INTERNATIONAL ANALYSIS
NATIONAL LEARNING STANDARDS

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INDEX

AN EVALUATION OF BRAZIL'S DRAFT NATIONAL STANDARDS

Prepared by the Curriculum Foundation

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Content Page

1. Comments on the Introductory Text

These comments are divided into two parts as per the titles in the document

There is no explanation of the intention with respect either to the overall content of the document or to of each of the two sections. It will be helpful if the final document begins with a clear explanation of the terms '**curriculum'** and '**national standards'** and of the relationship between the two. Another issue worth addressing at the start is the expectation with respect to the **national curriculum** that will incorporate these standards and the **local or regional curriculum**. An indication of the **balance of time** to be allocated to the national and the local curriculum would also help readers gain an understanding of the big picture.

The titles of each of the two sections of the introductory text are misleading and do not provide the reader with a clear impression of what to expect.

The term '**National Learning Standards'** appears in the overall title and in the sub-titles relating to each section but there is little reference to standards within the text. The relationship between **standards** and **learning objectives** needs to be clearly explained. It would be helpful in the introduction to explain the meanings of the terms used throughout the standards documentation and a glossary of terms for quick reference would also be valuable.

This lack of clarity with regard to the use of the terms national standards and learning objectives has potentially serious consequences. National standards are usually expressed as over-arching expectations whereas learning objectives are normally found in syllabuses and lesson plans. The learning objectives generally provide the detail that enables the high-level standards to be achieved.

The learning objectives presented in the draft documentation range from broad, high level expectations (e.g. *Understand the stages of development of the major groups of living beings*) through to the level of detail that might be expected in a lesson plan (e.g. *Realize wind is the same as air moving*). This lack of clarity makes the consultation process challenging for respondents as they cannot be sure how much detail is appropriate in the objectives.

Has there been a decision relating to the nature of the documentation in terms of the extent to which it represents '**standards'** or a '**scope and sequence'** or both? It would be good to make this clear in the introduction.

Standards usually begin with a phrase such as *'At the end of this grade learners will be able to…'.* Each standard then begins with a verb such as *'understand', 'analyse', 'create', 'evaluate' etc* followed by the focus of the learning. A scope and sequence normally lists the topics to be taught in each grade without setting out the expected learning standard.

These learning objectives in this draft documentation begin with verbs and read like standards (without the *'will be able to'* at the beginning) but they also resemble scope and sequence lists. A rationale explaining the thinking behind this would be helpful.

a) Comments on the '*Guiding Principles of the National Learning Standards'*

1. Paragraph 1 rightly explains the origins of the standards but does not include a rationale for producing them such as ***ensuring consistent high standards across the nation, comparable with those of high performing countries around the world***.

2. After paragraph 1 it would be good if the document was structured with headings to make it more accessible. It should be something that both teachers and lay stakeholders can understand and navigate their way through.

3. The untitled list of twelve bullet points illustrates this issue of lack of structure. The final sentence of paragraph 1 does not explain what the bullets are but states that students should '*.....as part of their right to education be able to*:'. However, the first sentence in paragraph 2 after the bullets describes them as '*these rights*' and the following paragraph refers to them as '*fundamental rights'*.

4. The twelve bullet points are very long and convoluted and they include a mix of aims, values, attitudes and activities. The document would be easier to follow if the bullets were teased out, put into categories and arranged in a logical sequence, leading to the set of guiding principles that inform the standards. These principles should capture the aims, values and attitudes.

   For example:
   Aims:
   - Equity and excellence for all learners regardless of ethnicity, origin, age, gender, physical or social condition, belief or creed
   - All learners should recognize, value, develop and perfect their own qualities, as well as respecting those of others

   Values:

- Importance of family
- Contribution to the community
- Commitment to the nation

Attitudes:

- Care for natural, social, and professional environments
- Self-respect and respect for others

Principles

Standards should:

- avoid incorporating or implying any bias or stereotyping that might lead to discrimination against any learner on the basis of their ethnicity, origin, age, gender, physical or social condition, beliefs or creeds
- incorporate high expectations at each grade so that learners are challenged to achieve their potential
- instill firm values: family, community, the nation
- convey the importance of caring for the natural environment and for social and professional environments

As such, a categorized list gives a sense of the logic behind the standards, is easier to understand and to remember.

NB: These aims, values, attitudes and principles have been taken from the bullets in the document to illustrate how they could be presented. They are not being suggested as definitive.

5. A key guiding principle that is absent from this document relates to the time allocation expected for the National Learning Standards to be achieved and the amount of time that schools should devote to the wider and local curriculum. This is hinted at in Section B (see B5 below) but needs to be given greater prominence.

6. Paragraph 2 refers to 'knowledge areas'. This may be a translation issue but the components of subject learning are normally accepted to be knowledge, skills and understanding so it is not advisable to imply that skills and understanding do not matter or are less significant than knowledge. There is no indication of any ambition to adopt a modern competency-based curriculum although this is a clear trend around the world.

   The final sentence of this paragraph seems to be a list of the bullet points in much abbreviated form. This list communicates the intentions of what is expected of learners more clearly than the wordy bullets.

   The message in this paragraph appears to be that all this learning should be incorporated into subjects across the curriculum. It could be expressed much more simply.

7. Paragraph 3 is also unclear. It includes another list of loosely connected elements. There are two phrases relating to resources. At this late stage competences are mentioned, but only creativity and critical thinking and only

in relation to ICT. Enjoying culture follows and then there is curiosity but only in relation to sciences. Finally there is *comprehension* of democracy, justice and equality which could be regarded as too low an ambition. Comprehension could come from a textbook rather than a deep learning experience.
The characteristics of a school that offers such an education probably deserves a sub-heading of its own rather than the long list in the final sentence.

8. The four paragraphs that describe the characteristics of school in the different stages of education (Early Childhood, Early Elementary, Late Elementary, High School) offer some useful guidance as to the different kinds of environment and learning activities expected in each. Again it could be presented better to make it more accessible and understandable. Presenting the information in a table would enable readers to see what each stage of schooling has in common, how the stages differ and the progression from one phase to the next.

9. There follows a paragraph that refers to the preliminary text itself, the subject standards that follow and the consultation process. Then there are two more paragraphs that return to the former theme of what learning should take place alongside subject knowledge, some of which are repeated from earlier paragraphs, some of which are new and none of which are categorised. The final paragraph includes some skills and aims of the curriculum that could have been presented earlier in the document.

Summary Section A: Ideally Section A should clarify the purpose of, or rationale for, the standards and give a clear explanation to education professionals and other stakeholders what they should be looking for in the standards. Without a clear structure and with no categorization of the elements that should be addressed alongside subject knowledge, this section does not guide readers effectively.

b) Comments on the *'Preliminary Document To The National Learning Standards – Principles, Organization Method, And Content'*

1. As with Section A, this section would benefit from some structure to guide readers through it and to make it more accessible. Two and a half pages of continuous text is not the best means of presenting the information. The words used in the heading of Section B do not relate directly to the text that follows. It would be helpful to define 'learning objectives' at the start and to explain how they relate to the National Standards.

2. In paragraph 1, this document begins by repeating the background policy document information that was in the 'Guidance' section. It then explains the

term 'areas of knowledge' that was used but not explained in section A. It would be helpful to provide the definition the first time the term is used.

3. In paragraph 2, the term 'Rights to Learning' is used for the first time (instead of 'rights' and 'fundamental rights' used in Section A) and then in paragraph 3 they are referred to as ' Rights to Learning and Development'. Consistency would be advisable.

4. Also in paragraph 2 there is a new description of the rights as '... *a group of proposals that orientate the choices made through curricular components in defining learning objectives which take into account ethical, aesthetical, and effective policy dimensions of learning and development rights*.' This description further confuses the issue of what the rights are, as it is not consistent with the text provided in Section A.

5. Paragraph 3 is very clear about the relationship between the common core and the school curriculum. This explanation would be well-placed at or near the beginning of the document (in the rationale?) to give readers an overview of the purpose of the standards and their place in the curriculum as a whole.
   It would be helpful to offer some guidance here relating to the expectation in terms of the balance of time schools should allocate to the common core and to the 'diversified curriculum'. This is often expressed as a guiding percentage e.g. the common core should occupy 75% of curriculum time.
   It would be wise to use 'common core' consistently rather than switching between this and 'common basis'.
   It would also be advisable to avoid referring to the common core simply as 'knowledge'. 'Learning' would be a better word. Much of the explanation about the 'rights' concerns how additional learning such as understanding, skills, attitudes and competences must be incorporated alongside the knowledge.

