



New South Wales response to the draft K–10 Australian curriculum for English, history, mathematics and science

Preface

NSW has approached stakeholder consultations with the intention of supporting a high quality curriculum regardless of it being different to current practice.

The feedback from consultation has been framed by the Board's recognition that policy decisions at a national level are explicit in the ACARA remit. The aim of the remit is to achieve the purposes of a national curriculum. NSW is committed to the purposes of an Australian curriculum and has used the ACARA remit and Shaping Papers as a benchmark for consultation feedback in each curriculum area.

This document reports the outcomes of the Board's consultation on the draft Australian curriculum in two parts.

The first part considers overarching matters that are relevant to the purposes of the curriculum as a whole and that have been consistently identified through consultation.

The second part reports the outcomes of the Board's consultation on the draft Australian curriculum K-10 in English, mathematics, science and history against the stated intent in the *Australian Curriculum Principles* contained in the *Shape of the Australian Curriculum*. This part provides subject specific details and examples where appropriate to highlight issues raised in the consultation.



New South Wales response to the draft K–10 Australian curriculum for English, history, mathematics and science

1. Introduction

New South Wales is committed to working with all other states and territories to achieve a high quality core Australian curriculum.

In developing this response the New South Wales Board of Studies has drawn on its well-established curriculum development and consultation processes. These processes have helped the state sustain a reputation for developing and implementing high quality curriculum. That curriculum underpins the state's outstanding results in student learning outcomes on national and international measures.

NSW recognises that effective curriculum development entails continuous monitoring and improvement and that it benefits by the inclusion of a broad range of contributions. The state commitment to a core Australian curriculum is therefore based on the increased potential for a common national approach to achieve and sustain the best possible curriculum for all students.

To this end NSW has made substantial contributions to the Australian curriculum development process to date. A number of officers of the NSW Board of Studies and Department of Education and Training, as well as individuals from the Catholic and Independent school sectors, have been released into seconded positions with the Australian Curriculum, Assessment and Reporting Authority (ACARA). Representatives from all school sectors and agencies have also contributed at ACARA's invitation to participate in its advisory and development processes.

1.1. Australian curriculum as a student learning entitlement

All Australian students are entitled to the highest possible quality of school education. The concept of a learning entitlement for all is premised on the existence of a common and high quality curriculum. It also entails a broad consensus as to the essential content that will constitute that curriculum. The basis of such a consensus can only be shared cultural and community perspectives. In Australia these perspectives are generated and sustained across the nation as well as in specific communities. It is therefore possible and appropriate to work toward establishing common and agreed curriculum content for all Australian students that then forms the basis of common and high learning expectations for all.

This principle informs the NSW analysis of the draft Australian curriculum for English, history, mathematics and science. The most essential measure of success for the draft curriculum is the extent to which it sets out a strong foundation of essential learning for all students.

1.2 Implementation in NSW

The draft Australian curriculum has been assessed on the basis that the core content, once endorsed, will be implemented without amendment and in full in NSW schools. Once endorsed, there is no intention to change or amend the core curriculum (content statements and achievement standards) to make it more amenable to preferences or requirements in NSW. It is also intended that the curriculum will be recognised and presented as The Australian Curriculum.

The test of the draft curriculum therefore will be its appropriateness for the purposes to which curriculum applies in this state. That includes that the endorsed NSW curriculum is mandatory for all schools. Registration and accreditation processes for non-government schools monitor teaching and learning programs to ensure that they address the mandatory learning outcomes and content as described in the endorsed curriculum. The endorsed curriculum must also provide the foundation for the assessment processes that lead to the School Certificate credential.

Once endorsed, the Australian curriculum will need to be implemented within the NSW legislative framework. NSW legislation requires that the Board advise the Minister on the likelihood of effective implementation and resource implications of new curriculum. Once the curriculum is endorsed, NSW will present the Australian curriculum to teachers with support material and in a form that fulfils the terms of NSW legislation. There will also be the need to develop communication strategies to assist parents and the community in understanding the new curriculum.

Implementation of new curriculum needs to be carefully planned and well supported given simultaneous implementation of four key learning areas across K–10. The implications, especially for primary schools and the transition into Years 11 and 12, will need to be considered when making decisions about the sequence of implementation.

1.3 The development and status of the NSW response

This response includes and consolidates advice developed through a number of coordinated and complementary consultation processes across school education sectors in NSW. In addition to the Board's direct consultations, issues raised in substantial advice from the NSW Department of Education and Training and NSW Catholic Education Commission have been incorporated into this document. The document constitutes a consolidated NSW Government response to the draft Australian curriculum material.

The comments and analysis set out in this paper reflect the Board's considered view given its widely representative status and its statutory functions.

The processes used in developing the advice replicated the approach that would be undertaken in consultations for curriculum developed by the Board of Studies. This approach seeks to ensure that consultation is thorough and inclusive. The consultation has included:

- stakeholder and teacher meetings in each subject in metropolitan and regional centres
- a series of subject-based teleconferences
- stakeholder meetings with a focus on whole-school issues for primary and secondary settings
- stakeholder meetings with a focus on assessment and reporting implications
- an online survey on the Board's website.

In addition key stakeholders have held a range of consultation activities, the reports from which have been included in the final NSW response.

For each subject Board Curriculum Committees have been established to initially:

- monitor the consultation process
- ensure that consultation feedback is appropriately represented
- ensure that the issues emerging from the consultation are identified and that the associated recommendations are appropriate and subsequently will also provide advice on the quality and suitability of the final curriculum.

In order to finalise this response the Board of Studies held an extraordinary meeting on 1 June 2010 to consider the consultation reports and the advice of Board Curriculum Committees.

The feedback in this report is provided in the spirit of wanting the very best for all Australian students. It highlights what NSW sees as key considerations in working towards a final quality curriculum.

As far as possible this paper attempts to identify specific actions to be undertaken to prepare the Australian Curriculum for implementation. The response includes a rationale for the proposals wherever possible. The paper does not take a position on the appropriate or feasible timeline for preparing the Australian curriculum but notes the primacy of quality in curriculum development and implementation and the processes that are necessary to achieve this.

2. Presentation and structure of content

Recommendations

- **ACARA should develop and disseminate an overarching framework of the curriculum to delineate the scope of content to be covered within each subject and to support the coherence of the curriculum across all subject areas.**
- **The framework should describe the continuity between the Australian curriculum to the national Early Years Learning Framework and address articulation with senior years of schooling and other transition points within Years K to 10.**
- **The framework should set out time allocations to which ACARA will develop curriculum for each subject area at different year/stage levels.**
- **There should be a substantial reduction in the amount of content expected for each unit of time indicated to writers.**
- **Time allocations should allow for existing practice in jurisdictions to achieve quality outcomes, or ACARA should present an educational rationale for inconsistency with existing practice.**

- **The framework should clarify the relationship between the subject content and General Capabilities and Cross Curriculum Dimensions.**
- **The structures and terminology of organisational frames through which content is presented (strands and topics, for example) should be made as consistent as possible across subjects.**
- **There should be a greater distinction between the content descriptions and the elaborations, entailing a clarification of some content descriptions.**
- **Substantial issues of coherence, consistency and sequencing within subjects need to be addressed (specific subject sections below provide specific suggestions).**

Comments

There is a need to present an overarching structure or 'blueprint' of the curriculum that ACARA is intending to develop. An assessment of the aggregate effect of the curriculum and a judgement as to the overall effect on student learning can only be made in the context of a valid overarching framework. That framework needs to plot the general intentions of student learning across all subject areas and from Kindergarten to at least the end of Year 10.

The ultimate effectiveness of a curriculum will depend on the coherence of such a framework, the balance of learning opportunities it provides and the appropriateness of the content to the range of students at each stage.

Such a framework or blueprint could have emerged from the principles set out in *The Shape of the Australian Curriculum* and are used as a common reference point for judging the coherence of the content of these draft curriculum documents.

The relationship of the draft curriculum frameworks to the Early Years Learning Framework is unclear. An overarching framework that explicates the roles and elements of the curriculum in more specific terms than *The Shape of the Australian Curriculum* paper but is wider in scope than the subject-shaping papers would help address this issue.

Such a curriculum framework needs to set out the relationship of the content to the General Capabilities and Cross Curriculum Dimensions (discussed in section 5 below), if these aspects of the curriculum are to be further developed.

2.1 Content descriptions and elaborations

The model adopted of mandatory content descriptions and illustrative elaborations allows jurisdictions and schools the flexibility to develop teaching and learning programs that effectively meet the needs of students, while ensuring a common learning entitlement for all students.

It is understood that as a whole the content descriptions for Kindergarten to Year 10 set out the scope of learning within the relevant subject areas that should be provided for all students. In circumstances where a line of differentiation or choice is provided, as in higher-level mathematics in junior secondary, it should be on the basis that the scope of choice should generally be accessible to all students subject to their choice and ability.

The basis for selecting the specific content and the extent of the content in each subject is not clear. While the shaping papers for each area set out an overall frame for addressing the subject, they are not intended to and do not establish a measure of the extent or nature of the specific content that might be considered essential. The selection of content generally appears to be an amalgamation of existing content requirements across jurisdictions. While this is not in itself inappropriate, it does raise the question of how specific inclusions in areas such as history were identified and settled.

