



Earth and Environmental Science
Stage 6

Draft Syllabus

Consultation Report
February 2017

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1 Background information

The NSW Education Standards Authority (NESA) replaced the Board of Studies, Teaching and Educational Standards NSW (BOSTES) on 1 January 2017.

The preparation of the *Earth and Environmental Science Stage 6 Draft Syllabus* took into account the broad directions for the learning area, which were developed following public consultation and endorsed by the NESA in December 2014. In 2015, NESA conducted consultation on the draft writing briefs. The draft writing briefs were endorsed by the Board in 2016.

NESA conducted consultation on the draft syllabus in Term 3, 2016.

The consultation program from 20 July 2016 to 31 August 2016 included:

- a meeting of the Years 11–12 Science Board Curriculum Committee on 24 August 2016
- face-to-face consultation meetings
- targeted consultation meetings for:
 - Aboriginal education
 - Special education
 - Industry.
- student voice meetings
- an online survey on the NESA website
- written submissions.

Professional associations and schooling sectors conducted a range of activities during the consultation period to provide feedback to NESA.

Feedback from consultation was analysed and informed revisions to the draft syllabus. The final syllabus is available in an online interactive format on the NESA website.

2 Executive summary

The *Earth and Environmental Science Stage 6 Draft Syllabus Consultation Report* provides a description of the consultation process and a summary and analysis of feedback received. It details the data and findings gathered from a meeting of the Years 11–12 Science Board Curriculum Committee, 4 metropolitan and 3 regional face-to-face consultation meetings, 6 targeted consultation meetings, 2 student voice meetings, 33 responses to an online survey and 18 written submissions.

The Earth and Environmental Science draft syllabus has been generally well received and the scope of the course supported. The feedback provided on the course reflected the small candidature of the course.

The main issue raised was that the content in the Year 11 course is excessive for the time allocated. Respondents requested a reduction in the course content to allow for an increase in depth of learning.

Respondents were supportive of the provision for depth studies. However, they noted that there was a need for further information on the depth studies and how they are to be implemented and assessed.

A small number of respondents indicated that the skills of Working Scientifically did not show a continuum of learning from Stage 5 and that Science as a Human Endeavour (SHE) had not been integrated. These issues were not identified by the majority of respondents.

Other matters raised included the need to revise the rationale so that it better represents the scope and nature of the syllabus.

The majority of the respondents supported the inclusion of Climate Science as a module, and noted that it reflects the scientific evidence available.

3 Key matters

Key matters	Actions
There is too much content in the course in Year 11.	The content of the Year 11 course has been reviewed and reduced.
More detailed information about the scope of the depth studies and their assessment is required.	Further information about the depth studies and their assessment has been provided. Additional information will be provided in the support materials developed in 2017.

4 Analysis

4.1 Rationale

Summary

The majority of survey respondents strongly agreed or agreed that the proposed rationale provides the scope and nature of the course and explains its purpose in the curriculum.

Feedback affirming the rationale

Feedback	Sources
Overwhelming support is given for the rationale of the draft syllabus.	SCS Survey (x26)
The intellectual challenge proposed in the new course is considered an improvement.	IEU
The emphasis on delivering content through practical work is supported as it builds on the Working Scientifically emphasis of the Australian curriculum.	CSOArm CSOLism

Key matters and actions

Key matters	Sources	Actions
The rationale in the draft Earth and Environmental syllabus is limited in its scope.	SCS STANSW	The rationale has been reviewed and modified to include relevance to environmental issues in society.
The wording of the rationale is not well written and is repetitive.	CSOArm CSOLism	The rationale has been reviewed and modified to remove repetition.

4.2 Aim

Summary

The majority of respondents supported the proposed aim.

Feedback affirming the aim

Feedback	Sources
The proposed aim provides an appropriate statement of the overall purpose of the syllabus.	SCS Survey (x23)

Key matters and actions

Key matters	Sources	Actions
The aim lacks emphasis on the influence of humans.	CSOArm CSOLism	The aim has been revised to include human influence.

4.3 Objectives

Summary

One respondent affirmed the objectives of the course by confirming that the objectives are now more succinct and easier to understand.

Feedback affirming the objectives

No additional feedback affirming the objectives was received.

Key matters and actions

No key matters were raised.