5. There is no need for paragraph 4 which repeats the names of the four 'knowledge areas'.

6. Paragraph 5 focuses on the important matter of ensuring coherence of learning across the curriculum. However, it is not entirely clear what the phrase 'such an organisation' refers to, presumably the relationship between the common core and the school curriculum in paragraph 3.
   In fact coherence stems from a number of factors, critically the incorporation of cross-curricular principles (the rights) as well as ensuring 'horizontal progression' ie the alignment of learning across different subjects.
   The explanation relating to the introductory text of each 'knowledge area' is worthy of a separate paragraph.
   Again it would be advisable to provide some structure here, perhaps with a sub-heading for each section of this introductory text.

7. Paragraph 6 explains the factors that have been taken into account in developing the learning objectives. In every country there is always a debate about the terminology to be used when setting out the curriculum structure. Instead of the word 'axes' used in this translation, most English-speaking nations use 'strands' (in languages these are usually listening, speaking, reading and writing).
   It might be better to list the factors taken into account: e.g. *age, experience, social interactions, relevance and pertinence criteria as set out in the rights.*

8. Paragraph 7 returns to the issue of coherence / avoiding fragmentation referred to in paragraph 5. 'Integrating topics' (often called 'cross-cutting issues' in English) are introduced and their purpose is clearly described. There is a list of integrating topics but the text says that these 'include', thus hinting that there are others that are not specified. It is not clear whether these topics stem from the 'rights' or whether they have a different origin. It would be useful for readers to have some explanation of their origins and why each is considered important.

9. Paragraphs 8 and 9 deal with structure (knowledge areas, curricular components and learning objectives), with integration / progression through the different phases of schooling and with flexibility. This is a lot of detail in two short paragraphs.
   In terms of structure, it would help if the hierarchy of these components were explained, as per the bracket above, perhaps with a diagram.
   It is better to use the word 'progression' consistently as this subsumes integration and emphasizes the key point of continually building on previous learning.
   The point about flexibility and the desirability of avoiding the standards acting as a restrictive straightjacket is well made and perhaps deserves a separate paragraph.

10. Arts and PE curricula are often less prescriptive, as described in paragraph 10, allowing regions, localities and schools more freedom to present a relevant and inspiring curriculum. Often there is a time stipulation so that these areas are given sufficient attention.

11. Paragraph 11 sets out some important considerations to be taken into account in the consultation phase. These might be better presented as bullets or a numbered list. The final paragraph seems to refer to round two of the consultation process but could be expressed more clearly.

Summary Section B: As with Section A, the absence of a structure within this section makes it hard to follow the logic of the text. There does not appear to be a clear dividing line between the coverage of Section B and Section A.

Overall Comments Relating To Introductory Text:

- Clarity with regard to the terms used and the relationship between them would make the whole document much more coherent. This would enable those with an interest in a particular subject to understand the vision relating to the curriculum as a whole and the intended development of each individual learner.
- It would seem sensible if Section A explained the conceptual thinking behind the NLS and Section B provided information as to how this has been applied / should be applied in writing the learning objectives for each knowledge area. This would give readers a better understanding of how the conceptual thinking and the standards link together.
- A clear structure for all subject sections would ensure consistency across the subjects. This would make it easier for readers to understand how the principles are reflected in the standards across the curriculum. This is particularly important for Elementary School teachers who teach all subjects.
- Both sections make some reference to the consultation process whereas it would make sense if these were combined under a single heading.
- It is very challenging for those engaging with the consultation to comment on alignment between the learning objectives and the 'rights' as:
    - there are so many rights,
    - each is outlined in considerable depth and this blurs the key message,
    - the coverage of the rights is very diverse,
    - the rights incorporate skills, attitudes, values and competencies,
    - these elements are not categorized so it is difficult for respondents to refer to rights other than to each one specifically.

2. Overall Comments Relating to Subject / Knowledge Area Standards

- All three subjects / knowledge areas have their own introductory text.
- In all cases this starts with approximately two pages of continuous text without any structure or guidance provided by sub-headings.
- The focus of this text is largely a rationale for the place of the subject in the curriculum and, to differing degrees, a description of how the learning is organised within the subject.
- There is little or no mention of how each subject / knowledge area complies with overall expectation in terms of, for example, addressing the rights set out in the overall introduction.
- There is some consistency between the three in terms of what follows the introductory text. All provide a set of objectives relating to Elementary Schools and a set relating to High Schools.
- In Languages the sets of objectives relating to both Elementary and High Schools appear at the beginning followed by one list of learning objectives from Grades 1 to 12. In both Maths and Science, the learning objectives are presented in two lists (elementary and high) each following on from the appropriate set of objectives. High School Science is, of course, split into Biology, Chemistry and Physics.
- Maths and Science provide over-arching general objectives whereas Languages does not.
- Portuguese and Science both have a section headed 'Curriculum Components' but Maths does not.
- Languages and Maths set out expectations / standards in a list of 'learning objectives', but this term is not used in Science where the heading reads 'Curriculum Components'.
- The objectives / components in Sciences are organised under four axes and these are, in turn, grouped under 'knowledge units'. The term 'knowledge units' is not used in Languages or Mathematics.
- There is not a consistent structure in the High School sciences, with Biology diverging to a greater extent than Physics and Chemistry.
- None of the subjects / knowledge areas includes a diagram or table to show how the learning is structured and the names of the axes or curriculum components.
- Languages presents '*Learning Goals In Early Childhood Education For The Languages Area'* and Maths presents *'Objectives Of The Subject Area Of Mathematics In Basic Education'*. Neither subject includes learning objectives for pre-Grade 1 learners.
- The three High School science subjects share a common overall introduction. For this reason, the comments below relating to this introduction are common to all three subjects.

There is a need to ensure consistency across all curriculum areas. This is particularly important in Grades 1 to 9 where teachers are working across all subjects.

National Standards for Brazil	Subject: Languages /Portuguese
Comments on the introductory texts for the area	• Is 'Language' the appropriate curriculum heading for this area given it includes the Arts and PE? Would 'Communication' be more appropriate? It is unclear why PE is included here and the rationale presented is unconvincing. A desire to break away from traditional structures is laudable but not at the expense of coherence. • As an introductory text this is overly long, repetitive and not easy to access. It would be clearer and would have more impact if written as a number of short bullet points. • What is the rationale? Are there any gaps in learning that need addressing, such as reading? Which aspects of reading? • There is no reference at all in this document to the need for a 'competency based curriculum' or a competency focus. • Broadly, the material might be condensed to emphasise the importance of effective written and spoken communication, the value of written and visual literature, and the impact of proficient language use on the individual and society in an increasingly diverse and technological world. • The document acknowledges the important relationship between language and context and complexity of text, though only hints at the need for learners to be exposed to works of literature from different language, ethnic and cultural backgrounds. • The role of the language teacher in reinforcing language across the curriculum is acknowledged. The contribution of all teachers to developing learners' language competency within their different subject areas is not. • The panel should consider how to match the eight themes introduced at the end of this section (*identities and interculturalism; ways and processes of subjectivity; information and communication technologies; sciences; cultures and heritage; ethnic-racial relations, environment and sustainability; leisure and work.)* to the five dimensions described in the high school section and the six fields of activity described in the *introductory texts for the curricular component Portuguese*. Learning Goals In Early Childhood Education For The Languages Area • Unclear how many years of education this covers. The goals are not clearly expressed and do not make reference to the

	overall guidelines which promote relationships, community cultures, play and self-awareness etc. • The goals are well above what can be expected of children in early childhood. The importance of communication and language development at this early stage involves giving children opportunities to experience a rich language environment in order to develop their confidence and skills in expressing themselves; and to speak and listen in a range of situations. Literacy development involves encouraging children to link sounds and letters and to begin to recognise and write words. Children should be exposed (by their teachers) to a wide range of reading/viewing materials (books, poems, and other materials) to ignite their interest and curiosity. • Explicit reference to range, content and purposes is absent. The Languages Area In Elementary School • Helpful (though wordy) descriptions of the key focus of early, middle and late elementary schooling. This could be broken down into the three stages using headings. Some unnecessary detail about teachers' role. It is easy to lose key messages in this overly long text. Heading "Range, Content And Purposes' for each 'phase' might be a useful anchor. • Good reference to learning of the alphabet and securing development of word reading skills quickly in the early elementary phase whilst learning to enjoy and understand books that they hear read to them with consolidation leading to mastery by the end of the third year. Conventions of writing are included but grammatical progression and handwriting have been overlooked. Fluency and understanding in reading and writing across a broad range of subjects and topics, creativity as well as planning and editing are emphasized in the final years of elementary. The skill of analysis appears to be absent. For a 'Communication' curriculum that also includes visual literacy, 'viewing' appears to have been omitted. • As Elementary schooling covers 9 years of education it makes sense to write either 3 end of stage standards or outcomes (early, middle, late) or an overall end of elementary schooling standard. The current list of objectives (unsure why this word is used here) is too vague. They do not specify how well a student should be able to, for example, read or write nor do they refer back to the statements made about planning, editing and producing more complex and diverse texts.