This problem is acute when the total content appears to be excessive as is the case for this curriculum. There needs to be a clearer rationale for the specific topics and inclusions to justify the overall effect of the inclusions in each subject and across the subjects.

The content descriptions selected must stand alone. There should be a clearer distinction between the content descriptions and elaborations and their purposes. Too frequently, the content descriptions rely on the elaborations to establish the teaching and learning that is intended.

2.2 Organisation of content

There is generally a lack of coherence and consistency in the organisation and presentation of the content both within and across the subject areas. Across subjects content is presented in various ways including by strands and topics. A consistent approach is favoured particularly for primary teachers who will manage the full range of subjects.

The overview or framework for the curriculum should set out issues of structure within and across subjects, and outline the theoretical and research underpinnings of any significant structural decisions.

2.3 Content descriptions

The substantial challenge of developing content descriptions that are sufficiently detailed to ensure clarity and national consistency, while avoiding perceptions of undue prescriptiveness, is recognised.

Each subject-specific report that follows includes specific suggested enhancements of the content descriptions to better meet this goal including with regard to identification of:

- ordering of content statements within a sequence
- continuity across strands or concepts
- placement of content in the appropriate year or stage of schooling
- the appropriateness of topic sequences.

The global nature of the content descriptions makes it difficult to be confident about the time implications for each subject. There is a general perception that there is too much content for the time allocations that ACARA has indicated. This perception is based on teachers' knowledge of the topics, issues and concepts set out in the content descriptions and their awareness of the pedagogies that they entail.

It is crucial that content can be effectively taught and learned in the time available. Overall the content descriptions within the time allocated represent an increase in content and an overcrowding of the curriculum. It is unlikely that students will be able to achieve depth of knowledge and understanding within the time allocations indicated by ACARA as guidance for writers. Overall the draft curriculum has not met the objective of delivering less breadth to be explored in greater depth.

2.4 Elaborations

There is general agreement that the greater detail of elaborations is helpful in clarifying the content descriptions.

As noted, there are some content descriptions that are dependent on the elaborations to explain their intent.

There should be more consistency in the nature and tone of elaborations within and across the subject areas.

2.5 Indicative times in the curriculum

While there is a general concern about the indicated time allowances from ACARA, there is also substantial concern about the structure of the content. There is no rationale presented for the distribution of times across subject areas and therefore no argument made for jurisdictions to unsettle existing arrangements to meet ACARA's indicative time allocations.

The extent of the content itself does not appear to be the basis for the allocation of indicative times across subject areas as there is no rationale for determining the extent of content within or across the subject areas.

Until recently NSW has been the only state with indicative time allocations. While these allocations have been partly a result of accumulated practice, there have been many public discussions and consultative processes over time to establish a consensus on the structure of allocations based on the purposes and aims of the curriculum. Similar discussions to establish a cogent rationale for the nature of the curriculum scope and the distribution of time across that curriculum have not been undertaken here.

There has been a lack of clarity about the time to be committed to subjects within the curriculum throughout the curriculum development process. The NSW Board of Studies has been consistent in raising concerns about the time allocations.

The hours offered in NSW have been provided as guidance for a balanced approach to the curriculum.

Subject	Teaching time allowed for Australian curriculum subjects per annum	Indicative teaching time for NSW BOS syllabuses per annum	Teaching time to which government schools are staffed per annum
English 7–10	160 hours	100 hours	125 hours
History 7–10	80 hours	50 hours	50 hours
Mathematics 7–10	160 hours	100 hours	125 hours
Science 7 Science 8–10	120 hours 160 hours	100 hours	125 hours

Subject	Teaching time allowed for Australian curriculum subjects per annum	Guidelines for NSW BOS syllabuses per annum	Guidelines for NSW government schools are staffed per annum
English K-6	300 hours	250 - 300 hours	250 - 300 hours
History K-6	80 hours	60 - 100 hours HSIE	60 - 100 hours HSIE
Mathematics K-6	200 hours	200 hours	200 hours
Science K-6	80 hours	60 - 100 hours	60 - 100 hours

There is a general concern that the amount of time committed to phase 1 subjects in Years 7 to 10 is more than is currently allocated in NSW. As noted NSW places a great deal of emphasis on the importance of key subjects such as English, history, mathematics and science and is the only state to have retained an external assessment of learning in these areas at the end of Year 10.

NSW believes that an increase in indicative times for these subject areas will not of itself improve the level of learning expected of students but may crowd out important learning in other areas. In addition, excessive time allocations present risks of content overload and subsequent student disengagement

There is particular concern that the indicative hours in Years 9 and 10 will crowd out opportunities for important activities that go toward achieving the range of ambitions held for all students. These include opportunities, for example, to participate in vocational education and community service activities. Further there is concern that there will be limited flexibility to establish and explore curricular interests that help prepare students for effective senior secondary study.

Similar concerns exist for Year 7 where the amount of content appears to be substantially more than is currently the case in NSW without explanation or rationale.

For K to 6 there is particular concern that 80 hours has been committed to the teaching of History. In NSW 80 hours is recommended for the Human Society and its Environment Learning Area which includes the study of History and Geography and aspects of Citizenship and Society.

The draft curriculum appears to have been developed around unit multiples of 20 hours. There is a general view in NSW that any content set at less than 50 hours does not provide adequate opportunity to address the subject content.

It is understood that ACARA's indicative hours are intended as support and guidelines for curriculum writers. Nonetheless the amount of content developed by writers should be consistent with existing practice, or ACARA should present a clear rationale for change.

The resource implications of changed curriculum allocations within jurisdictions will be quite severe, particularly in the NSW context where allocations are already prescribed by regulation. The successful implementation of the curriculum is contingent on an adequate supply of suitably qualified teachers with the necessary subject expertise. Based on the indicative hours for phase 1 subjects there will be a serious shortfall in the supply of secondary teachers in these four areas.

The curriculum development process must take into account the context of schools and the available resources for implementation. The consequences of not responding adequately to this issue are significant.

3. Achievement standards

Recommendations

- **The relationship of the achievement standards to reporting needs to be reconsidered.**
- **The achievement standards should be evolved to be more integrated and there need to be general statements about the learning and skills that students in the subject at that year are expected to gain.**
- **The achievement standards should be calibrated more realistically to the appropriate level for satisfactory achievement at each year of schooling.**

Comments

There is a lack of clarity as to the intended nature and purpose of the achievement standards. As a result, they do not meet their expected aims.

The achievement standards attempt to give a holistic summary of the learning that characterises students in each subject at the end of each year of schooling. However they do not succeed in this because they are largely a compilation of the content descriptions. As such they are somewhat disparate, failing to provide an overall picture of the skills, understandings and knowledge students are expected to develop from studying the subject. They need to incorporate a more global description of achievement in the subject that gives a sense of the ‘big ideas’ students will have engaged with to this point in their learning.

At the same time, the achievement standards are expected to describe typical achievement at the C level in the subject at the end of the year of schooling. This is incompatible with the previous purpose. If the achievement standards succeed in the first purpose, when they are then read as the typical achievement of an individual student performing at the C level, they are far too ambitious.

There is a further conceptual difficulty with attempting to combine these two purposes. In the second purpose, the achievement standard is considered to be at the ‘C’ level for a given year, with the B and A levels above it, and the D and E levels below it. The same situation applies, of course, for the achievement standard at the next year. This implies that a student’s growth can be characterised as a journey through the levels for one year, and on to the levels for the next year (with, perhaps, some overlap). This means that attainment of A level in Year 5 History is somewhat akin to E or D level in Year 6 History. It is not the case that a high-performing Year 5 student displays similar achievement in History to a low-performing Year 6 student. (This may be true if the domain being assessed is more a skills-based one, such as literacy.)

A more useful approach is to restrict the achievement standards to the first purpose – a synthesis of the learning that may be expected to be gained by the end of the year of schooling – and to report quality of achievement of this learning as grades A to E. These differing levels of quality can be described using generic descriptors, and illustrated by choosing an appropriate range of samples of student work for each grade in each subject in each year of schooling.

4 Equity

Recommendations

- **The amount of content in the Australian curriculum should be reduced to allow teachers the opportunity to meet the needs of the diverse range of students in most classrooms.**
- **ACARA should establish a process which engages a wide range of Aboriginal and Torres Strait Islander educators to build confidence that Aboriginal and Torres Strait Islander knowledge, history, cultures and perspectives are genuinely integral to the substance of the curriculum, as appropriate for an Australian curriculum and consistent with ACARA's stated principles.**
- **ACARA should as a matter of urgency consult on a coherent and genuine approach to integrated learning for students with disabilities in order for the Australian curriculum to be compliant with the *Disabilities Discrimination Act 1992* and the Disability Standards.**

Comment

The Shape of the Australian Curriculum proposes that the curriculum will meet the needs of all students. This is an important priority for all NSW schools.

The most fundamental contribution that the Australian curriculum can make in this regard is to establish clear and common learning expectations for all students. Those expectations need to be inclusive of the diverse perspectives and interests that are brought to school from children of different backgrounds and experiences.

A common Australian curriculum on the model proposed (content descriptions and elaborations) can form the foundation for common, broad and high learning expectations for all when complemented with varied and effective support strategies at jurisdictional, system and school level throughout the nation.

