to interact with our world and galactic neighbourhood. The focus on developing these skills provides a lifelong means for students to value investigating, solve problems, develop and communicate evidence-based arguments, develop models and/or create valuable ideas and products.

Senior Science Stage 6 draws upon an integration of the understanding found in the natural and physical sciences and emphasises authentic practical individualised learning for every student.

The course encourages the development of a range of capabilities that will enhance students' ability to participate in all aspects of community life and to function effectively in a context of rapid change.

4. Aim

ⓘ for your information

In NSW syllabuses, the aim provides a succinct statement of the overall purpose of the syllabus. It indicates the general educational benefits for students from programs based on the syllabus.

The aim, objectives, outcomes and content of a syllabus are clearly linked.

✍ consult

Proposed aim for Senior Science Stage 6

The aim of the Senior Science Stage 6 Syllabus is to develop students':

- appreciation that science has developed through independent and collaborative research and has significant impacts on society
- abilities to debate and critically evaluate scientific arguments and claims, communicate to a range of audiences evidence-based understanding or findings and to propose possible solutions to problems
- understanding of the theories and models used to describe, explain and make predictions about scientific systems, structures and properties by considering the factors that affect these and how they can be controlled to produce desired products or outcomes
- respect for living things and the environment and to develop an understanding of how the story of science, science understanding and scientific practices are integral to our understanding about ourselves and to developments in many fields of human endeavour.

5. Objectives

ⓘ for your information

In NSW syllabuses, objectives provide specific statements of the intention of a syllabus. They amplify the aim and provide direction to teachers on the teaching and learning process emerging from the syllabus. They define, in broad terms, the knowledge, understanding, skills, values and attitudes to be developed through study in the subject. They act as organisers for the intended outcomes.

✍ consult

Proposed objectives for Senior Science Stage 6

Values and attitudes

Students:

- develop positive, informed values and attitudes towards science
- recognise the importance and relevance of science in their lives now and for the future.

Skills

Students:

- develop skills in applying the processes of Working Scientifically.

Knowledge and understanding

Option 1 – Senior Science

As outlined in the current Senior Science syllabus.

Option 2 – Senior Science – Incorporating Big Ideas of science

Students:

- develop knowledge and understanding of cause and effect
- develop knowledge and understanding of models and theories
- develop knowledge and understanding of modern technologies
- develop knowledge and understanding of contemporary issues.

Option 3 – Senior Science – Contemporary Science

Students:

- develop knowledge and understanding of sustainability
- develop knowledge and understanding of contemporary issues in science
- develop knowledge and understanding of work, health and safety
- develop knowledge and understanding of further contemporary issues in science.

6. Outcomes

ⓘ for your information

In NSW syllabuses, outcomes provide detail about what students are expected to achieve at the end of each Stage in relation to the objectives. They indicate the knowledge, understanding and skills expected to be gained by most students as a result of effective teaching and learning. They are derived from the objectives of the syllabus.

✍ consult

Proposed outcomes for Senior Science Stage 6

Outcomes will be developed for each year. The following table presents a sample of some of the proposed outcomes.

Values and attitudes

Objectives
Students: • develop positive, informed values and attitudes towards science • recognise the importance and relevance of science in their lives now and for the future

Skills

The skills outlined below apply across all the senior secondary science syllabuses.

Objective	
Students: • develop knowledge and understanding and skills in applying the processes of Working Scientifically	
Preliminary course outcomes A student:	**HSC course outcomes** A student:
SSP-1 proposes questions or hypotheses to be investigated scientifically and predicts outcomes	SSH-1 evaluates questions and/or hypotheses to be investigated scientifically and predicts evidence-based outcomes
SSP-2 designs investigations, considers risks and ethical issues, identifies appropriate materials and suggests related data for collection	SSH-2 justifies the design of risk-assessed, ethical investigations involving appropriate materials and selects and collects relevant primary- and secondary-sourced data

Knowledge and understanding

Option 1

These outcomes are outlined in the current Senior Science syllabus.