	The Languages Area At High School • This whole section needs some structure to guide the reader. • The first paragraph about equity and excellence could be much more succinct. The five dimensions of knowledge identified: *1) political/ social citizenship activity; 2) work and its impact on social life; 3) research and further education; 4) interactive action upon youthful and adult cultures; 5) use of technology and cultural practices akin to the contemporary world* would be clearer if written as bullets. • The useful description of the current challenges of high school education and required action to overcome barriers could appear in the general introduction with cross referencing in each area. • As with early childhood and elementary school, these end of high school standards read like a list of opportunities or activities and are not always easy to understand. If teachers and students are to understand and use them they need to be not only simple and clear but also measurable. They are not accessible to parents and employers. Normally, clear end of high school standards are used to work back and agree what should be achieved at the end of each preceding grade/phase. These do not provide a useful framework to shape the objectives for each stage of the languages curriculum.
Layout – clarity, ease of navigation and use compared to other NC documentation	• The text is quite dense and so many valuable messages can easily be overlooked. It needs to be structured and simplified to ensure all stakeholders can access it. Introduction of headings would aid navigation and comprehension. Headings might include: Rationale; Aims; Values; Attitudes; Key Concepts Underpinning Language Learning, Key Language Learning Processes; Range, Content and Purposes; Contexts and Opportunities; Glossary of Key Terms • There is a lack of clarity about the terminology used – glossary of terms would help the reader understand what is meant by dimensions, themes, fields of activity, areas, aims, axes, objectives, standards. Indeed some of these, though used in the documents, may be superfluous. • Contents page would be helpful.
Comments on the introductory texts for the	• Given the flaws in the introductory text for languages, it is not surprising that the subject introduction has similar weaknesses in terms of its structure, length and clarity. Headings would support ease of reading.

<table>
<tr>
<td>subject

In most curricula depth of knowledge and levels of understanding are developed through increasingly demanding learning objectives as learning progresses at the different stages of education.</td>
<td>

Key terms such as topics, axes, dimensions, objectives, fields, are not defined. The term dimension is used for a different purpose in the earlier document. Language used is important and the ministry should consider words they will use for structuring the curriculum across all subjects. Many countries set out learning under three headings e.g strands that are divided into sub-strands and further divided into threads.
The system described is complex: There are five topics or axes, sub-divided into up to six dimensions. Listening has been omitted as a ‘topic’. In some countries it is coupled with speaking in others with reading as ‘receptive’ mode. This relationship between topics and dimensions would be best illustrated with a diagram.
Below is a suggestion loosely based on the descriptions offered, which are not easy to interpret:

<table>
<tr><td>Axes (Strands)</td><td>Dimensions (Sub-strands)</td><td>? (Threads)</td></tr>
<tr><td>Early literacy</td><td>Alphabet
Spelling
Handwriting</td><td>Phonic awareness
Forming letters
Punctuation</td></tr>
<tr><td>Speaking (and listening?)</td><td>Presenting ideas
Comprehension and Collaboration
Developing fluency</td><td></td></tr>
<tr><td>Reading (literature and information)</td><td>Strategies for reading
Understanding and retrieving information
Reflection and evaluation
Conducting research</td><td></td></tr>
<tr><td>Writing</td><td>Planning and composition
Developing accuracy
Range of writing</td><td>Audience and purpose
Text types
Text conventions</td></tr>
</table>
</td>
</tr>
</table>

	<table><tr><td>Linguistic analysis</td><td>Knowledge of language Conventions Vocabulary acquisition</td><td>Grammar Spelling Punctuation</td></tr></table> • Greater thought needs to be given to the division of axes into dimensions. **Reading** is traditionally though not exclusively subdivided into ***reading strategies, comprehension*** (retrieving information and evaluating the author's craft), ***literature*** *and* ***research***; and **Writing** subdivided into ***composition*** and ***accuracy*** with further sub-divisions indicating purposes, audience, text types, conventions, styles etc. • Subject methodology is included here but in most NC documents it is dealt with at a later stage rather than in standards documentation. • The description of the linguistic analysis axis and how it permeates the other axes, though useful, is overly long and complex. • Much of this document concerns **range, content and purposes of language learning** at the different stages of education. Though very useful, it is again overly detailed and difficult to follow. There is a brief but useful reference to text complexity which is unfortunately lost in the detail. • The six fields of activity describe the **contexts and opportunities** that will be offered to frame language learning and enhance students' engagement with key concepts, skills and content. These are well chosen but do not need to be described in such detail, certainly not in standards documentation. • Alignment between these six fields and the five dimensions and eight themes described in the introductory texts for the area is clearly desirable, and needs to be given more thought. • There are seven general objectives surprisingly presented at the end of the document. What is the purpose of these? And what is relationship between these and the five 'topics 'or 'axes' (early literacy, speaking, reading, writing and linguistic analysis) at the beginning of the document? • It is unclear why there is a need for two introductory documents (area and subject). If the decision is to keep both, there needs to be much greater synergy between the two.
Layout – clarity,	• See earlier comments above

ease of navigation and use compared to other NC documentation	
Learning Objectives for the curricular component	
Layout – clarity, ease of navigation and use (including assessment) compared to other national curriculum documentation	• This document is much easier to follow than the introductory texts. The structure is clearer with sections, headings, sub-headings and numbered objectives. • Numbering/lettering of objectives is not explained. If the panel decides to keep this format I would suggest including a letter to indicate skill/s e.g. S for speaking or SL for speaking and listening. • The decision to group objectives under the 'field' headings rather than the 'topics' or 'axes' listed in the introductory texts (early literacy, speaking, reading, writing, etc.) makes it difficult to assess students' developing competence across the range of skills. • Fields described in the introductory texts are now labelled 'axes'. This is confusing.
Number and quality of objectives	• There are 278 objectives: reducing the number of objectives would make this more manageable and memorable for teachers and students. As much of the detail in the objectives relates to range/ types of text, each grade could include a preface covering this. • This would also provide an opportunity to reflect on balanced coverage of continuous, non-continuous and mixed text types. • The objectives are generally well written but a number could easily be condensed and/or combined • All skills are covered and there is clear evidence of a hierarchy of levels from grade 1 to 12.
Rigour of objectives compared to	• With regard to specificity, objectives are more detailed at primary than secondary and this is in line with other countries, though many could be condensed.

other curricula of reference?	• As explained above it would be easier to assess the progressive language demands against other curricula if a skills approach had been adopted. For the purposes of this analysis, the comparative rigour in objectives in grades 1, 5 and 10 of the Brazilian, Australian and USA curricula has been considered. Grade 1 The level of support, prompting and guidance from adults and peers in the early stages of language learning is clearer in the USA curriculum. Despite being less than 1/3 the length, the Australian curriculum is much more explicit than Brazil's with respect to notions of accuracy and legibility in writing and fluency and intonation in reading aloud. Learners are already required to begin to understand the difference between literal and implied meaning. Some accuracy in punctuation is required which is not expressed in the Brazilian standards. The Australian standards require more personal response to texts read or heard and application of skills learned. For example learners are required to use texts to make connections to their own lives and to write texts for a small range of purposes. Overall the level of demand is considerably higher in the Australian and USA standards. Grade 5 The language demands are more similar at this grade, and all three curricula require learners to analyse and explain literal and implied meaning. The Brazilian 'objectives' provide too much detail about the range of texts, whereas Australia requires learners to write for 'a range of audiences and purposes', and USA has a separate list of required texts. Some important skills present in the USA and Australian standards, such as seek clarification, edit, quote, spell and punctuate accurately are absent in the Brazilian curriculum. There is a greater emphasis on research in Brazil. Own and others' perspectives are less overt in the Brazilian standards. Grade 10 Again the Brazilian standards list text types and language features rather than focussing on the generic skills developed. Higher order thinking skills such as investigate, criticize, evaluate, justify, solve problems, expand, have much greater prominence in Australia and USA. Developing accuracy through editing and rewriting are absent in the Brazil standards. Summarising and research are present in both USA and Brazilian Standards but absent in Australia. The