The content of the draft curriculum needs to address the following issues:

4.1 Aboriginal and Torres Strait Islander students

The Australian curriculum must be valid and recognised as valid by Aboriginal and Torres Strait Islander students and communities, regardless of location across Australia. In that context the common Australian curriculum should embody the expectations for the learning of Aboriginal and Torres Strait Islander students as for all other students.

It is essential for all students to learn about Aboriginal and Torres Strait Islander histories and cultures.

Moreover, Aboriginal experiences and perspectives must be prominent in and integral to the Australian curriculum overall. The range of opportunities to integrate Aboriginal issues, perspectives and experiences, and to identify the place of Aboriginal and Torres Strait Islander peoples in the context of contemporary Australian experience, appear not have been taken up in the draft curriculum. There is a general view that the curriculum development process has not been thorough in this regard.

More consistent engagement of Aboriginal educators is crucial to building confidence in the Australian curriculum.

4.2 Students with special education needs

There is no apparent content or approach to the content to address the learning needs of students with disabilities.

While ACARA may be undertaking developmental work in this area, the model or general approach has not been available for consultation. This issue should have been settled as part of an overarching blueprint for the development of a national curriculum.

NSW uses a successful model of Life Skills outcomes and content that provides students who have an intellectual disability with opportunities to engage with age-appropriate content so that they have similar learning opportunities as their age cohort. This approach assists teachers who have students with special education needs in their mainstream classrooms.

4.3 Gifted and talented students

The content-laden approach to the curriculum does not allow enough flexibility to provide for depth and variation of applications of content that help meet the needs of gifted and talented students.

Due to the amount of content in the draft curriculum there is insufficient time to develop deeper understandings or skills or to revise prior skills for all students. The amount of content also reduces the time and flexibility to contextualise learning and to actively engage students in inquiry-based learning.

Generally, the expression of the content does not signal the opportunities for abstracted concepts that challenge high achieving students.

4.4 Students from culturally and linguistically diverse backgrounds

There is recognition of Australia's cultural and linguistic diversity in the draft Australian curriculum. There is scope for this to be reflected more fully and consistently in all four draft curriculum documents.

5 General capabilities and cross-curriculum dimensions

Recommendations

- **ACARA should consider the overall approach to general capabilities and cross-curriculum dimensions to clarify the exact role of each and their relationship to the subject content.**
- **Scope and sequence material should be developed for literacy and numeracy as a priority.**

Comment

There is general enthusiasm among teachers consulted for describing dimensions of learning in ways that are not limited to presentation through the subject domains.

There is a general lack of clarity about the purpose of the general capabilities and cross-curriculum dimensions. This is reflected in the uneven inclusion of curriculum items under these headings.

The Shape of the Australian Curriculum document made a case for a number of General Capabilities and Curriculum Dimensions being identified explicitly as part of the curriculum. Since then these have been presented in the draft Australian curriculum as another, alternative or additional dimension to the subject curriculum. This process and the process of development and consultation have raised questions about the coherence of the ACARA approach to cross-curriculum capabilities and dimensions and their relationship to the subject curriculum.

Each of the areas identified as General Capabilities are different in nature and in some cases should be treated differently. Literacy and Numeracy are a different order of General Capability to the others identified. There is consensus that these form foundation learning for all other areas. There is also general agreement and specific knowledge among teachers and the community as to what constitutes literacy and numeracy and how it generally manifests itself in learning. They are generally seen as subsets of the subjects English and mathematics but are also seen as having specific expressions across all other areas. For these reasons specific scope and sequence of learning for literacy and numeracy are required.

ICT is listed by ACARA as a separate subject to be developed. Clearly ICT processes can also be applied in all learning areas. Some clarity is required on this issue.

Other areas are not as easily defined for the purposes of curriculum development. They may be seen as student dispositions, characteristics or emphases that evolve as a result of learning through the content areas. They may also be seen as domains of content learning in their own right. Depending on how they are defined they should be expressed and presented differently.

If this specific subset of the general capabilities is to be seen as student capacities or dispositions, they may be best expressed in the form of global learning outcomes rather than as specific items of curriculum content. The extent to which these learning areas can be validly addressed through specific teaching programs, and their relationship to the subject content, would need to be specifically explained and consultation sought.

If the specific subsets of general capabilities are seen as an alternative or additional curriculum content paradigm, the relationship of this paradigm to the subject framework will need to be articulated. There is a danger of the general capabilities framework being adopted by teachers as a legitimate alternative frame for presenting content. If this is intended, a more thorough case needs to be made for each learning area and substantial and broad consultations need to be undertaken with regard to each of the general capabilities. In that circumstance, ACARA should set out the epistemological basis of the content described and describe its complementary role to the subject curriculum. There will then be an issue of the appropriateness of an independent scope and sequence for each general capability (other than for literacy and numeracy).

The cross-curriculum dimensions present similar issues. The issues identified are significant and the place of Aboriginal dimensions is addressed elsewhere in this paper. Generally however it is unclear why the identified areas are more important than, say, vocational education or the principles of a broad liberal education.

The capacity to sort the subject content by these dimensions does not of itself ensure a thorough and genuine integration of these issues in the curriculum.

Currently in NSW the cross-curriculum content (incorporating a range of the general capabilities and cross curriculum dimensions) of syllabuses is embedded in content statements. This work was preceded by the development of a scope and sequence of what we want all students to know and do in relation to these areas.

ACARA principles and specific issues raised in consultations

The following tables set out specific issues raised in consultations that go to the principles established by ACARA and supported by jurisdictions as reference for assessing a quality curriculum.

They do not represent all the feedback from stakeholders as much of this was intended to inform jurisdictional process as much as ACARA's developmental work.

The responses do not attempt to indicate strength of opinion with regard to each issue, but each issue raised does represent a broad consensus among stakeholders.



Draft Australian Curriculum

Shape of the Australian Curriculum Principles

English

Mathematics

Science

History

Draft Australian Curriculum English

Shape of the Australian Curriculum Principles

This document reports the outcomes of the Board's consultation on the draft Australian curriculum English K-10 against the *Australian Curriculum Principles* in the **Shape of the Australian Curriculum**. It provides subject specific details and examples where appropriate to highlight issues raised in the consultation.

Australian Curriculum Principle	NSW Analysis and Comment
<p>a) The Australian Curriculum recognises the entitlement of students to a core of knowledge, understanding, skills and dispositions that provide a foundation for their future contribution to Australia's society. This learning provides the basis for success at and beyond school, and helps young people continue their learning after they have left school.</p>	<ul style="list-style-type: none">• The 'strands' structure is artificial and does not enable teachers to integrate all the dimensions of English effectively. The strands may be useful in identifying key dimensions of English as an overview. However, structuring the content and process of English in this way does not appear to draw on any established theoretical or pedagogical models of the discipline or reflect effective teaching practice.• The comparatively brief number of content descriptions in the Literature strand across the years signals a diminution of this core aspect of English and limits the potential for enriching literary classroom experiences.• The comparatively brief number of content descriptions in the Literature strand across the years limits the potential for building capacity for senior courses.• The uneven sequencing of content descriptions restricts the opportunity for effective planning and programming.• Higher-order thinking skills to organise, synthesise and reflect on learning, as well as plan for future learning, are not sufficiently represented in the draft document.• The omission of the viewing/representing language mode may lead to an undervaluing of oral communication and other texts included in the curriculum.• Speaking as a Language mode is not sufficiently represented in Years 7-10.• The focus on content understates the need to integrate content with processes.• There are no clear guidelines for developing "dispositions" in the draft document.

Australian Curriculum Principle	NSW Analysis and Comment
<p>b) The Australian Curriculum makes clear to teachers what is to be taught, and to students what they should learn and what achievement standards are expected of them. This means that curriculum documents are explicit about knowledge, understanding, skills and dispositions, and that they provide a clear foundation for the development of a teaching program.</p>	<ul style="list-style-type: none"> • Clarification is required about whether or not the numbering of content descriptions implies a hierarchical ordering of content, which will potentially impact on the capacity to program for recursive and integrated learning experiences for a diversity of students. • The content is atomised and does not readily lend itself to integrated programming, teaching and learning for “knowledge, understanding, skills and dispositions” in English for the full range of students. • While the rationale has overall merit, it could be strengthened by making prominent the place of the student as an active learner at the centre of the curriculum. • The Achievement Standards lack the clarity necessary to “provide a clear foundation for the development of a teaching program.” • The Achievement Standards, assessment and reporting and are not aligned sufficiently with the strands. • The organisation of the Achievement Standards in terms of language modes, and the organisation of content in terms of the strands - Language, Literature and Literacy - creates confusion. • The mandatory content descriptions require meaningful sequencing, balance and continuity within, across and between strands and years, and should be expressed in terminology that is appropriate and consistent. (See Appendix, #1) • Many content descriptions lack clarity and do not stand alone without the content elaborations. (See Appendix, #2) • The inclusion of grammar is supported. A consistent approach to grammar needs to be identified and maintained (eg. traditional, functional and transformational). • Grammar concepts must also be addressed within contexts of language and literature. • The year-by-year structure presents difficulties for programming in the smaller primary schools with mixed-age classes.