Option 2 – (Incorporating the Big Ideas course)

Preliminary course Unit 1	
Objective Students: develop knowledge and understanding of *cause and effect*	
Preliminary course outcomes A student:	
SSP-8	describes and explains that science assumes that for every phenomena there is one or more causes

HSC course Unit 3	
Objective Students: develop knowledge and understanding of *modern technologies*	
HSC course outcomes A student:	
SSH-8	assesses and explores that the knowledge produced by science is used in many technologies to create products that meet human needs

Preliminary course Unit 2	
Objective Students: develop knowledge and understanding of *models and theories*	
Preliminary course outcomes A student:	
SSP-9	explores the idea that scientific explanations, models and theories are those that best fit the facts known at a particular time

HSC course Unit 4	
Objective Students: develop knowledge and understanding of *contemporary issues*	
HSC course outcomes A student:	
SSH-9	assesses and evaluates the implications of the applications of science through ethical, social, economic and political frameworks

Knowledge and understanding

Option 3 – (Contemporary Issues in Science course)

Preliminary course Unit 1	
Objective Students: develop knowledge and understanding of *sustainability*	
Preliminary course outcomes A student:	
SSP-8	explains and analyses the extraction of resources and production of renewable and non-renewable Earth resources
SSP-9	explains and assesses the impact of processes, waste production and recycling on the Australian environment

HSC course Unit 3	
Objective Students: develop knowledge and understanding of *work, health and safety*	
HSC course outcomes A student:	
SSH-8	describes and evaluates the science behind safe work practices
SSH-9	describes and analyses the mechanisms that are associated with hazardous work practices

Preliminary course Unit 2	
Objective Students: develop knowledge and understanding of *contemporary issues in science*	
Preliminary course outcomes A student:	
SSP-10	explains and analyses the impact of contemporary local societal and environmental issues
SSP-11	explains and analyses the impact of contemporary state societal and environmental issues

HSC course Unit 4	
Objective Students: develop knowledge and understanding of *further contemporary issues in science*	
HSC course outcomes A student:	
SSH-10	explains and analyses the impact of contemporary national societal and environmental issues
SSH-11	explains and analyses the impact of contemporary global societal and environmental issues

7. Course structure and options

ⓘ for your information

Rather than stipulate a single approach the Draft Writing Brief proposes options for possible course structure. The consultation process will inform the final structure which may be one of the options, or may involve a combination of the ideas presented.

The following provides an outline of some proposed Preliminary and HSC course structures for the Senior Science Stage 6 Syllabus with indicative course hours and the arrangement of course content, along with outlining relationships between specific components and between core and options.

✍ consult

Overview of Preliminary course structures – Senior Science 2 Unit course

<table>
<tr><th>Preliminary course</th><th>Option 1</th><th>Option 2</th><th>Option 3</th></tr>
<tr><td>Structure</td><td>Maintain the current (120 hour) Preliminary course structure</td><td>120 hour course with two topics of equal length (40 hours) framed around two Big Ideas about science each with an additional (20 hour) depth study component</td><td>120 hour course with two topics of equal length (50 hours) each with an additional (10 hour) depth study component</td></tr>
<tr><td rowspan="2">Content</td><td rowspan="2">Review and update the content and practical experiences
Eg:
• Water for Living (30 hours)
• Plants (30 hours)
• Humans at Work (30 hours)
• The Local Environment (30 hours)</td><td colspan="2">Revise the course content to integrate science skills and project-based work to enable depth of study</td></tr>
<tr><td>Eg:
• Investigating Cause and Effect (40 hours)
• Investigating Models, Theories and Laws (40 hours)</td><td>Eg:
• Developing Scientific Skills Through the Study of Sustainability (50 hours)
• Contemporary Issues in Science (50 hours)</td></tr>
<tr><td>Practical content</td><td>Update practical experiences to reflect revised content</td><td colspan="2">Focus on delivering content through practical experiences</td></tr>
<tr><td>Investigation/</td><td>Maintain at least ONE</td><td>Include practical</td><td>Include practical</td></tr>
</table>

PBL	open-ended investigation (OEI)	investigation/depth study component related to core (2 × 20 hours)	investigation/depth study component related to core (2 × 10 hours)