	USA standards specify extended writing and in Australia developing personal writing style is a focus. Both are absent in the Brazil standards. Overall the Brazilian standards at grade 10 are significantly less exacting. This above suggests further benchmarking is needed to ensure parity with other curricula.
Coverage of the principles described in the preliminary documentation and introductory texts?	• It is difficult to evaluate the extent to which the standards incorporate the rights described in the preliminary texts for reasons explained in the analysis of this documentation. However, the contexts and opportunities provided for students in the 'fields' of learning ensure that many of the rights are covered.
Comment on scope and sequence from grade 1 to 12. Are any key concepts/ideas missing? Are any unexpected/unusual topics included? Is anything misplaced (earlier/later than expected / usual)?	• A common feature of presentation of languages curricula and standards is an emphasis on different modes of communication, although these are not taught in isolation. Brazil has chosen to structure the curriculum around six fields or areas of experience rather than modes of communication. • Nonetheless, all key aspects expected in a language curriculum are present: Communicating effectively through writing, debate, discussion and presentation; critical understanding and using language conventions. Listening appears to be a neglected skill. Most of the references to listening (only 10 throughout the document) are in the early elementary phase. • Grades 1 to 3 rightly include an additional strand relating to early literacy - mastery of the alphabet, phonics, spelling and handwriting with some (mostly helpful) repetition for consolidation. • The field or area of experience relating to the world of work is absent until grade 10. This is very late compared to other countries. • All components of reading are present: reading strategies; comprehension; literature and research. Reading widely; understanding and critical appreciation of the world through texts read is a strong characteristic. However there is less emphasis on enjoying reading and developing curiosity. • Understanding how to use the library features from G1 but this appears somewhat mechanical and engagement in reading and encouraging good reading habits is not a key early focus.

	• There is greater emphasis on reflecting and evaluating form and content of text than on retrieving information. • Writing includes planning and composition however evaluating own work, editing, proof-reading and improving writing (spelling, grammar and punctuation) for impact and accuracy is underdeveloped. The word 'create' is used frequently (50 times) but innovation and developing own personal style are overlooked. • Teaching of handwriting at an early stage appears to be absent (Is this lost in translation?). • Although visual literacy is emphasized in the introductory texts, there is limited evidence of a focus on developing associated skills. • The use of qualifiers to express degrees of accuracy, fluency, coherence, confidence and independence expected at each grade are less clear in the Brazilian standards than in other curricula. It would be helpful to include an indication of the level of support, prompting and guidance from adults and peers in the early stages of language learning. • Engaging with history, society and literary heritage through the study of literature from different periods and cultures and of different genres is very well developed. • Although working with peers is present in the Brazilian standards, there is more emphasis on group and pair work in both Australia and USA.
Is there clear learning progression from year to year? Is it evenly balanced throughout the years?	• There is clear evidence of a hierarchy of skills development from grade 1 to 12. • It is difficult to quickly assess the balance of listening, speaking, reading and writing due to the chosen layout. There appears to be a sensible balance of speaking, reading and writing. Listening is the exception. In grades 11 and 12 progress in listening and speaking is less well developed.
Expectations in line with other international comparators?	• Expectations seem below that of the comparator curricula. It is difficult to judge the level of challenge in reading without a specification of the texts to be read in each year. Similarly, the level of challenge for writing is often dependent on the complexity of the task. • The use of exemplar assessment material is used in many countries to ensure standards are well understood.

Any other comments, for example in relation to the potential impact of the standards on outcomes of international tests such as PISA, TERCE, TIMMS, PIRLS	• There is an emphasis on reading in PISA. In line with many other countries, Brazil is seeking to raise the profile of reading. The panel may want to offer guidance to teachers in terms of text complexity by including age/grade related recommended texts. • OECD cite developing good reading habits and learner engagement with texts outside of the classroom as essential to good performance in the PISA tests. • Brazil's performance in the PISA reading tests though improving steadily, has always been stronger in reflection and evaluation than in information retrieval. The panel may wish to consider how to raise the profile of this aspect of reading. • It is a strength that the skill of summarizing is a feature of the Brazilian standards. A greater focus on higher order thinking skills would equip learners to apply their learning more effectively.

National Standards for Brazil	Subject: Mathematics
1. Comments on the introductory texts for the area and subject	• The introduction is very lengthy and overly specific (e.g. allusions to football and the shoe box). It includes important principles for teaching mathematics: learners must do mathematics ('do the math'); make connections within mathematics and with learners' experience across the curriculum and beyond school; develop conceptual understanding; learn mathematics through challenging and meaningful contexts; logical thinking; and progressive abstraction. It also alludes to the power of mathematics in society, stressing that it is a living subject. • It would be worth condensing this material into two sections 1. the role of mathematics in society and why it is important to all learners – perhaps with direct reference to the fundamental rights in the overall introduction 2. principles for teaching mathematics • The objectives naturally follow from the introduction. However, these are a little muddled – reasoning features twice - not sure that argumentation needs to be separate – argumentation and justification could be added to the third bullet point and the fifth bullet point could be lost. The fourth bullet point on communication could make specific reference to the use of symbols, graphs and diagrams as language alone whilst important is limited for mathematics. Suggest: That implies ~~developing a specific manner of logical reasoning requiring the attainment of some objects presented below~~ working towards these objects: o Establishing connections within ~~between the axes of~~ the mathematics subject area and ~~between this area and~~ with other knowledge subject areas. o Solving problems ~~while~~ by creating personal strategies for their resolution and ~~developing~~ applying mathematics with imagination and creativity. o Being able to reason, making abstractions based on concrete situations, as well as generalizations, organizations, arguments, ~~and~~ representations and justifications. o Communicating mathematics by use of ~~the various~~ language, symbols, graphs and diagrams ~~forms used~~

	~~in mathematics~~. ~~o Using mathematical argumentation based on various types of reasoning.~~ • There are no links to the fundamental rights that could include some of the aspects that feature in the introductions to Elementary School and High School mathematics. • These introductions include some repetition of the overarching introduction and some additional material that would be better in the introduction e.g. the use of technology, problem solving, mathematisation (moving from a context into mathematics and back again) and general student dispositions. They also include descriptions of progression in the 'axes' of the curriculum: Geometry, Greatness (Mensuration?) and Measure, Statistics and Probability, Numbers and Operations, Algebra and Functions. I think 'strand', 'area', 'aspect', 'element' or 'theme' might be better than 'axis'. • The progression is important and would benefit from clearer signposting, see for example how this is done in the Australian curriculum. There are new objectives for Elementary School and High School which do not match with the overall objectives and introduce new and important ideas e.g. learner attitude and disposition, working collaboratively, mathematics and social responsibility, and use of technology. The 'Resort to' in the High School objective about the use of technology is unhelpful.
2. Layout – clarity, ease of navigation and use compared to other national curriculum documentation	• There is too much dense text. Whilst there is much of value, it is not particularly accessible. There is considerable repetition and the important ideas are not set out clearly. Some restructuring would be helpful. The use of headings, sub-headings and numbering or bullet points would be useful in this respect. • Serious pruning is also required to make this document accessible to teachers and other stakeholders.
Learning Objectives for the curricular component	
3. Layout – clarity, ease of navigation and use (including assessment) compared to other national	• The list of objectives is overwhelming. There are 246 objectives across the 12 grades. Are all the objectives of equal weight? It would appear not – see the distribution is summarised below: Grade | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12