Australian Curriculum Principle	NSW Analysis and Comment
<p>c) The Australian Curriculum is based on the assumptions that each student can learn and that every student matters. Overall, it sets high standards for all students and enables high expectations to be set for each individual student, taking account of current levels of learning and the different rates at which students develop.</p>	<ul style="list-style-type: none"> • The current amount and sequence of content does not lend itself to differentiation in teaching and learning nor cater for “different rates at which students learn”. • Content descriptions are not weighted evenly across and within the strands to allow for an integrated approach to student learning. • Some terms are unclear, obscure or arbitrary. One example is use of the term ‘create’ in the rationale and throughout the content descriptions: in the rationale the term is used to refer to the language mode of visual/multimodal language, while in the content descriptions it is used more generally to refer to creating different types of texts. • The draft document appropriately acknowledges Australia as a linguistically and culturally diverse country but this is not apparent in the content of the draft document.
<p>d) The Australian Curriculum connects with and builds on the <i>Early Years Learning Framework</i>, and extends the key learning outcomes of: children have a strong sense of identity; children are connected with and contribute to their world; children have a strong sense of wellbeing; children are confident and involved learners; and children are effective communicators.</p>	<ul style="list-style-type: none"> • The K-6 content descriptions are generally adequate particularly with the specification of grammar in Years 3-6, although the sequencing of this content does not lend itself to developing a continuum of learning. • There is too much content in the draft document, particularly for K-6. • The emphasis on literary texts in the primary years is supported. • The Literature strand in 7-10 requires a more substantial emphasis. • The content descriptions for Year 7 require further refining in order to ensure a developmental continuum with the Early Years Learning Framework and the K-6 content.
<p>e) The Australian Curriculum helps prepare all young Australians to become fulfilled and competent members of the community. It builds firm and meaningful foundational skills as well as providing the basis for developing expertise for those who move on to specialised advanced studies in academic disciplines, professions and technical trades. It anticipates an increase in both the proportion of students who remain in education and training to complete Year 12 or equivalent vocational education and training, and the proportion who continue to further</p>	<ul style="list-style-type: none"> • The structure of the K-10 document and the non-alignment with the unit structure of the senior courses is problematic, and as such, casts doubt on the smooth transition from school-based learning into “specialised advanced studies in academic disciplines, professions and technical trades”. • The relationship of K – 10 to the senior courses needs to be clarified. • An explicit statement about how K-10 will build capacity for and articulate with the senior years is required. • The content of the 7-10 curriculum should be engaging, explicitly connected to the ‘real personal and community lives’ of learners, and allow the flexibility required for teachers to revisit and reinforce

Australian Curriculum Principle	NSW Analysis and Comment
study or training.	learning.
f) The primary audience for Australian Curriculum documents is classroom teachers. In particular, the curriculum recognises and appreciates that in the primary years teachers are responsible for several learning areas . Documents are concise and expressed in plain language whilst preserving a complexity in ideas appropriate for professional practitioners. They are recognisably similar across learning areas in language, structure and length .	<ul style="list-style-type: none"> • Much of the content appears to be arbitrarily sequenced with no clear progression of learning or a continuum of learning apparent (See Appendix 1) • The English draft document uses 'Literacy' as a structural feature, while in other learning areas it is used as a general capability. This needs to be clarified. • Clarification is required about how the K-10 strand structure coheres with the proposed senior years. While Literature is a strand in K-10, it is a discrete course in the proposed senior curriculum. • It is not apparent that the K-10 draft draws on the established and shared discourse of English education which "preserves a complexity of ideas appropriate for professional practitioners". Aspects of the draft are expressed in language that is not familiar or clear to English teachers.
g) The Australian Curriculum should be feasible, taking account of the time and resources available to teachers and students , and the time it typically takes to learn complex concepts and ideas . Time demands on students must leave room for learning beyond the scope of a national curriculum .	<ul style="list-style-type: none"> • Too much content in the draft curriculum restricts the scope and limits the potential depth of treatment in the classroom. • Too much content in the draft curriculum limits the capacity for students to engage, synthesise, transfer and apply "complex concepts and ideas." • A reduction in and refining of the content would allow for "the time it typically takes to learn complex ideas."
h) The Australian Curriculum specifies what is desirable for all young Australians to learn as they progress through schooling and is developed to be taught well within the teaching time available to teachers , allowing them and their schools to build on the core learning to meet individual students' needs and interests . For some areas it is expected that learning will occur in each year of schooling across K-10 and the curriculum is written accordingly . For other areas of learning the Australian Curriculum describes the core entitlement that all	<ul style="list-style-type: none"> • The current organisation of the content does not lend itself to recursive and inclusive teaching and learning through ever-widening and more challenging contexts. • It is not clear how the 7-10 content articulates with and builds upon the Year 6 content. • It is not clear how the draft facilitates or encourages "additional learning". • It is not clear how the draft allows for "a pathway of learning that meets the needs and interests of individual students as they progress through school." • Some content descriptions and mandated focus areas do not "build on

Australian Curriculum Principle	NSW Analysis and Comment
<p>young people are expected to learn, as well as additional learning that students may choose to study and/or schools may choose to provide. The additional learning extends the core learning and contributes to a pathway of learning that meets the needs and interests of individual students as they progress through school.</p>	<p>the core learning to meet individual students' needs and interests."</p>
<p>i) The Australian Curriculum allows jurisdictions, systems and schools to implement it in a way that values teachers' professional knowledge and that reflects the needs and interests evident in local contexts, as it is teachers who decide how best to organise learning for students. Organisation of learning takes account of individual family, cultural and community backgrounds; acknowledges and builds on prior learning experiences; and fills gaps in those experiences.</p>	<ul style="list-style-type: none"> • It is not apparent how the draft curriculum appropriately acknowledges and values the full range of "teachers' professional knowledge". • It is not yet clearly apparent how the draft fully recognises, accommodates and builds upon students' prior and beyond-school learning experiences in reading, writing, speaking, listening, viewing and representing. • The mandating of content focusing on Asia restricts the capacity for teachers to "reflect the needs and interests evident in local contexts".
<p>j) The Australian Curriculum is established on a strong evidence base related to learning, pedagogy and what works in professional practice, and it should encourage teachers to analyse and evaluate their practices systematically.</p>	<ul style="list-style-type: none"> • The apparent absence of a unifying theoretical framework restricts the potential for "teachers to analyse and evaluate their practices systematically." • A "strong evidence base related to learning, pedagogy and what works in professional practice" in English education is not apparent in the K-10 draft.

Appendix

1. Content descriptions do not match up or cohere across years (headings and numbering).

For example, Literacy strand #2 heading variously appears as:

- Kindergarten “Purposes of Texts”
- Year 1 “Reading Strategies
- Year 3 “Comparing languages”
- Year 4 “Oral Communication skills”
- Year 5 “Comprehension strategies”
- Year 6 “Discussing and responding”

Content description numbering shows Literature strand #3 heading variously as:

- Year 7 “Discussing and responding”
- Year 8 “Cultural contexts”
- Year 9 “Recognising and responding”
- Year 10 “Appreciating”

2. Some content descriptions are unclear without the elaborations.

For example:

- Year 2 (Language #6) “Written language needs to be independent of the immediate setting”
- Year 5 (Language #14) “Visual design involves informed choices in creating coherent and effective images”
- Year 7 (Language #1) “Impact of English as a language in Asia”.

Draft Australian Curriculum Mathematics

Shape of the Australian Curriculum Principles

This document reports the outcomes of the Board's consultation on the draft Australian curriculum Mathematics K-10 against the *Australian Curriculum Principles* in the **Shape of the Australian Curriculum**. It provides subject specific details and examples where appropriate to highlight issues raised in the consultation.

Australian Curriculum Principle	NSW Analysis and Comment
a) The Australian Curriculum recognises the entitlement of students to a core of knowledge, understanding, skills and dispositions that provide a foundation for their future contribution to Australia's society. This learning provides the basis for success at and beyond school, and helps young people continue their learning after they have left school.	<ul style="list-style-type: none">• In its current form the curriculum is not seen as providing appropriate flexibility for teachers to address the needs of lower, middle or higher-achieving students.
b) The Australian Curriculum makes clear to teachers what is to be taught, and to students what they should learn and what achievement standards are expected of them. This means that curriculum documents are explicit about knowledge, understanding, skills and dispositions, and that they provide a clear foundation for the development of a teaching program.	<ul style="list-style-type: none">• The curriculum lacks coherence, clarity and continuity and has inconsistent levels of expectation for students across the Years. There is a lack of clarity in many of the content descriptions, which means that they will not 'stand alone' as necessary, given that coverage of the elaborations is not mandatory (See Appendix point 1.) Various aspects of essential content have been omitted. (See Appendix point 2.) Further work and careful checking of the curriculum needs to be undertaken in order to address these issues.• Key components of what is considered essential learning are not covered in sufficient depth. For example, multiplication and division are not strongly evident in K–6. The content for Kindergarten is below expectations in terms of number and measurement. Fractions and area should be included at this level. Much of the language used in the content descriptions is too technical and/or wordy,

Australian Curriculum Principle	NSW Analysis and Comment
	<p>particularly in K–6. Clarity and consistency of language is required and unfamiliar terminology needs to be explained.</p> <ul style="list-style-type: none"> • The statements made in the Rationale need to align with the content of the curriculum. There are statements in the draft Rationale that have not been achieved in the current specification of the content. It is not evident that the curriculum provides for ‘carefully-paced in-depth study of critical skills and concepts’, as stated in the Rationale. The aims of the curriculum need to recognise the different learning needs and range of student abilities. High support-needs students are currently not represented in the Aims. • The general layout and online presentation of the curriculum needs to assist teachers in programming, planning and resource identification. In its current form this is not achieved. The content headings contribute to the lack of cohesiveness of the curriculum and don’t reflect a continuum of learning. The organisation of the three content strands does not allow for the explication of the proficiency strands. • While the approach taken to incorporating the proficiency strands in the content has the intention of making clear the integrated nature of mathematics, the proficiency strands are not evident in content descriptions and achievement standards. They need to be made more explicit and consistent with the other strands and elements of the curriculum. Additional detail and support for teachers will be necessary regarding the assessment of student learning in relation to the proficiency strands. • Much of the language used in the content descriptions is too technical and/or wordy, particularly in K–6. Clarity and consistency of language is required and unfamiliar terminology needs to be explained. The content descriptions do not emphasise mathematical communication. The descriptions also do not explicate mathematical reasoning to an extent that the requirements of the curriculum can be interpreted successfully by teachers. The curriculum also lacks appropriate representation of the role of mathematical language and communication through the proficiency strands.