4.4 Outcomes

Summary

The respondents noted that the outcomes provide direction for the course and indicate a rise in complexity from Stage 5 to Stage 6. One respondent affirmed that the outcomes are broad enough to enable scope for differentiation of learning experiences.

Feedback affirming the outcomes

No additional feedback affirming the outcomes was received.

Key matters and actions

No key matters were raised.

4.5 Course structure and requirements

Summary

The inclusion of depth studies was welcomed by the majority of respondents. However, further detail about the depth studies' requirements and how they should be implemented and assessed is required.

Feedback affirming the course structure and requirements

Feedback	Sources
The inclusion of depth studies, with a flexible approach, is a desirable inclusion in the new syllabus.	SCS STANSW IEU Submission 4

Key matters and actions

Key matters	Sources	Actions
Insufficient information relating to the depth studies and their implementation has been provided.	AIS CCSOBB Canterbury (CM) SCS STANSW Submissions 4, 5 Survey (x12)	Support materials will be developed in 2017 that will include sample assessment tasks, marking guidelines and sample programs to support implementation.

4.6 Assessment

Summary

A significant number of respondents supported the proposed structure and assessment requirements. Some respondents requested further guidance in relation to school-based assessment.

Several respondents commented on the logistics of practical or research-based tasks, and that the current 25 per cent maximum weighting for examination-based assessment should be reconsidered.

A significant number of respondents raised the matter of changes to the HSC arising from assessment changes.

Feedback affirming the information on assessment

Feedback	Source
The school-based assessment requirements are fair and appropriate.	SCS

Key matters and actions

Key matters	Sources	Actions
Further detail is required about the assessment of depth studies.	AIS CCSOBB Epping (CM) SCS STANSW Submission 8	Further information about depth studies and their assessment will be included in assessment and reporting materials. Support materials will be developed in 2017.
The percentage weighting of the depth studies is too high.	AIS SCS Submission 8	The weighting of the assessment of the depth studies has been reduced in Year 12.
The preference is for the maximum weighting of examinations to be higher than that of the depth studies.	SCS Submissions 5, 8	Assessment weightings have been reviewed and the examination maximum weighting has been increased in both Year 11 and Year 12.
HSC examination specifications and sample questions are needed.	AIS DoE Survey (x4)	Support materials and examination specifications will be developed in 2017.

4.7 Content

Summary

Respondents noted that the content of the syllabus is a significant improvement on the current HSC course.

Respondents indicated that a reduction in content, especially in the Year 11 course, was required.

Feedback affirming content

Feedback	Sources
There are great STEM opportunities in the syllabus.	Manly (CM)
The content is streamlined and logical. The skills at the beginning of the content statements provide sound direction.	SCS Submission 5

Key matters and actions

Key matters	Sources	Actions
The course content should be reduced.	AIS CSOArm CSOLism Epping (CM) Gosford (CM) NSWTF SCS STANSW Submission 4	The content has been reduced in Modules 1, 4 and 8.

4.8 Learning across the curriculum

Summary

Respondents supported the representation of Aboriginal and Torres Islander histories and cultures. However, the need for appropriate support material was raised.

Feedback affirming Learning across the curriculum

Feedback	Sources
Unbiased, valid information and well-researched content to support the Aboriginal and Torres Strait Islander histories and cultures content is needed.	Survey (x2)
The representation of Aboriginal and Torres Strait Island histories and cultures will result in Koori students being more engaged. The representation will break down barriers and Aboriginal students will be able to learn Aboriginal and Torres Strait Islander content at school and not just at home.	Aboriginal Ed

Key matters and actions

Key matters	Sources	Actions
Resource materials are needed for Aboriginal and Torres Strait Islander histories and cultures.	Epping (CM) Submission 4 Survey (x1)	Materials will be developed in 2017 to support initial implementation.
The Aboriginal and Torres Strait Islander histories and cultures references are superficial and should be thoroughly prescribed.	Survey (x3)	Aboriginal and Torres Strait Islander histories and cultures content statements have been reviewed for authenticity.

4.9 Diversity of learners, including Life Skills

Summary

The majority of respondents commented that depth studies, open-ended investigations and other potential experimental work provide opportunities to cater for the diversity of learners.