curriculum documentation	Geometry	3	3	4	4	4	5	5	6	5	6	4	5
	Greatness & Measures	3	4	4	6	4	3	4	3	4	3	2	1
	Statistics & Probability	2	3	3	3	4	3	5	3	3	4	4	4
	Numbers & Operations	2	5	6	7	7	8	7	6	4	4	3	2
	Algebra & Functions	2	2	2	4	4	4	3	4	7	6	5	2
	Total	12	17	19	24	23	23	24	22	23	23	18	14
	• Are there different time expectations for the different grades? • Some of the objectives would require far more teaching than others. Perhaps this is something that might be considered in the next draft.												
4. Number and quality of objectives	• There are very many objectives, which potentially conspires against the aspiration for making connections. For example in 1st grade Geometry MTMT1FOA003 ***describe, compare and name 2D figures***, whilst in Algebra MTMT1FOA012 ***organise and order familiar objects and figures according to different attributes***. It is only in 2nd grade MTMT2FOA016 that classification of 2D figures is mentioned, although this is needed for the Y1 algebra objective. • There is a good emphasis on the use of manipulatives and mental methods through 1st, 2nd and 3rd grades. • In 3rd grade, multiplication is linked to repeated addition, rectangular arrays and proportionality (MTMT3FOA037). In 5th grade, division and fractions are explicitly linked (MTMT5FOA090). • It is good to see statistics and probability featuring throughout the curriculum. • The reference to use of digital technology and calculators could be more clearly encouraged rather than presented as an alternative. • The mathematics needs to be represented correctly e.g. × rather than x and in MTMT7FOA136 10^3 rather than 103 etc.												
5. Rigour of objectives compared to	• Whilst the objectives are generally clear and rigorous there are some issues that would benefit from further												

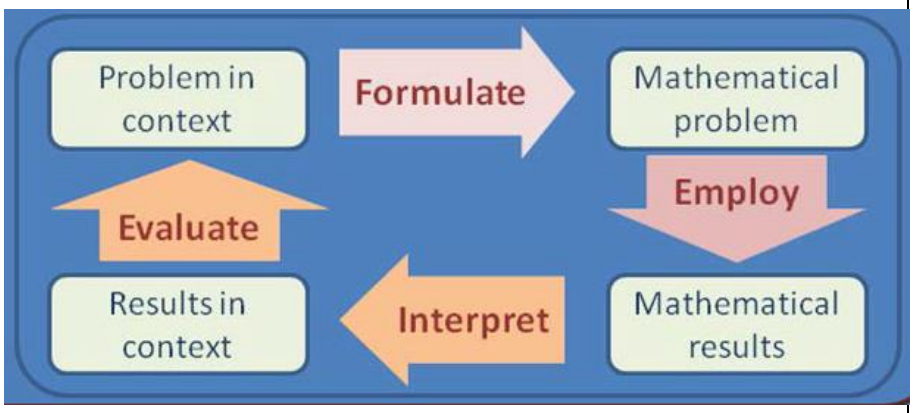
other curricula of reference?	consideration. These are detailed below, organised according to their 'axis' headings. Geometry • In 2nd grade learners measure lengths but they don't meet the perimeter until 4th grade (MTMT4FOA055), comparing areas in the 3rd grade (MTMT3FOA036). As a compound measure, area is a very difficult concept and is best taught separately from perimeter, which is an application of length and could be taught in 3rd grade. It would be best to leave all work on area to 4th grade. The separation of circumference (7th grade) and area enclosed by a circle (8th grade) are consistent with this recommendation. • The introduction of transformations is very early: 4th grade MTMT4FOA053 reflection and translation, although vectors (the best way to define a translation unambiguously) are not introduced until 10th grade (MTMT1MOA193), while symmetry is not mentioned until 7th grade (MTMT7FOA124). Generally, it is easier for students to recognise reflective then rotational symmetry than to construct the related transformations. Initially it is better to work on symmetry properties and then transformations ensuring that the distinct concepts are understood. • In 5th grade MTMT5FOA076 introduces coordinates but muddles spreadsheet cells (which are similar to Battleship games) with coordinates which define a point. Note that a grid reference also defines a square on the map, not a precise point. • The introduction of trigonometric ratios in 9th grade (MTMT9FOA169) seems premature, particularly when students will not have met Pythagoras' theorem which is introduced in 10th grade (MTMT1MOA195). It may be worth introducing Pythagoras' theorem in 9th grade and leaving trigonometry to 10th grade (High School), to be more consistent with other curricula. Greatness and Measure • The reference to measures of data storage (MTMT8FOA154 and MTMT9FOA176) in 8th and 9th grades seem irrelevant to mathematics. Statistics and Probability • 8th grade (MTMT7FOA136) seems a little late to introduce the notion of average – please note that median, mode and mean are all averages and the limitations of each needs to be

	understood in order for them to be used effectively. 8th grade (MTMT8FOA156) seems a little early to introduce histograms unless it is histograms with equal class intervals – in which case it needs to say so. The range (amplitude) is not mentioned until 10th grade (MTMT1MOA204) which seems rather late. Whilst it is worth keeping measures of dispersion separate from measures of central tendency (average) one year would suffice. • In the 11th grade the standard deviation and variance are introduced as measures of dispersion. It would be worth including the interquartile range earlier in the curriculum, as a more sophisticated yet easily understood measure of spread associated with the median before introducing the standard deviation which is a measure of spread associated with the mean. Surprisingly quartiles are mentioned in 12th grade (MTMT3MOA242). Numbers and Operations • In 2nd grade MTMT2FOA026 includes 24=18+6, but not 29-5=18+6, the latter helps better to reinforce understanding of the equals sign. • The development of decimals is rather rapid 4th grade tenths and hundredths (MTMT4FOA071) and thousandths in 5th grade (MTMT5FOA089). Particularly as the main application of 3 decimal places is in the conversion of metric units of measure which doesn't feature until 6th grade (MTMT6FOA104). • Good to see reference to the use of calculators for percentages (MTMT5FOA092), and calculations with rational numbers (MTMT5FOA093 and MTMT5FOA094). However profit and loss occurs in 4th grade (MTMT4FOA059) and as these are commonly represented as percentages they could be delayed a year and may involve complex calculations. • Real numbers are not mentioned until 9th grade (MTMT9FOA180), but finding the circumference is in 7th grade (MTMT7FOA130), as is 'root extraction' (MTMT7FOA137). Both of these lead to irrational numbers. Irrational numbers or real numbers need to be mentioned in 7th grade for consistency and coherence. • It is unclear why work on compound interest in 10th grade (MTMT1MOA208) should be done both with and without digital technology. Digital technology allows the exploration of realistic contexts.

	Algebra and Functions • Quadratic expressions and equations are introduced in 8th and 9th grade but there is no reference to graphs that can help to develop understanding and make connections between the numbers, symbols and graphs, in particular understanding the relationship between the graphical representation and the solution to equations. Given modern digital technology it seems an oversight not to have included graphical representations. Note that this does happen for simultaneous linear equations in 9th grade (MTMT9FOA185). Graphs of quadratic functions are mentioned in 10th grade (MTMT1MOA214) alongside transformations of functions.
6. Coverage of the principles described in the preliminary documentation and introductory texts?	• The coverage of the principles described in the preliminary documentation and introductory texts is modest. Solve and create problems is used 33 times in the objectives but mostly in the context of mathematics per se. There is some mention of financial applications but without reference to developing the personal dispositions known to be crucial in making sound financial decisions. The use of digital technologies is mentioned 20 times but for nine of these it is accompanied by the phrase 'with or without', which seems unhelpful, as it gives permission not to use digital technology. • Only in 12th grade is there more reference to application of mathematics.
7. Is there coherence within each grade?	• The grades are mostly coherent. However, there are some inconsistencies which are summarised below. Some of the examples given in 5. above to illustrate issues relating to rigour are also relevant to this section. • As mentioned above, in 1st grade Geometry MTMT1FOA003 *describe, compare and name 2D figures*, whilst in Algebra MTMT1FOA012 *organise and order familiar objects and figures according to different attributes*. It is only in 2nd grade MTMT2FOA016 that classification of 2D figures is mentioned, although this is needed for the Y1 algebra objective. • Angles are not mentioned until 4th grade (MTMT4FOA052) with recognition of a right angle. Yet children need to recognise right angles to be able to tell the time to the nearest quarter of an hour on an analogue clock in 3rd grade (MTMT3FOA037). Angle as a measure of turn is not mentioned. • The introduction of transformations is very early: 4th grade MTMT4FOA053 reflection and translation, although vectors