Australian Curriculum Principle	NSW Analysis and Comment
	<ul style="list-style-type: none"> • A range of curriculum sequencing issues need to be addressed in order to promote meaningful development of concepts and skills from Year to Year. These include concerns regarding ordering of content and inappropriate 'gaps' in teaching sequences. (See Appendix point 3.) • The proposed underlying numeracy continuum needs to be developed and distributed to assist teachers in the evaluation of the draft curriculum and in planning for student learning. • The achievement standards, in general, are seen as a very important part of the curriculum. Following revision, the standards should prove valuable in supporting the assessment of students. However, the standards focus on content statements and are not useful in their current form as a basis for assessing and reporting student achievement. The standards are currently not appropriate descriptions of the achievement of typical students. • The final achievement standards will indicate what is valued in the curriculum. Currently, the achievement standards focus on the content strands, with the proficiency strands not appropriately represented. If student learning in relation to the proficiency strands is to be appropriately assessed the proficiency strands need to be expressed to an appropriate level of detail and reflected more explicitly in the content descriptions and achievement standards. The expected level of achievement within the standards is inconsistent across the Years. The standards are not high enough in the early primary Years and overly-ambitious beyond the early primary Years. Financial literacy is not well represented in the achievement standards. • The intention/purpose/status of the Year 10A content is unclear. Its inclusion introduces a second set of achievement standards for Year 10. While this appears to be an attempt to meet the needs of high-achieving students, more explanation is needed.
c) The Australian Curriculum is based on the assumptions that each student can learn and that every student	<ul style="list-style-type: none"> • The curriculum does not cater for the full range of students nor provide a plan for the mathematics education of students with special education needs. The curriculum, despite the inclusion of Year 10A, does not provide sufficient scope to

Australian Curriculum Principle	NSW Analysis and Comment
<p>matters. Overall, it sets high standards for all students and enables high expectations to be set for each individual student, taking account of current levels of learning and the different rates at which students develop.</p>	<p>prepare high-achieving students for high levels of senior mathematics. The Year-by-Year structure of the curriculum could lead to more able students not being introduced to more demanding content early enough, i.e. in Years 7, 8 and 9. Also, many Years 9 and 10 students will not have achieved the level of mathematics that will allow them to access the Years 9 and 10 curriculum.</p> <ul style="list-style-type: none"> • Further consideration needs to be given to the availability of different pathways within the curriculum for different groups of students. This has been recognised in part by the inclusion of Year 10A for higher-achieving students. However, the draft curriculum is not seen as having appropriate flexibility for lower, middle or higher-achieving students.
<p>d) The Australian Curriculum connects with and builds on the <i>Early Years Learning Framework</i>, and extends the key learning outcomes of: children have a strong sense of identity; children are connected with and contribute to their world; children have a strong sense of wellbeing; children are confident and involved learners; and children are effective communicators.</p>	<ul style="list-style-type: none"> • The K–2 curriculum is of a generally lower level than expected, while the curriculum for Years 3–6 includes some quite challenging concepts. The content for Kindergarten is below expectations in terms of number and measurement. Fractions and area should be included at this level. Substantial conceptual ‘jumps’ have been identified between the primary Year levels.
<p>e) The Australian Curriculum helps prepare all young Australians to become fulfilled and competent members of the community. It builds firm and meaningful foundational skills as well as providing the basis for developing expertise for those who move on to specialised advanced</p>	<ul style="list-style-type: none"> • The curriculum does not cater for the full range of students or provide a plan for the mathematics education of students with special education needs. The curriculum, despite the inclusion of Year 10A, does not provide sufficient scope to prepare high-achieving students for high levels of senior mathematics. Many Years 9 and 10 students will not have achieved the level of mathematics that will allow them to access the Years 9 and 10 curriculum.

Australian Curriculum Principle	NSW Analysis and Comment
<p>studies in academic disciplines, professions and technical trades. It anticipates an increase in both the proportion of students who remain in education and training to complete Year 12 or equivalent vocational education and training, and the proportion who continue to further study or training.</p>	
<p>f) The primary audience for Australian Curriculum documents is classroom teachers. In particular, the curriculum recognises and appreciates that in the primary years teachers are responsible for several learning areas.</p> <p>Documents are concise and expressed in plain language whilst preserving a complexity in ideas appropriate for professional practitioners. They are recognisably similar across learning areas in language, structure and length.</p>	<ul style="list-style-type: none"> • The content headings contribute to a lack of cohesiveness of the curriculum and don't reflect a continuum of learning. The organisation of the three content strands does not allow for the explication of the proficiency strands. Key ideas of the curriculum can be used to develop consistent sub-headings in revising the arrangement of the content descriptions across the curriculum.
<p>g) The Australian Curriculum should be feasible, taking account of the time and resources available to teachers and students, and the time it typically</p>	<ul style="list-style-type: none"> • There is too much content in the curriculum. This is at odds with the stated intention of allowing more time for students to study fewer topics in greater depth, through a reduction in the breadth of content.

Australian Curriculum Principle	NSW Analysis and Comment
<p>takes to learn complex concepts and ideas. Time demands on students must leave room for learning beyond the scope of a national curriculum.</p>	
<p>h) The Australian Curriculum specifies what is desirable for all young Australians to learn as they progress through schooling and is developed to be taught well within the teaching time available to teachers, allowing them and their schools to build on the core learning to meet individual students' needs and interests.</p> <p>For some areas it is expected that learning will occur in each year of schooling across K-10 and the curriculum is written accordingly. For other areas of learning the Australian Curriculum describes the core entitlement that all young people are expected to learn, as well as additional learning that students may choose to study and/or schools may choose to provide. The additional learning extends the core learning and contributes to a pathway of learning that meets the needs and interests of individual students as they progress through school.</p>	<ul style="list-style-type: none"> • The curriculum does not cater for the full range of students nor provide a plan for the mathematics education of students with special education needs. The curriculum, despite the inclusion of Year 10A, does not provide sufficient scope to prepare high-achieving students for high levels of senior mathematics. The Year-by-Year structure of the curriculum could lead to more able students not being introduced to more demanding content early enough, i.e. in Years 7, 8 and 9. Also, many Years 9 and 10 students will not have achieved the level of mathematics that will allow them to access the Years 9 and 10 curriculum. The draft curriculum is not seen as having appropriate flexibility for lower, middle or higher-achieving students. • The Year-by-Year structure of the curriculum creates the unrealistic expectation that all content will be taught to all students in each Year. Greater clarity is required regarding the level of flexibility within the curriculum for differentiation and delivery in order to cater for the range of student learning needs. There are concerns about the extent to which the curriculum will cater for the needs of lower-achieving students (too much of the prescribed content will be inaccessible) and higher-achieving students (content will not be sufficient to extend these students in preparation for high-level senior mathematics courses, and that more challenging material is not available before Year 10). For example, lower-achieving students will find it very difficult to come to terms with the level of difficulty and abstraction of the Years 9 and 10 curriculum. The divergence of student achievement has been recognised by the development of four mathematics courses for Years 11 and 12. Such differentiation in the curriculum needs to be instigated earlier than Year 11, to ensure that students are studying mathematics to the level of complexity for which they are ready. This structure is also not helpful for composite/multi-age classes. The Year-by-Year structure should be replaced by a

Australian Curriculum Principle	NSW Analysis and Comment
	structure based on two-year stages or a series of levels from K–10, in order to cater more appropriately for the range of student learning needs.
<p>i) The Australian Curriculum allows jurisdictions, systems and schools to implement it in a way that values teachers' professional knowledge and that reflects the needs and interests evident in local contexts, as it is teachers who decide how best to organise learning for students. Organisation of learning takes account of individual family, cultural and community backgrounds; acknowledges and builds on prior learning experiences; and fills gaps in those experiences.</p>	<ul style="list-style-type: none"> • The general capability of intercultural understanding is not evident in the document. While reference is made to the number systems and time systems of other cultures, respect and value for these systems is not acknowledged.
<p>j) The Australian Curriculum is established on a strong evidence base related to learning, pedagogy and what works in professional practice, and it should encourage teachers to analyse and evaluate their practices systematically.</p>	<ul style="list-style-type: none"> • There is a lack of clear evidence of research-based sequencing.