Overview of HSC course structures – Senior Science 2 Unit course

<table>
<tr><th>HSC course</th><th>Option 1</th><th>Option 2</th><th>Option 3</th></tr>
<tr><td>Structure</td><td>Maintain current (120 hour) HSC structure</td><td>120 hour course with two topics of equal length (40 hours) framed around two Big Ideas about science each with an additional (20 hour) depth study component</td><td>120 hour course with two topics of equal length (50 hours) each with an additional (10 hour) depth study component</td></tr>
<tr><td rowspan="2">Content</td><td rowspan="2">Review and update the content
Eg:
• Lifestyle Chemistry (30 hours)
• Medical Technology – Bionics (30 hours)
• Information Systems (30 hours)
• One of five options (30 hours)</td><td colspan="2">Revise the course content to integrate science skills and project-based work to enable depth of study</td></tr>
<tr><td>Eg:
• Investigating Modern Technologies (40 hours)
• Investigating Contemporary Issues in Science (40 hours)</td><td>Eg:
• Work, Health and Safety (50 hours)
• Further Contemporary Issues in Science (50 hours)</td></tr>
<tr><td>Practical content</td><td>Update practical experiences to reflect revised content</td><td colspan="2">Focus on delivering content through practical experiences</td></tr>
<tr><td>Investigation/ PBL</td><td>Maintain at least ONE open-ended investigation (OEI)</td><td>Include practical investigation/depth study component related to core (2 × 20 hours)</td><td>Include practical investigation/depth study component related to core (2 × 10 hours)</td></tr>
<tr><td>Options</td><td>Update the current five options</td><td colspan="2">No options</td></tr>
</table>

Proposed course structures and options for Senior Science Stage 6

Option 1 – Senior Science 2 Unit (240 hours) course

This model maintains the current course structures with a view to review and update the content where required. Consideration would be given to providing for greater depth of study and allowing more time for practical learning.

The subject matter of the Senior Science course would recognise the different needs and interests of students and provide a structure that builds upon the foundations laid in Stage 5, yet would acknowledge that students entering Stage 6 have a wide range of abilities, circumstances and expectations.

The proposed Senior Science 2 Unit course would be examined for the HSC.

Revise current Preliminary course – 120 indicative hours

- Water for Living (30 indicative hours)
- Plants (30 indicative hours)
- Humans at Work (30 indicative hours)
- The Local Environment (30 indicative hours)

Revise current HSC course – 120 indicative hours

- Lifestyle Chemistry (30 indicative hours)
- Medical Technology – Bionics (30 indicative hours)
- Information Systems (30 indicative hours)
- Choice of one option (30 indicative hours):
  - Polymers
  - Preservatives and Additives
  - Pharmaceuticals
  - Disasters
  - Space Science

Option 2 – Senior Science 'Big Ideas' 2 Unit (240 hours) course

It is proposed that a course be designed that incorporates the Big Ideas of and about science and has a significant investigative/project component to cater for all students.

The proposed Senior Science 2 Unit course is intended to be examined for the HSC.

Example Preliminary course – incorporating Big Ideas (120 indicative hours)

<table>
<tr><th>Two Big Ideas about science</th><th colspan="2">Example modules and areas of study</th></tr>
<tr><td rowspan="2">Unit 1
Cause and Effect
Big Idea about Science – 'Science assumes for every effect there is one or more causes'
(60 hours)</td><td>The Natural Sciences (20 hours)
• Earth – Plates, volcanoes & quakes
• Darwin and evolution</td><td rowspan="2">Depth study related to core
(20 hours)</td></tr>
<tr><td>The Physical Sciences (20 hours)
• Gravity, magnetism and light
• Chemicals and their reactions</td></tr>
<tr><td rowspan="2">Unit 2
Models and Theories
Big Idea about Science – 'Science models and theories best fit the known facts'
(60 hours)</td><td>The Natural Sciences (20 hours)
• Our climate and its change
• Cell theory</td><td rowspan="2">Depth study related to core
(20 hours)</td></tr>
<tr><td>The Physical Sciences (20 hours)
• Atomic theory
• Conservation laws (mass, charge and momentum)</td></tr>
<tr><td colspan="3">Integrated nature of the courses
The Senior Science Preliminary course is designed to focus on learning science as it is practised. It is suggested that at least 50% of the Preliminary course time is allocated to practical aspects of the course including project work.</td></tr>
</table>

Example HSC course – incorporating the Big Ideas (120 indicative hours)