	(the best way to define a translation unambiguously) are not introduced until 10th grade (MTMT1MOA193), while symmetry is not mentioned until 7th grade (MTMT7FOA124). Generally, it is easier for students to recognise reflective then rotational symmetry than to construct the related transformations. Initially it is better to work on symmetry properties and then transformations ensuring that the distinct concepts are understood. • Good to see reference to the use of calculators for percentages (MTMT5FOA092), and calculations with rational numbers (MTMT5FOA093 and MTMT5FOA094). However profit and loss occurs in 4th grade (MTMT4FOA059) and as these are commonly represented as percentages they could be delayed a year and may involve complex calculations. • Real numbers are not mentioned until 9th grade (MTMT9FOA180), but finding the circumference is in 7th grade (MTMT7FOA130), as is 'root extraction' (MTMT7FOA137). Both of these lead to irrational numbers. Irrational numbers or real numbers need to be mentioned in 7th grade for consistency and coherence. • 8th grade (MTMT7FOA136) seems a little late to introduce the notion of average – please note that median, mode and mean are all averages and the limitations of each needs to be understood in order for them to be used effectively. 8th grade (MTMT8FOA156) seems a little early to introduce histograms unless it is histograms with equal class intervals – in which case it needs to say so. The range (amplitude) is not mentioned until 10th grade (MTMT1MOA204) which seems rather late. Whilst it is worth keeping measures of dispersion separate from measures of central tendency (average) one year would suffice. • Quadratic expressions and equations are introduced in 8th and 9th grade but there is no reference to graphs that can help to develop understanding and make connections between the numbers, symbols and graphs. In particular understanding the relationship between the graphical representation and the solution to equations. Given modern digital technology it seems an oversight not to have included graphical representations. Note that this does happen for simultaneous linear equations in 9th grade (MTMT9FOA185). Graphs of quadratic functions are mentioned in 10th grade (MTMT1MOA214) alongside transformations of functions. • In the 11th grade the standard deviation and variance are introduced as measures of dispersion. It would be worth including the interquartile range earlier in the curriculum, as a

	more sophisticated yet easily understood measure of spread associated with the median before introducing the standard deviation which is a measure of spread associated with the mean. Surprisingly quartiles are mentioned in 12th grade (MTMT3MOA242).
8. Comment on scope and sequence from grade 1 to 12. Are any key concepts/ ideas missing?	• Please see the commentary above where sequencing seems to have gone awry in statistics, algebra, geometry and measures. • In statistics, the use of box and whisker diagrams is missing and there is a lack of clarity around 'histograms'. I suggest that the first mention should be histograms with equal class intervals.
9. Is learning progression evenly balanced throughout the years?	• Please see comment above about the number of objectives in different grades. The overall expectations do not seem inappropriate but it does depend on how much time will be allocated for mathematics in each grade.
10. Expectations in line with other international comparators?	• The expectations are generally in line with comparators, except for: o angles and telling the time on analogue clock; o introduction of statistical measures of central tendency and spread; o symmetry and transformations; o three decimal places and conversion between metric units, o introduction of Pythagoras' theorem and trigonometry; o manipulating quadratic expressions, solving quadratic equations and graphs of quadratic expressions; o measures of central tendency and spread in statistics.
11. Any other comments for example in relation to international tests such as PISA, TERCE,TIMMS, PIRLS	• The process of mathematisation is key to the PISA framework for mathematics. As such, I recommend including the diagram below and moving the commentary that is currently in the pre-amble to both Elementary School and High School to the overarching introduction. (http://www.oecd.org/pisa/pisaproducts/Draft%20PISA%202015%20Mathematics%20Framework%20.pdf)

	 Problem in context Formulate Mathematical problem Employ Evaluate Results in context Interpret Mathematical results

Subject: Sciences – Elementary School Grades 1 to 9	
Comments on the introductory texts for the area and subject	• Introduction to **Area: Natural Sciences** is continuous text that makes a lot of valuable points and covers three issues – Importance of Sciences, the curriculum and the approach to teaching. It would be worth organising the text under these three sub-headings so key messages are more easily conveyed. A diagram showing combined Natural Sciences in Elementary School followed by separate sciences in High School would help. • The four axes are clear, logical and consistent with international practice. The fourth axis 'Language of Natural Sciences' (Why not just 'Science Language'?) is a valuable addition that may help learners overcome a widespread barrier to effective learning of Sciences. • Presenting these axes in a table would make them stand out from the text and emphasise their importance. • It might be better to re-arrange the order of Axis 2 to 'Social, Cultural and Historical Contexts' so that present day relevance is given greater priority than the history of Science. • The 'General Objectives' are all worthwhile. It would be good if readers could determine where these come from e.g. whether they are linked to the 'rights' in the overall introduction or whether they have a purely Science focus. Presumably these apply to Sciences throughout elementary and high school, a point worth making. • It is also potentially confusing that the word 'objectives' is used here for these overarching Science objectives when it is also used in the overall introduction for the specific learning objectives.

Layout – clarity, ease of navigation and use compared to other national curriculum documentation	• Much of the continuous text covers some very important points, often separated by commas in long lists. National Curriculum documentation usually targets a wide range of stakeholders, including employers, parents and learners, as well as education professionals and hence it needs to be as accessible as possible. Organising information through the use of bullet points, tables or diagrams can often provide much greater clarity. • Where continuous text is necessary, it can be made more accessible with sub-headings or the use of bold key words that signpost its logical sequence and help readers more easily understand the 'big picture'. • It is unclear what components the '2. SCIENCES CURRICULAR COMPONENTS' heading refers to. Much of the text in this section provides a deeper interpretation of the coverage of each of the four axes. • The section ends with a short paragraph that introduces the 'knowledge units' but does not provide an explanation of the logic behind the choice of these six headings. Are these the 'curricular components'? • Again, a diagram showing the relationship between the general objectives, elementary school objectives, the axes, the curriculum components and the knowledge units would be helpful. A clear definition of each term would also aid understanding. • Another useful graphic might show how the six knowledge units relate to the subjects studied in High School. • The text describing the coverage of each knowledge unit is a list that could be better presented in a table or as bullet points. • It is appropriate that not every knowledge unit is taught at every grade but it would be worth clearly stating this rather than leaving it for the reader to find out. Is there a rationale behind which knowledge units have been chosen for study at each grade?
Learning Objectives for the curricular component	
Layout – clarity, ease of navigation and use (including assessment) compared to other national curriculum	• Unlike the overall introduction and the Languages and Mathematics sections, Science refers to 'Knowledge Units' and 'Sciences Curriculum Components' rather than 'Learning Objectives'. This is positive in that it avoids the overuse of the word 'objectives' at more than

documentation	one level of curriculum organisation but it would be sensible to have consistency across all knowledge areas. • At a time when curricula worldwide are being rewritten to stress the importance of competences alongside knowledge, the use of the term 'knowledge units' might be taken to suggest satisfaction with the status quo. Some teachers are inevitably reluctant to embrace change and they need to be encouraged to adopt more modern approaches. 'Learning Units' might be a better term. • The eleven digit codes that refer to each learning objective seem unnecessarily complex • The examples used to illustrate each learning objective are useful but there is a danger that these come to be regarded as prescriptive. One way to guard against this is to offer a range of examples, but this is demanding for writers. • 'Examples' is not always an appropriate description for what follows. Some of the examples provided suggest ideas for the way teachers might approach a topic whereas in other cases the example is a specific expansion of the expected learning relating to the objective. • A table showing which knowledge units are taught at each grade would present a useful overview so that readers can see 'at a glance' the balance of each at each grade and the overall picture. This is standard practice in most countries. With the units listed as they are at present the reader has to track back and forth through the grades to find this information. (See 'scope and sequence' comments below). • The way each knowledge unit has each of its four axes listed below the unit heading makes it difficult to follow the logical development from grade to grade. It is much easier to gain an overview of the scope and sequence when the learning is presented in a table, as it is in most countries.
Number and quality of objectives	• The number of knowledge units is three per year and the total number of objectives depends upon how many each unit contains • The number of objectives is broadly consistent from grade to grade, for example in Grade 3 there are 17 learning objectives, in Grade 6 there are 21 and in Grade 9 there are 21. This needs to be cross-checked with lesson time available and taking account of level of