Additional Matters

- The draft glossary contains a number of inaccuracies. A range of definitions need to be revised to improve their clarity, while other definitions need to be included.

Appendix

1. There is a lack of clarity in many of the content descriptions, which means that they will not 'stand alone' as needed, given that coverage of the elaborations is not mandatory.

eg Kindergarten Number and Algebra (4. Addition and Subtraction) *Model, represent and solve problems concerning additive and sharing situations involving combining, change and missing elements*; Year 2 Measurement and Geometry (2. Metric units) *Measure and compare length and capacity using uniform informal and familiar metric units and measure mass using balance scales with familiar metric units*; Year 6 Statistics and Probability (3. Variation) *Explore concepts of variation and error by collecting repeated measurements*; Year 9 (6. Visualisation) *Construct and identify elevations and cross-sections of three-dimensional objects, and explain reasoning.*

2. Various aspects of content have been omitted from the draft curriculum and need to be included. These include the multiplication facts and related division facts of 7, square roots and cube roots, conversions between metric units of measurement, and standard deviation.
3. Respondents raised a range of curriculum sequencing issues, including concerns regarding ordering of content and inappropriate 'gaps' in teaching sequences.

eg (ordering):

Year 5 Statistics and Probability (2. Summary statistics) *Identify the mode and median in lists and on dot plots.* However, students do not learn about taking the mean of two scores (necessary for finding the median of an even number of scores) until Year 7: Statistics and Probability (1. Data measures) *Determine mean, median, and range and use these measures to compare data sets explaining reasoning including using ICT*;

Year 6 Statistics and Probability (1. Data representation) *Construct, read and interpret tables and graphs including ordered stem and leaf plots, and construct pie charts and other simple data displays including using technology.* However, there is no specific content in the draft curriculum in relation to circles until Year 8: Measurement and Geometry (3. Circles) *Investigate the relationship between features of circles such as circumference, area, radius and diameter and generalise these to solve problems involving circumference and area.*

eg ('gaps'):

Content in relation to two-dimensional shapes and three-dimensional objects is specified in Year 2 (1. Geometry) *Describe features of two-dimensional shapes and three-dimensional objects, draw them and use materials to make models of these*

(and also in Kindergarten and Year 1) and in Year 4 (1. Geometry) *Generalise about the two-dimensional shapes that form the surfaces of common three-dimensional objects and make connections with the nets of these objects justifying reasoning*, but there is no content specified in relation to two-dimensional shapes and three-dimensional objects for Year 3;

Year 5 Number and Algebra (7. Algebraic thinking) *Copy, continue, create and describe patterns with numbers and use graphs, tables and rules to describe those patterns*. There is no development of algebraic thinking/concepts specified for Year 6. Then, under the content description Variables in Number and Algebra in Year 7, students are required to *Apply the associative, commutative and distributive laws and the order of operations to mental and written computation and generalise these processes using variables*.

These concerns will need to be addressed in order to promote meaningful development of concepts at each Year level. Particular concerns were raised in regard to the continuity of learning in K–6, with substantial conceptual ‘jumps’ identified by respondents between Year levels.

Draft Australian Curriculum: Science Shape of the Australian Curriculum Principles

This document reports the outcomes of the Board's consultation on the draft Australian curriculum Science K-10 against the *Australian Curriculum Principles* in the **Shape of the Australian Curriculum**. It provides subject specific details and examples where appropriate to highlight issues raised in the consultation.

Australian Curriculum Principle	NSW Analysis and Comment
<p>a) The Australian Curriculum recognises the entitlement of students to a core of knowledge, understanding, skills and dispositions that provide a foundation for their future contribution to Australia's society. This learning provides the basis for success at and beyond school, and helps young people continue their learning after they have left school.</p>	<ul style="list-style-type: none"> • The overall organisation of the curriculum and does not provide a structure that will enable a coherent K-10 development of core science understanding and skills. • The separation of content into three strands does not make clear the how the nature and practice of science and its interrelationships with society are integral to the understanding of science. • There is no specific reference to dispositions. The use of the terms 'moral and ethical and social implications' in the stand descriptors to imply dispositions or values is questioned. • The curriculum does not provide content that balances the provision of science learning that prepares the range of students to use science for active citizenship and to function effectively in society with a foundation for senior secondary science. By the end of year 10 the content goes beyond a core curriculum and is most relevant to only those most able students with interest in future science pathways.
<p>b) The Australian Curriculum makes clear to teachers what is to be taught, and to students what they should learn and what achievement standards are expected of them. This means that curriculum documents are explicit about knowledge, understanding, skills and dispositions, and that they provide a clear foundation for the development of a teaching program.</p>	<ul style="list-style-type: none"> • The rationale does not make explicit the interrelationships between the three stands. It does not clearly establish or present a coherent view of the nature of science. The view of science is narrow and does not recognise the uncertainty and complexity of science knowledge or clearly reflect the nature and position of science in society. • The rationale does not include a sense of the student, the range of students or the purpose of science education for all K-10 students.

Australian Curriculum Principle	NSW Analysis and Comment
	<ul style="list-style-type: none"> • The rationale is inconsistent with the intent of the aims. The intent of the rationale and aims is not reflected in the curriculum. • Chemistry/chemical world and a solid foundation in knowledge and understanding of chemical science not represented in the rationale or aims. Earth Science is only mentioned in relation to the Science Understanding strand. • Clarification of the use of the term 'space science' is required. In science the sub-disciplines of cosmology and astronomy deal with space. The use of the term 'earth and space science' is questioned. • There is a lack of clarity of the wording and intent of the curriculum strand descriptors. Some examples are provided in Appendix (1) • The organisational framework does not provide a coherent conceptual development of science understanding. It does not integrate the three strands or the science concepts/ideas or show clearly how science inquiry is embedded in the strands. • The suggested development sequence provided by the unifying ideas is not evident in the K-10 curriculum design and is not explicit in the content. The unifying ideas are not seen as effective organisers for a developmental sequence of science concepts or in drawing together the strands and content into a coherent science curriculum. • In the organisational framework Science Understanding strand is developed by year while the other two strands are developed by two-year phases (stages). This is inconsistent with the Shape paper. Organisation of the SU strand by two-year phases (stages) to be consistent with SHE and SIS strands and increase flexibility of the curriculum. • There is insufficient specificity in the language and in the clarity of some of the wording of the content descriptions to provide a clear overview of the intended scope and depth of learning to support the development of the teaching and assessment program. Some examples are provided in Appendix (2)

Australian Curriculum Principle	NSW Analysis and Comment
	<ul style="list-style-type: none"> • Dispositions are not included in the content descriptions or achievement standards. • The content descriptions could generally be considered to focus on science essential learning however the organisation of Science Understanding (SU) content by traditional science topics does not emphasise the essential concepts. There is no clear overview of science concepts/ideas within a year or a development of these across years. • The curriculum specifies that three strands are of equal importance. Overall there is too much content across the stands and in particular in the SU strand. Given the large amount of SU content equal emphasis will not be given to the content of Science Inquiry Skill (SIS) and Science as a Human Endeavour (SHE) strands. • There are significant inconsistencies and repetition in the sequencing of content across K-10. Some examples are provided in Appendix (3) • Consistency between the achievement standards and the content descriptions in each year and a clear continuum between the years within each stage is not evident. Content from the elaborations should not be included in the achievement standards. • The achievement standards do not clearly present an appropriate standard of the depth of knowledge or sophistication of skills. • The achievement standards are not sufficiently clear for assessment or differentiating the curriculum into a teaching program.
<p>c)The Australian Curriculum is based on the assumptions that each student can learn and that every student matters. Overall, it sets high standards for all students and enables high expectations to be set for each individual student, taking account of current levels of learning and the different rates at which students develop.</p>	<ul style="list-style-type: none"> • There are concerns relating to the differences in the level of difficulty in the content between Years 6 and 7. The content density and cognitive demand of the Science Understanding content in Years 9 and 10 is set at a very high level. It will only be reached by the most able students and is likely to deter the majority of students from continuing with science to senior years. Some examples are provided in Appendix (4). • The level of the achievement standards is too high to be achievable by most students. The achievement standards do not aligned with a C performance level