Feedback affirming the diversity of learners, including Life Skills

Feedback	Sources
The depth study is a useful adjunct to the course to provide differentiation in the content.	AIS Survey (x3)

Key matters and actions

There were no specific key matters.

4.10 Other comments

Summary

No key matters were raised.

Feedback affirming the draft syllabus

No specific feedback was provided.

Key matters and actions

There were no specific key matters.

4.11 Student voice

Targeted consultation meetings with students were held to gather feedback about Science. These meetings focused on a discussion of courses within the Years 11 and 12 Science learning areas, including: the aspects of the course that students liked most and least; how the course could be improved; and the value of and interest in a Science Extension course.

Summary

Student comments focused on the study of Stages 5 and Stage 6 Science. The majority of students supported a more flexible approach to studying Science, including opportunities to research and move away from learning a large amount of prescribed content.

Feedback from student voice on Science

Feedback	Sources
Students enjoy the open-ended nature of tasks.	Armidale (SV) Wagga Wagga (SV)
Students dislike learning extensive content for an examination and preferred the application of knowledge.	Armidale (SV) Wagga Wagga (SV)
Students indicate that there was much more content in the Stage 6 course compared to Stage 5.	Armidale (SV) Wagga Wagga (SV)
Students support the inclusion of more independent research tasks and having time dedicated to exploring Science in depth.	Armidale (SV) Wagga Wagga (SV)
Students strongly endorsed the development of a Science Extension course.	Armidale (SV) Wagga Wagga (SV)

5 Quantitative analysis of survey responses

Note: Due to rounding, some percentages may not total 100 per cent.

Survey item	Number of responses	Strongly agree	Agree	Disagree	Strongly disagree
Rationale					
1. The rationale describes the nature and purpose of the course in the curriculum.	27	22%	74%	4%	0%
Aim					
2. The aim provides a succinct statement of the overall purpose of the course.	27	30%	56%	15%	0%
Objectives					
3. The objectives define the intended learning and the knowledge, understanding, skills, values and attitudes to be developed through study of the course.	27	19%	67%	7%	7%
Outcomes					
4. The outcomes and content describe what students are expected to achieve in relation to what they know, understand and can do from studying the course.	26	19%	73%	8%	0%
5. The outcomes provide an appropriate continuum of learning from Stage 5 to Stage 6.	25	32%	64%	4%	0%
Course structure					
6. The course structure and requirements are clear, manageable and appropriate.	25	12%	52%	32%	4%
7. The requirements for the programming of a depth study are clear.	26	0%	69%	27%	4%

Survey item	Number of responses	Strongly agree	Agree	Disagree	Strongly disagree
School-based assessment					
8. The school-based assessment requirements are manageable.	26	23%	46%	23%	8%
9. The school-based assessment requirements provide opportunities for students to develop and demonstrate their learning.	25	24%	68%	4%	4%
10. The requirements for the assessment of a depth study are clear.	25	12%	36%	36%	16%
HSC assessment					
11. Please comment on the HSC examination specifications.	18	6%	33%	39%	22%
Content					
12. The content describes the scope and depth of learning.	24	4%	67%	25%	4%
13. The course content is appropriate.	26	31%	54%	15%	0%
Learning across the curriculum					
14. The Learning across the curriculum content, including opportunities for students to develop their understanding and appreciation of Aboriginal and Torres Strait Islander histories and cultures, is authentic and appropriate.	25	8%	72%	16%	4%
Diversity of learners					
15. The syllabus meets the diversity of learners.	23	9%	65%	22%	4%
Modules					
16. The balance of Geology and Environmental Science is appropriate.	24	25%	62%	8%	4%

Survey item	Number of responses	Strongly agree	Agree	Disagree	Strongly disagree
17. The modules provide a clear progression and development of concepts.	24	21%	75%	4%	0%
18. Sufficient time has been allocated to cover the course outcomes and content for each module.	24	4%	71%	21%	4%
19. Working Scientifically is appropriately incorporated in the content.	24	17%	75%	8%	0%
20. There is sufficient scope for a variety of practical experiences.	23	13%	78%	9%	0%
21. There are sufficient opportunities to apply quantitative and analytical skills in the course.	24	13%	79%	8%	0%

6 Respondents

6.1 Consultation meetings

Board Curriculum Committee consultation meeting at NESAs on 24 August 2016 (code: BCC)