	maturity of learners at each grade. • The degree of complexity of the objectives in terms of knowledge demands shows steady and appropriate progression from grade to grade. • A significant proportion of the objectives demand more than simply knowing and understanding. For example, learners are required to build, correlate, compare and interpret. It would be good to increase the balance of these higher order thinking objectives and ensure apply, analyse, create and evaluate are all well represented. • The objectives range from complex topics (generally relating to conceptual knowledge) through to one off activities (often under the processes / research and languages axes). Hence some of the objectives would require a long period of time to teach while others may be covered in a single lesson or less. • Many of the processes / research and language objectives could be addressed simultaneously with the teaching of related conceptual knowledge objectives. The guidance should stress the importance and value of an integrated approach.
Rigour of objectives compared to other curricula of reference? Do objectives imply enough depth of learning?	• There are six knowledge units. Broadly speaking, four of them are biological (U2, U3, U5 & U6), one relates to Earth Science (U4) and one to Chemistry and Physics (U1). This means that, that, compared to curricula of reference, Chemistry (C) and Physics (P) are underrepresented compared to Biology (B) in terms of their proportion of learning objectives. This has been partly addressed through blending C & P topics into B units such as 'equilibrium' and 'light reflection and refraction' into 'Senses, Perception and Interactions'. • The rigour of the elementary school preparation for High School Chemistry and Physics needs to be closely examined, both in terms of the depth of learning of the topics that are included and in terms of topic coverage.
Coverage of the principles (rights) described in the preliminary documentation and introductory texts?	• There is no specific reference to the rights in this section, although some elements of the rights are addressed in the learning objectives such as: o Debating ideas o Health and well-being o Communication (through the language of Science) and use of information resources o Gaining individual and collective experiences

	through physical and intellectual practices .... in natural sciences o Develop .... criteria to mobilise knowledge o Make correlations between concepts and procedures o Debate and develop ideas about the constitution and evolution of life, earth and the universe, and ...between humans and nature ... as well as question the meaning of human life and generate hypotheses about the future of nature and society • It is unclear whether the rights provided guidance in the writing of the learning objectives and were included as a result or whether these elements of the rights were included incidentally.
Balance of knowledge, understanding, skills and competences?	• Setting out the learning under the four axis headings ensures there is a focus on knowledge and understanding (Conceptual knowledge & Historical, Social and Cultural Contextualisation) and on skills (Processes / Research & Language). • There does not appear to be any clear overall guidance with respect to the competences to be addressed in the knowledge units. Consequently the approach to competences is haphazard. Many of the languages objectives have a clear focus on developing communication. There is some evidence of problem solving, of critical thinking and of creativity but there does not appear to be a coherent approach to addressing these competences.
Is there coherence within each grade?	• The learning across the four axes within each knowledge unit is clearly coherent in the vast majority of cases. • There is no evidence to suggest there was a coordinated approach to selection of the three knowledge units addressed at each grade.
Comment on scope and sequence from grade 1 to 12. Are any key concepts/ideas missing? Are any unexpected/unusual	• There is a broad match with the scope and sequence of international comparators in the sense that the topic coverage in the draft document occur at approximately the same stage in international comparators. However, the proposed structure leads to some marked inconsistencies. • The fact that each grade incudes only three of the six knowledge units means that each is only revisited every

topics included? Is anything misplaced (earlier/later than expected / usual)? Is the scope comparable with international comparators? Is there any indication of overload or of lack of depth?	so often. It may be better to structure the standards in a different way so that some can be taught without long breaks. The sequence may be appropriate but if there is too much of a gap before a unit is revisited, learners may forget prior learning before they have a chance to build upon it. For example, in Grade 3 all three units concern biological topics as do two of the three in Grade 4 and two of the three in Grade 5. This means that learners do not revisit 'Materials, Substances and Processes' between Grade 2 and Grade 7. • Where there are these gaps there are mismatches in terms of what is covered when. International comparator countries cover some chemistry, some physics, some biology and some earth and space science in every grade. This means that, in these draft standards, several topics are covered either earlier or later than in comparator countries. • The fact that Biology topics are overrepresented in comparison to Chemistry and Physics topics results in greater depth in Biology and shallower learning in Chemistry and Physics. • Some of the Chemistry and Physics topics that are underrepresented in or absent from the Elementary School standards are chemical reactions, forces and motion, energy, energy transformation, waves, electricity and magnetism, particle theory / atoms / atomic structure • Biology topics are well covered. One exception is the diversity of life and classification of animals and plants.
Is there clear learning progression from year to year? Is it evenly balanced throughout the years?	• As stated above, the degree of complexity of the objectives in terms of knowledge and understanding shows steady and appropriate progression from grade to grade. • There is little evidence of progression in the sense of higher order thinking either within or between grades. In terms of thinking, more challenging objectives should demand more than memorization and understanding and should challenge students to apply, analyse, create and evaluate. This higher order thinking can be developed from Grade 1 with the tasks being adapted and the degree of challenge being raised as learners mature. • The objectives should be revisited and revised to ensure learners' higher order thinking is progressively

	developed. • This approach should be considered alongside the incorporation of global competences into the objectives.
Expectations in line with other international comparators?	• As described under 'Rigour' above, expectations are broadly in line with respect to those topics common to both the draft standards and comparator curricula. • Where expectations are not comparable is in terms of the Chemistry and Physics topics that not covered in Brazil's draft standards.
Any other comments, for example in relation to the potential impact of the standards on outcomes of international tests such as PISA, TERCE, TIMMS, PIRLS	• The focus in PISA tests on application of learning and the increasing trend towards developing and assessing global competences underlines the importance of ensuring that learners are capable as well as knowledgeable. • The importance of knowledge is clearly expressed in these standards. • The processes/research and languages axes do involve engagement in active learning but there is not a clearly expressed strategy for progressive development of skills and competences. Indeed there is not an overall list of competences for the knowledge areas to collectively address. Without this there cannot be a coordinated curriculum-wide approach to competency development.

National Standards for Brazil	Subject: High School Science - Biology
Comments on the introductory texts for the area and subject	• The overall 'Natural Sciences in High School' introduction explains and justifies, in a very rambling fashion, the splitting of elementary science into the three separate sciences. It ends with the important point about application of learning. • The 'Purposes of Natural Sciences in High School' section is largely consistent with the 'Area's General Objectives' presented in relation to elementary science. Why are they given different titles and why repeat them if they are intended to be the same? It would be good if readers were informed where these come from e.g. whether they are linked to the 'rights' in the overall introduction or whether they have a purely Science focus. • There is no reference to the part of the Sciences in the curriculum as a whole such as contributing to a common approach to the 'rights' or development of competences or cross-curricular skills.
Layout – clarity, ease of navigation and use compared to other national curriculum documentation	• As with elementary science, the introductory text has no guiding structure such as sub-headings, bullets or use of bold text. Readers only find its purpose(s) by reading the whole section. Continuous text does not help readers navigate the document. • The term 'Curriculum Component' is used differently at High School level where each of the three separate sciences is called a curriculum component. Consistency would be good.
Learning Objectives for the curricular component Biology	
Layout – clarity, ease of navigation and use (including assessment) compared to other national curriculum documentation	• The text under the heading 'Curriculum Component – Biology' is also very wordy. It introduces the four axes that are consistent with elementary science (*Conceptual knowledge, Processes and practices of research, Language and Historical, Social and Cultural Contextualisation*) and with international practice but does not explain or even mention that these are 'axes'. • It might be better to re-arrange the order of Axis 4 (Axis 2 in elementary science?) to 'Social, Cultural and Historical Contexts' so that present day relevance is given greater priority than the history of Science.