<table>
<tr><th>Two Big Ideas about science</th><th colspan="2">Example focus areas of study may include</th></tr>
<tr><td rowspan="2">Unit 3
Investigating Modern Technologies
Big Idea about science
‘The knowledge of science is used in modern technologies’
(60 hours)</td><td>The Natural Sciences (20 hours)
• Biotechnology – genetic modification
• Earth Science Technologies (Remote sensing, modelling and measuring geoscience phenomena)</td><td rowspan="2">Depth study related to core
(20 hours)</td></tr>
<tr><td>The Physical Sciences (20 hours)
• Pharmaceuticals
• Control technology – robotics</td></tr>
<tr><td rowspan="2">Unit 2
Investigating Contemporary Issues in Science
Big Idea about science
‘Applications of science often raise contemporary issues’
(60 hours)</td><td>The Natural Sciences (20 hours)
• Biomedical technologies
• Energy and its alternatives</td><td rowspan="2">Depth study related to core
(20 hours)</td></tr>
<tr><td>The Physical Sciences (20 hours)
• Colonisation of space
• Emerging materials and their uses</td></tr>
<tr><td colspan="3">Integrated nature of the courses
The depth study/investigative project aspect is designed to allow for deeper engagement with specific content of interest to the students.
The HSC course includes 40 hours of depth study using investigative project(s) related to the core units. These could be implemented through a range of approaches with a minimum of 5 hours and a maximum of 20 hours for each depth study.
The Senior Science course is designed to focus on learning science as it is practised. It is suggested that at least 40% of the HSC course time is allocated to practical aspects of the course including project work.</td></tr>
</table>

Option 3 – Proposed Senior Science 'Contemporary Issues' 2 Unit (240 hours) course

This option focuses on the initial development of scientific skills and contemporary issues in science from a local to a global perspective. It has a significant investigative/project component to cater for all students.

The proposed Senior Science 2 Unit course is intended to be examined for the HSC.

Example Preliminary course – Contemporary Issues (120 indicative hours)

<table>
<tr><th>Example units</th><th colspan="2">Example focus areas of study may include</th></tr>
<tr><td rowspan="2">Unit 1
Developing Scientific Skills Through the Study of Sustainability
(60 indicative hours)</td><td>Resources and Production (25 hours)
• Investigating natural resources
• Investigating natural processes
• Investigating manufactured materials
• Investigating space</td><td rowspan="2">Depth study related to core
(10 hours)</td></tr>
<tr><td>Processing, Waste and Recycling
(25 hours)
• Investigating biological processes
• Investigating physical processes
• Investigating chemical processes
• Investigating Earth processes</td></tr>
<tr><td rowspan="2">Unit 2
Contemporary Issues in Science
(60 indicative hours)</td><td>Contemporary Local Issues (25 hours)
• Urban environments
• Natural environments
• Industries
• Transportation</td><td rowspan="2">Depth study related to core
(10 hours)</td></tr>
<tr><td>Contemporary State Issues (25 hours)
• Regional environments
• State natural resources
• Industries and their impacts
• Transportation</td></tr>
<tr><td colspan="3">Integrated nature of the courses
The Preliminary Senior Science course is designed to focus on learning science as it is practised. It is suggested that at least 50% of the Preliminary course time is allocated to practical aspects of the course including project work.</td></tr>
</table>

Example HSC course – Contemporary Issues (120 indicative hours)

<table>
<tr><th>Example units</th><th colspan="2">Example focus areas of study may include</th></tr>
<tr><td rowspan="2">Unit 3
Work, Health and Safety
(60 indicative hours)</td><td>Work (25 hours)
• Everyday chemicals
• Personal protective equipment
• Physiological responses to hazards
• Biomechanics and work practices</td><td rowspan="2">Depth study related to core
(10 hours)</td></tr>
<tr><td>Health and Safety (25 hours)
• Human Biology – staying healthy
• Biohazards
• Industrial disasters
• Risk assessment</td></tr>
<tr><td rowspan="2">Unit 4
Further Contemporary Issues in Science
(60 indicative hours)</td><td>Contemporary National Issues (25 hours)
• What does the science tell us?
• Energy production
• Salinity
• Genetic modifications</td><td rowspan="2">Depth study related to core
(10 hours)</td></tr>
<tr><td>Contemporary Global Issues (25 hours)
• Clean water
• Natural disasters
• Fuelling the world
• Feeding the world through science</td></tr>
<tr><td colspan="3">Examples of depth studies/investigative projects
Work smarter – ‘Developing innovative protective equipment/products’.
Contamination of foods – ‘An investigation?’</td></tr>
<tr><td colspan="3">Nature of the course
The depth study/investigative project aspect is designed to allow for deeper engagement with specific content of interest to the students.
The HSC course includes 20 hours of depth study using investigative project(s) related to the core units. These could be implemented through a range of approaches with a minimum of 5 hours and a maximum of 10 hours for each depth study.
The Senior Science course is designed to focus on learning science as it is practised. It is suggested that at least 40% of the HSC course time is allocated to practical aspects of the course including project work.</td></tr>
</table>

Practical nature of the Senior Science course

Practical experiences are a core component of the Senior Science course.