Australian Curriculum Principle	NSW Analysis and Comment
	for reporting.
<p>d) The Australian Curriculum connects with and builds on the <i>Early Years Learning Framework</i>, and extends the key learning outcomes of: children have a strong sense of identity; children are connected with and contribute to their world; children have a strong sense of wellbeing; children are confident and involved learners; and children are effective communicators.</p>	<ul style="list-style-type: none"> • The amount of content and the lack of clear interrelationship between the strands results in a loss of clarity in the features of science understanding and science inquiry that are at the centre of teaching/learning for Kindergarten students. • There is lack of clarity in the wording of the SU content strand descriptors and the organisation by a list of topics covering scientific facts rather than providing a clear overview of science concepts/ideas appear to be inconsistent with the capabilities of early years learner.
<p>e) The Australian Curriculum helps prepare all young Australians to become fulfilled and competent members of the community.</p> <p>It builds firm and meaningful foundational skills as well as providing the basis for developing expertise for those who move on to specialised advanced studies in academic disciplines, professions and technical trades. It anticipates an increase in both the proportion of students who remain in education and training to complete Year 12 or equivalent vocational education and training, and the proportion who continue to further study or training.</p>	<ul style="list-style-type: none"> • The provision of a foundation for science learning that prepares students to use science for active citizenship and to function effectively in society is an entitlement for all students. • Scientific literacy has been defined in a variety of ways in the science education literature. The rationale statement that refers to scientific literacy is inadequate. The draft Australian curriculum should include a definition or description of what is intended by scientific literacy in the curriculum and this should be explicit in the rationale statements. Scientific literacy as defined by the curriculum should be consistent with the aims and this intent should be firmly embedded throughout the content of the curriculum. • Throughout the curriculum the sequencing of the complex content does not match students' cognitive development. Some examples are provided in Appendix (5) • In the Years 9 and 10 content the level of cognitive development will have been achieved by only a small proportion of students. By the end of Year 10 the majority of students will not have developed the capacity to demonstrate appropriate knowledge and understanding of this content.
<p>f) The primary audience for Australian Curriculum documents is classroom teachers. In particular, the curriculum</p>	<ul style="list-style-type: none"> • Overall there is limited use of appropriate science language. This results in insufficient specificity of wording in a large number the content descriptions to provide adequate clarity on the overall scope and depth of intended learning for

Australian Curriculum Principle	NSW Analysis and Comment
<p>recognises and appreciates that in the primary years teachers are responsible for several learning areas. Documents are concise and expressed in plain language whilst preserving a complexity in ideas appropriate for professional practitioners. They are recognisably similar across learning areas in language, structure and length.</p>	<p>professional practitioners.</p> <ul style="list-style-type: none"> • With the large amount of SU content, equal emphasis will not be given to the Science Inquiry Skill (SIS) and Science as a Human Endeavour (SHE) strand content.
<p>g) The Australian Curriculum should be feasible, taking account of the time and resources available to teachers and students, and the time it typically takes to learn complex concepts and ideas. Time demands on students must leave room for learning beyond the scope of a national curriculum.</p>	<ul style="list-style-type: none"> • Overall there is too much content and it cannot be addressed in the current time allocated by schools in all years K-10. • It is an entitlement for all students across K-10 to have sufficient time and resources to engage in authentic and meaningful science inquiry. • The large amount of content does not allow the range of students the time to develop the depth of understanding that underpins science concepts and ideas.
<p>h) The Australian Curriculum specifies what is desirable for all young Australians to learn as they progress through schooling and is developed to be taught well within the teaching time available to teachers, allowing them and their schools to build on the core learning to meet individual students' needs and interests. For some areas it is expected that learning will occur in each year of schooling across K-10 and the curriculum is written accordingly. For other areas of learning the Australian Curriculum describes the</p>	<ul style="list-style-type: none"> • The amount of science content in the curriculum cannot be addressed in the current time allocated by schools in K-6 for the Science and Technology learning area. Technology education is not additional learning it is a core entitlement for K-6 students in NSW. • The scope of the general capabilities and cross-curriculum dimensions is unclear and limited in development. • Undertake further work to clarify the scope of the general capabilities and cross-curriculum dimensions so that they can be meaningfully embedded in the science curriculum.

Australian Curriculum Principle	NSW Analysis and Comment
<p>core entitlement that all young people are expected to learn, as well as additional learning that students may choose to study and/or schools may choose to provide. The additional learning extends the core learning and contributes to a pathway of learning that meets the needs and interests of individual students as they progress through school.</p>	
<p>i)The Australian Curriculum allows jurisdictions, systems and schools to implement it in a way that values teachers' professional knowledge and that reflects the needs and interests evident in local contexts, as it is teachers who decide how best to organise learning for students. Organisation of learning takes account of individual family, cultural and community backgrounds; acknowledges and builds on prior learning experiences; and fills gaps in those experiences.</p>	<ul style="list-style-type: none"> • Science Understanding (SU) content consisted of traditional science topics that do not emphasis or provide a clear overview of the essential science concepts/ideas within a year or a development across years. This traditional science topic structure does not provide flexibility to contextualise teaching so that the content is relevant, engaging and extends students learning. • The inclusion in the aims of the statement 'respecting alternative viewpoints and beliefs' is of significant concern. Alternative cultural and social viewpoints and beliefs are not part of science. The relationship between the developments in science and the influence of culture and society explicitly relate to science concepts/ideas. • There does not appear to be a cognitive framework or clear continuum for the development general capabilities and cross-curriculum so that these can be appropriately and meaningfully embedded in the teaching across K-10 science.
<p>j)The Australian Curriculum is established on a strong evidence base related to learning, pedagogy and what works in professional practice, and it should encourage teachers to analyse and evaluate their practices systematically.</p>	<ul style="list-style-type: none"> • The concept of scientific literacy is central to the current science education literature, national and international testing in science eg NAPSL, PISA and TIMSS. It is not defined nor is its intent embedded across the K-10 science curriculum. • There is narrow research base underpinning the science curriculum design. The issues raised in relation to the rationale, organisation of the content, the content overload, relating sequencing to students' cognitive development are all well researched and has been validated by practice. This extensive current national and international research base of science education literature is not evident in the curriculum design and content development.

Australian Curriculum Principle	NSW Analysis and Comment
	<ul style="list-style-type: none"> • Research supports the view that the features described in the curriculum descriptors of the three strands are integral to understanding the nature and practice of science. Professional practice has shown that this understanding is taught and learned more effectively when the curriculum clearly integrates the content from the relevant strands. • The traditional topic approach and large amount of the Science Understanding (SU) content emphasises teacher-directed, transmission model rather than focussing on inquiry-based student centred learning. • The curriculum identifies only one teaching/learning model and this aligns with a single resource. There are philosophical and pedagogical concerns relating to the curriculum design should not be driven by alignment to a single resource K-6 <i>Primary Connections</i> and potentially for Years 7 to8 <i>Science by Doing</i>. The sequencing of the K-6 topic has been explicitly aligned with the <i>Primary Connections</i> units. • Teacher systematic analysis and evaluation of their practice is not explicit or inferred in any part of the curriculum.

Appendix

(1) The clarity of the wording of the curriculum content strand descriptors was raised as a concern. Some examples from each of the strands include:

Science Inquiry Skills (SIS):

- The use of the word 'critique' in relation to science investigations specifically and generally its appropriateness in relation to science.
- The aims suggest a distinction between 'experiments' and 'investigations'; this is not included in the descriptors.

Science as a Human Endeavour (SHE):

- There is a mismatch between the strand descriptor and the aims. The descriptor recognises the impact of society on science but this is not in the aims.
- Input from other cultures that is not related to science should not be included in a science curriculum

Science Understanding (SU):

- The wording 'facts and concepts' is confusing as these should be integrated. The scientific meaning of 'theory' is not explicit. This has significant implications for what constitutes scientific knowledge and evidence.

(2) There is not appropriate specificity in the content descriptions to support teaching and assessment.

- The language, wording and clarity of the content descriptions is not specific enough to provide a clear indication of the required scope, depth and/or intent (eg "different cultural groups have different perspectives on science' (S7/8SHE5), "simple report" (S3/4SIS7), matter and energy (S10SU7).
- There are content descriptions where the scientific ideas are incorrect eg "energy is wasted" (S7SU6).
- The language, wording and lack of focus on science concepts in the Earth Science content appear to create a significant overlap with Geography. Examples include KSU2, 7SU4, 8SU3, 10SU5 relating to environment, ecosystems and earth science respectively

(3) There are significant inconsistencies and repetition in the sequencing of content across K-10. A large number of examples were provided, some are included below:

- The content descriptions relating to chemical science and the sequencing of this content were identified as needing major review and revision.

- The lack of clarity of the wording and the organisation of SU by a list of topics covering scientific facts that is often repetitive. Some examples cited were content including properties and uses of materials is covered in Years 4,7 and 8, causes of day, night and a year is covered in Years 3, 5 and 7, with little opportunity for students to engage in meaningful and/or current inquiry, e.g. simple machines (S8SU7).
- Some examples relating to the scope and sequencing of the Science as a Human Endeavour (SHE) strand included:
 - the history of science is limited across K-10
 - the emphasis on science, engineering careers is too high and not relevant to non academic users of science
 - the nature of the discipline of science is not clear

(4) The level of difficulty of the SU content particularly in Year 7 and Year 10 is a significant issue. The content in Year 7 has a flow-on effect for the amount and cognitive demand of the content in Years 8-10. Some examples include:

- The level of difficulty in Year 7 does not show a progression from that in Years 5/6, e.g. Year 7/8 are not required to plan investigations (S7/8SIS2), yet Year 5/6 are (S5/6SIS2). Year 5/6 students evaluate evidence (S5/6SIS9), but Year 7/8 students only reflect on methods to identify alternatives (S7/8SIS9).
- The cognitive demand of the Year 9 and 10 Science Understanding (SU) content is too high. The level of difficulty of the content should be appropriate for the cognitive development of the typical student and give time for the range of students to develop depth of understanding. (e.g. the symbolic equations found in physics and chemistry (S10SU6 and 9).
- The Year 10 SU includes some content that is currently taught in Senior years where it is appropriate for the students level of cognitive development (eg genetics, symbolic equations, describing force, motion and conservation of energy quantitatively).
- The theoretical nature and cognitive demand of the Year 10 SU content raised concerns relating to how it can be addressed by science inquiry, integrated with and equal emphasis given to the SIS and SHE content.