16 members

Name	Organisation
Dr Timothy Wright	Chair
Mr Vatche Ansourian	NSW Department of Education
Dr Alison Beavis	NSW/Territories Committee of Chairs of Academic Boards/Senates
Ms Olivia Belshaw	Professional Teachers' Council NSW
Mr John Cairns	Australian Association of Special Education NSW Chapter
Ms Karen Daffy	NSW Teachers Federation
Ms Fiona Davies	NSW Parents' Council
Mr Robert Farr	Association of Independent Schools of NSW
Ms Catherine Garrett-Jones	Council of Catholic School Parents NSW
Mr Peter Harold	Independent Education Union NSW/ACT
Ms Alice Leung	NSW Department of Education
Mr Mike Morgan	NSW Teachers Federation
Mr Paul Reilly	TAFE NSW
Mr Timothy Spencer	Federation of Parents and Citizens Associations of NSW
Mr Paul Stenning	Catholic Education Commission NSW
Dr Louise Sutherland	NSW/Territories Committee of Chairs of Academic Boards/Senates

Face-to-face consultation meetings (code: CM)

480 attendees

Location	Date (2016)	Number of attendees
Campbelltown	28 July	65
Canterbury	2 August	82
Gosford	4 August	44
Manly	9 August	59
Epping	11 August	174
Armidale	18 August	35
Wagga Wagga	23 August	21

Targeted consultation meetings

Aboriginal education (code: *Aboriginal Ed*)

15 attendees

Location	Date (2016)	Number of attendees
Sydney (am)	28 July	7
Sydney (pm)	28 July	8

Special education (code: *Special Ed*)

57 attendees

Location	Date (2016)	Number of attendees
Sydney	11 August	19
Sydney	16 August	21
Newcastle	22 August	17

Industry (code: *Industry*)

28 attendees

Location	Date (2016)	Number of attendees
Sydney	11 August	28

Student voice meetings (code: *SV*)

30 attendees

Location	Date (2016)	Number of attendees
Armidale	18 August	19
Wagga Wagga	23 August	11

Consultation meeting attendees

Attendees	Number of attendees
Academic	11
Parent	0
Pre-service teacher	5
School executive	62
Teacher	326
Student	1
Other	14

Attendees identified as	Number of attendees
An Aboriginal person	2
A Torres Strait Islander person	0
An Aboriginal and Torres Strait Islander person	0
Not an Aboriginal and/or Torres Strait Islander person	417

Sector	Number of attendees
Government	218
Catholic	62
Independent	173
Non-school based	27

Area of NSW	Number of attendees
Metropolitan	380
Regional	100

Note: The data listed above was gathered from meeting attendance registrations. It may not include all data for those who attended without first registering. Some data may not reflect the total number of attendees.

6.2 Online survey respondents

33 responses

Respondents	Number of respondents
Academic	2
Parent	0
Pre-service teacher	2
Principal	0
School executive	1
School faculty/department	2
Teacher	27
Student	0
Other	0

Respondents identified as	Number of respondents
An Aboriginal person	2
A Torres Strait Islander person	0
An Aboriginal and Torres Strait Islander person	0
Not an Aboriginal and/or Torres Strait Islander person	31

Sector	Number of respondents
Government	19
Catholic	4
Independent	7
Non-school based	3

Area of NSW	Number of respondents
Metropolitan	20
Regional	13

Number of people contributing to the survey	Number of respondents
1	29
2–5	2
6 or more	2

6.3 Written submissions

Organisations, groups and individuals	Code
Association of Heads of Independent Schools of Australia	AHISA
Association of Independent Schools NSW	AIS
Catholic Schools Office Armidale	CSOArm
Catholic Schools Office Diocese of Lismore	CSOLism
Community of Catholic Schools Diocese of Broken Bay	CCSOBB
Independent Education Union NSW/ACT	IEU
NSW Department of Education	DoE
NSW Teachers Federation	NSWTF
Science Teachers' Association of NSW	STANSW
Sydney Catholic Schools, Archdiocese of Sydney	SCS
Wenona School	Submission 1
Individual respondent	Submission 2
Condell Park Christian School	Submission 3
Individual respondent	Submission 4
Southern Cross Baptist Christian School	Submission 5
Sydney Grammar School	Submission 6
The Kings School	Submission 7
Individual respondent	Submission 8