Practical experiences should be designed to integrate the skills and knowledge and understanding outcomes in both the Preliminary and HSC courses.

Practical experiences should emphasise hands-on activities including:

- undertaking laboratory experiments including the use of appropriate ICT technologies
- fieldwork
- the use of computer simulations for modelling or manipulating data
- use of, reorganisation and representation of acknowledged secondary data
- the extraction and reorganisation of information in the form of flow charts, tables, graphs, diagrams, prose and keys
- the use of digital media to capture, obtain, manipulate, calculate and present data, information and solutions to problems.

Depth study - Investigative project(s) (5–20 hours)

It is proposed that investigative project(s) be incorporated into each of the Preliminary and HSC courses based upon the principle of learning science as it is practised. This may be a single 20 hour project (if option 2 is chosen), a 10 hour project (if option 3 is chosen), or multiple projects completed anytime within each unit to cater for individual needs. A minimum of 5 hours per project is proposed.

Investigative project(s) opportunities are suggested for inclusion to allow schools to cater for the full range of students undertaking the course. They are incorporated to provide a vehicle for content coverage, to aid engagement and to provide students with further opportunities to demonstrate what they know and can do.

Investigative projects in both the Preliminary and HSC years may be considered for inclusion in the school-based assessment components for the HSC.

The investigative projects are to focus on:

- reviewing current knowledge/literature review
- producing an explanation or proof of a problem(s) posed or area researched
- including evidence of validity, reliability and precision in data analysis
- involving students in peer review of other students work
- formulating logical explanations/conclusions and suggesting further research
- developing skills in designing and managing projects
- developing communication skills, including presentation skills, using relevant forms of media and reporting techniques.

The project may be a product, design, system, model, report or solution to problems posed and may be associated with fieldwork undertaken.

8. Learning across the curriculum

ⓘ for your information

NSW syllabuses provide a context within which to develop core skills, knowledge and understanding considered essential for the acquisition of effective, higher-order thinking skills that underpin successful participation in further education, work and everyday life including problem-solving, collaboration, self-management, communication and information technology skills.

BOSTES has described learning across the curriculum areas that are to be included in syllabuses. In Stage 6 syllabuses, the identified areas will be embedded in the descriptions of content and identified by icons. Learning across the curriculum content, including the cross-curriculum priorities and general capabilities, assists students to achieve the broad learning outcomes defined in the BOSTES *Statement of Equity Principles,* the *Melbourne Declaration on Educational Goals for Young Australians (December 2008)* and in the Australian Government's *Core Skills for Work Developmental Framework* (2013).

Knowledge, understanding, skills, values and attitudes derived from the learning across the curriculum areas will be included in BOSTES syllabuses, while ensuring that subject integrity is maintained.

Cross-curriculum priorities enable students to develop understanding about and address the contemporary issues they face.

The cross-curriculum priorities are:

- Aboriginal and Torres Strait Islander histories and cultures
- Asia and Australia's engagement with Asia
- Sustainability

General capabilities encompass the knowledge, skills, attitudes and behaviours to assist students to live and work successfully in the 21st century.

The general capabilities are:

- Critical and creative thinking
- Ethical understanding
- Information and communication technology capability
- Intercultural understanding
- Literacy
- Numeracy
- Personal and social capability

BOSTES' syllabuses include other areas identified as important learning for all students:

- Civics and citizenship
- Difference and diversity
- Work and enterprise

9. Glossary

ⓘ for your information

A glossary will be developed for the draft Senior Science Stage 6 Syllabus which explains terms that will assist teachers in the interpretation of the subject.

10. Assessment and reporting

BOSTES continues to promote a standards-referenced approach to assessing and reporting student achievement in NSW, and the importance of assessment for, of and as learning as essential components of quality teaching and learning.

Information on assessment and reporting for Preliminary and HSC courses will be developed for the draft syllabus consultation in 2016.

The information will include:

- suggested components and weightings for school-based assessment of the Preliminary course
- mandatory components and weightings for school-based assessment of the HSC course
- HSC examination specifications which describe the format of the HSC examination program for Senior Science.

Advice about assessment in relation to the Senior Science syllabus is contained in *Assessment and Reporting in Science Stage 6*. This document provides general advice on assessment in Stage 6 as well as the specific requirements for the Preliminary and HSC courses.

Consultation on assessment and reporting during the Draft Writing Brief phase will focus on providing feedback about assessment and reporting practices in schools, school-based assessment requirements, the use of technology in assessment, and external assessment programs.