(5) The sequencing in places does not match students' cognitive development. Some examples include:

- Year 1 students are required to make inferences (S1SIS1), yet have little or no background knowledge.
- Year 3 /4 students are required to identify patterns and trends (S3/4SIS6) but are not required to use graphs or tables until Year7/8 to assist in representing and analysing data.
- Year 5 cover transfer and transformations of energy without being introduced to the concept of energy, its types and uses. Year 7 and 8 students have difficulty with this.
- Year 7 content relating to the human body, cells and reproduction is inappropriate

Draft Australian Curriculum History

Shape of the Australian Curriculum Principles

This document reports the outcomes of the Board's consultation on the draft Australian curriculum History K-10 against the *Australian Curriculum Principles* in the **Shape of the Australian Curriculum**. It provides subject specific details and examples where appropriate to highlight issues raised in the consultation.

Australian Curriculum Principle	NSW Analysis and Comment
a) The Australian Curriculum recognises the entitlement of students to a core of knowledge, understanding, skills and dispositions that provide a foundation for their future contribution to Australia's society. This learning provides the basis for success at and beyond school, and helps young people continue their learning after they have left school.	<ul style="list-style-type: none">• The overall essential 'core' of knowledge and understandings and skills that incorporate world and Australian history sequenced chronologically is relevant but what is proposed is far too ambitious to be taught effectively. The curriculum content requires careful integration and reorganisation with a simpler overview structure and choice of depth studies to reduce content overall. Overall there is far too much content Years 4-10.• Some topics that are pivotal to an understanding of C20th Australian history such as the Vietnam War, personalities and gender are missing.• There are no clear guidelines for, nor reference to, 'dispositions'.
b) The Australian Curriculum makes clear to teachers what is to be taught, and to students what they should learn and what achievement standards are expected of them. This means that curriculum documents are explicit about knowledge, understanding, skills and dispositions, and that they provide a clear foundation for the development of a teaching program.	<ul style="list-style-type: none">• The organisation of content into historical knowledge and understandings and skills is appropriate. However, greater clarity is required in some of the content descriptions to enable teachers to determine what is to be taught, eg. in Year 8 'the nature of the relationship between medieval Islamic and Christian worldviews' is unclear and abstract.• A clear developmental framework of conceptual understandings and skills K-10 is required to allow the development of a clear foundation for the development of a teaching program and to plan adequately for prior and future learning.• The Rationale is a reasonable overview of the course though there is a stronger focus on student-centred learning, creativity and innovation in the Framing Paper than in the draft curriculum. The Aims are simple and

Australian Curriculum Principle	NSW Analysis and Comment
	<p>accessible though several elements contained are not clear and apparent in the content descriptions such as 'empathy' and 'citizenship'.</p> <ul style="list-style-type: none"> • The representation of the curriculum as a 'fan' does not clarify its structure. A simple flow chart showing the structure of the curriculum would ensure greater clarity of understanding. • The online format, whilst convenient for filtering, renders the curriculum cumbersome. • The inquiry questions, 'big ideas', or themes may be preferable organisers for content, such as <i>Australia at War</i> or <i>Why has Australia gone to war?</i> • It is difficult to assess the overall usefulness of achievement standards with only a 'C' standard provided.
<p>c) The Australian Curriculum is based on the assumptions that each student can learn and that every student matters. Overall, it sets high standards for all students and enables high expectations to be set for each individual student, taking account of current levels of learning and the different rates at which students develop.</p>	<ul style="list-style-type: none"> • It is not possible for all students to reach high standards in deeper understandings and skills development with the current content overload. • There is no scope for differentiation of curriculum to cater for the full range of student ability or interests, such as students with learning difficulties, gifted and talented students and students for whom English is not their first language.
<p>d) The Australian Curriculum connects with and builds on the <i>Early Years Learning Framework</i>, and extends the key learning outcomes of: children have a strong sense of identity; children are connected with and contribute to their world; children have a strong sense of wellbeing; children are confident and involved learners; and children are effective communicators.</p>	<ul style="list-style-type: none"> • Years K-2 builds on students' sense of identity and effective communication. However, the curriculum underestimates the K-2 child as a learner. • The content in K-2 needs revision. K-1 has similar content and year 2 lacks detail and depth.

Australian Curriculum Principle	NSW Analysis and Comment
<p>e) The Australian Curriculum helps prepare all young Australians to become fulfilled and competent members of the community. It builds firm and meaningful foundational skills as well as providing the basis for developing expertise for those who move on to specialised advanced studies in academic disciplines, professions and technical trades. It anticipates an increase in both the proportion of students who remain in education and training to complete Year 12 or equivalent vocational education and training, and the proportion who continue to further study or training.</p>	<ul style="list-style-type: none"> • Generally the skills included in the curriculum are appropriate but the taxonomy of skills needs reworking to begin with the lower order skills such as <i>comprehension</i> and <i>sequencing</i>. • More emphasis is needed in K-6 on civics and citizenship and a more even distribution of Indigenous history throughout the curriculum, rather than focussing on Year 4. • Excessive content will impinge on the time to develop and practice foundational skills. • There is significant overlap in content between Years 5-6 and Years 9-10 such as C19th Australian history and migration. Year 10 and senior Modern History overlap with a focus on the role of Australia in C20th world wars and struggles for freedoms and rights.
<p>f) The primary audience for Australian Curriculum documents is classroom teachers. In particular, the curriculum recognises and appreciates that in the primary years teachers are responsible for several learning areas. Documents are concise and expressed in plain language whilst preserving a complexity in ideas appropriate for professional practitioners. They are recognisably similar across learning areas in language, structure and length.</p>	<ul style="list-style-type: none"> • Language used in content descriptions is not consistently clear. There is a need for greater clarity, conciseness and direction in the knowledge and understandings content descriptions, eg in Kindergarten ‘personal place in the generational structure of family and the differences and similarities in the daily lives of generations within the family’ can be stated more simply. • A definition of ‘world history’ is required as its meaning is not consistent in the Rationale and across the curriculum. It may mean world events as background context for Australian history or it may mean the broad sweep of world history from prehistoric times to the modern world focussing on broad developments in human civilisations. • A glossary of curriculum terms is required as there is inconsistency in the usage and meaning of terms such as depth studies, overview, Asia, South-East Asia and Asia-Pacific.

Australian Curriculum Principle	NSW Analysis and Comment
<p>g) The Australian Curriculum should be feasible, taking account of the time and resources available to teachers and students, and the time it typically takes to learn complex concepts and ideas. Time demands on students must leave room for learning beyond the scope of a national curriculum.</p>	<ul style="list-style-type: none"> • The curriculum is not feasible as there is too much content for the time available, particularly in Years 4-10. There will be no time to develop and practice deeper historical and conceptual understandings and skills. • Some concepts are too sophisticated for the developmental level of students eg. in Years 8-9 <i>imperialism</i>, <i>nationalism</i> and the <i>industrial revolution</i>.
<p>h) The Australian Curriculum specifies what is desirable for all young Australians to learn as they progress through schooling and is developed to be taught well within the teaching time available to teachers, allowing them and their schools to build on the core learning to meet individual students' needs and interests. For some areas it is expected that learning will occur in each year of schooling across K-10 and the curriculum is written accordingly. For other areas of learning the Australian Curriculum describes the core entitlement that all young people are expected to learn, as well as additional learning that students may choose to study and/or schools may choose to provide. The additional learning extends the core learning and contributes to a pathway of learning that meets the needs and interests of individual students as they progress through school.</p> <p>.0</p>	<ul style="list-style-type: none"> • Little time will be available to focus on meeting individual student's needs and interests. There is little choice or options to allow for differing abilities, interests and school contexts. With current allocations of time for teaching History Years 7-10, there will be no time available for additional learning. Impact on other curriculum areas and the need to retain curriculum diversity is a concern. • Yearly organisation will be problematic for composite/multi-aged classes and small schools.

Australian Curriculum Principle	NSW Analysis and Comment
<p>i) The Australian Curriculum allows jurisdictions, systems and schools to implement it in a way that values teachers' professional knowledge and that reflects the needs and interests evident in local contexts, as it is teachers who decide how best to organise learning for students. Organisation of learning takes account of individual family, cultural and community backgrounds; acknowledges and builds on prior learning experiences; and fills gaps in those experiences.</p>	<ul style="list-style-type: none"> • A clear developmental framework of concepts and skills is needed to plan adequately for prior and future learning. • The use of family photographs in early primary is inappropriate for some Aboriginal communities.
<p>j) The Australian Curriculum is established on a strong evidence base related to learning, pedagogy and what works in professional practice, and it should encourage teachers to analyse and evaluate their practices systematically.</p>	<ul style="list-style-type: none"> • A theoretical framework informed by established evidence-based research on effective teaching and learning in History was more evident in the Framing Paper than in the draft curriculum. Students require time to develop an understanding of the nature, content and skills of History. Students need the time to engage with primary sources, multiple perspectives, the problematic nature of historical interpretations and development and practice of foundational skills. The content overload does not allow such development.