	• This section then sets out three new criteria (*Include conceptual knowledge..., Allow a gradual..., Observe as a whole...*) for the organisation of the knowledge units. These are not used in Physics or Chemistry. These criteria overlap with the four axes in that the first criterion relates to both subject and practical knowledge. It is not clearly explained how these different ways of organisation of knowledge units relate to each other. • The meaning of the term 'knowledge unit' also needs to be explained before the criteria for their organisation are introduced. • At a time when curricula worldwide are being rewritten to stress the importance of competences alongside knowledge, the use of the term 'knowledge units' might be taken to suggest satisfaction with the status quo. Some teachers are inevitably reluctant to embrace change and they need to be encouraged to adopt more modern approaches. 'Learning Units' might be a better term. • The term 'Learning Objective' is not introduced or explained. • The text describing the coverage of each knowledge unit is a list that could be better presented in a table or as bullet points. • After the breakdown of the subject into seven knowledge units is briefly outlined, there follows an explanation of the '*Objectives related to progression and recursiveness*'. This describes good pedagogical practice in terms of revisiting and consolidation of learning. It is very unusual for a standards document to set out a rigid categorisation of the steps in the learning process (I, SW, C, R) as presented here. This section / these categories do not appear in Physics or Chemistry. • There are eleven examples of how these progression and recursiveness steps apply and develop between grades within a number of learning units. There is no explanation of whether these are selected examples or whether they represent the only parts of the Biology curriculum that are revisited and the complexity of the organisation of learning. • It is important to consider the complexity of the organisation of learning and whether such a degree of complexity is necessary (knowledge units, learning objectives, axes, unit organisation criteria, progression and recursiveness categories).

	• If it is necessary, and even if it is simplified, there needs to be some graphic representation of how the different levels of organisation inter-relate. Readers should not have to tease out complex meaning from continuous text. • The examples used to illustrate each learning objective are useful but there is a danger that these come to be regarded as prescriptive and thus limit the range of examples and techniques used. One way to guard against this is to offer a range of examples, but this is demanding for writers. • 'Examples' is not always an appropriate description for what follows. Some of the examples provided suggest ideas for the way teachers might approach a topic whereas in other cases the example is a specific expansion of the expected learning relating to the objective. Perhaps these should appear as two distinct sub-sections. • A table showing which knowledge units are taught at each grade would present a useful overview so that readers can see 'at a glance' the balance of each at each grade and the overall picture. This is standard practice in most countries. With the units listed as they are at present the reader has to track back and forth through the grades to find this information. (See 'scope and sequence' comments below). • There is considerable potential for overlap between the environmental aspects of units 2 and 7 and it is important this does not become wasteful duplication. • The way each knowledge unit has each of its four axes listed below the unit heading makes it difficult to follow the logical development from grade to grade. It is much easier to gain an overview of the scope and sequence when the learning is presented in a table, as it is in most countries.
Number and quality of objectives	• The number of objectives is consistent across the three grades (19, 18, 19), although the scope of the objectives is diverse, with some requiring much longer to teach than others. An estimate of time required for each and overall time requirement would help to make this a more valuable comparison. • The vast majority of the objectives are at the lower end of demand, at least in terms of their wording in relation to thinking (know and understand) , although there are a

	few that demand higher order thinking (apply, analyse, create, evaluate etc). This balance in better in elementary science and should be addressed in the second draft. • The eleven digit codes that refer to each learning objective seem unnecessarily complex • Many of the processes / research and language objectives could be addressed simultaneously with the teaching of related conceptual knowledge objectives. The guidance should stress the importance and value of an integrated approach. • Some of the learning objectives need to be re-examined in terms of whether they are aligned with the right axis. For example, *CNBI1MOA019. Interpret phylogenetic graphs …* is classified in the Languages axis when it is really a process. • Some need to be re-examined in relation to the accuracy of the wording e.g. *CNBI1MOA009. Understand that food webs contribute to the stability of communities.* Food webs represent feeding relationships whereas the complex interrelationships in communities contribute to stability. (This may be an issue emerging from translation). • Some objectives need to be checked for duplication rather than progression. For example, in *CNBI1MOA009* in Grade 1, learners examine food webs and consider the impact of removal of some species. They appear to be doing the same thing in *CNBI3MOA019* in Grade 3. • Similarly, some of the examples need to be reconsidered e.g. *CNBI1MOA008 where the example refers to 'insects of the same species, as a black winged stilt' (*which is a bird) (Perhaps also a translation issue).
Rigour of objectives compared to other curricula of reference?	• In terms of range and timing of different topics, the standards are broadly in line with international comparator countries. • See comment above relating to higher order thinking. A modern curriculum should demand much more than recall for examinations so there needs to be a clear focus on developing learners' competences and deepening subject knowledge in the process.
Coverage of the principles described in the preliminary	• There is no specific reference to the rights in this section and no indication that any account has been taken of the overall guidance to all subjects.

documentation and introductory texts?	
Balance of knowledge, understanding, skills and competences?	• See comment above under 'Number and quality of objectives' relating to balance of 'know and understand' as opposed to more demanding objectives. • Setting out the learning under the four axis headings ensures there is a focus on knowledge and understanding (Conceptual knowledge & Historical, Social and Cultural Contextualisation) and on skills (Processes / Research & Language). • There does not appear to be any clear overall guidance with respect to the competences to be addressed in the knowledge areas. Consequently the approach to competences is haphazard. Some of the languages objectives have a clear focus on developing communication but many focus on understanding. There is some evidence of problem solving, of critical thinking and of creativity but there does not appear to be a coherent approach to addressing these competences.
Is there coherence within each grade?	• The seven knowledge units have been divided in a linear fashion between the three grades as follows: Grade 1: KUs 1 and 2 Grade 2: KUs (1), 3, 4, (5) ie including a little of units 1 and 5 Grade 3: KUs 5, 6 and 7 There is coherence within grades as each contains learning broadly under two or three headings. An explanation of the logic of the sequence would help.
Comment on scope and sequence from grade 1 to 3. Are any key concepts/ideas missing? Are any unexpected/unusual topics included? Is anything misplaced (earlier/later than expected / usual)?	• The organization of the units is described in the section above. • How the learning is divided between the three years of High School is less significant than alignment of learning with the developmental stages learners go through in Elementary School so there is no cause for concern in this respect.
Is there clear	• Since the units covered in each grade are focused on

learning progression from year to year? Is it evenly balanced throughout the years?	different topics there is limited scope for interlinking between them • There is evidence that progression has been considered, for example, o the section of unit 1 involving researching lipids and proteins has been placed in Grade 2, presumably to align with the biochemistry in Unit 3 o the section of Unit 5 relating to DNA has been built into Grade 2, again presumably to align with the biochemistry in Unit 3.
Expectations in line with other international comparators?	• Expectations are broadly in line with international comparators in terms of knowledge development. • The lack of comparability in relation to development of competences and skills have been covered in other sections.
Any other comments, for example in relation to the potential impact of the standards on outcomes of international tests such as PISA, TERCE, TIMMS, PIRLS	• The focus in PISA tests on application of learning and the increasing trend towards developing and assessing global competences underlines the importance of ensuring that learners are capable as well as knowledgeable. • The importance of knowledge is clearly expressed in these standards. • The processes/research and languages axes do involve engagement in active learning but there is not a clearly expressed strategy for progressive development of skills and competences. Indeed there is not an overall list of competences for the knowledge areas to collectively address. Without this there cannot be a coordinated curriculum-wide approach to competency development.

National Standards for Brazil	Subject: High School Science - Physics
Comments on the introductory texts for the area and subject	• The overall 'Natural Sciences in High School' introduction explains and justifies, in a very rambling fashion, the splitting of elementary science into the three separate sciences. It ends with the important point about application of learning. • The 'Purposes of Natural Sciences in High School' section is largely consistent with the 'Area's General Objectives' presented in relation to elementary science. Why are they given different titles and why repeat them if they are intended to be the same? It would be good if readers were informed where these come from e.g. whether they are linked to the 'rights' in the overall introduction or whether they have a purely Science focus. • There is no reference to the part of the Sciences in the curriculum as a whole such as contributing to a common approach to the 'rights' or development of competences or cross-curricular skills.
Layout – clarity, ease of navigation and use compared to other national curriculum documentation	• As with elementary science, the introductory text has no guiding structure such as sub-headings, bullets or use of bold text. Readers only find its purpose(s) by reading the whole section. Continuous text does not help readers navigate the document. • The term 'Curriculum Component' is used differently at High School level where each of the three separate sciences is called a curriculum component. Consistency would be good.
Learning Objectives for the curricular component Physics	
Layout – clarity, ease of navigation and use (including assessment) compared to other national curriculum documentation	• The text under the heading 'Curriculum Component – Physics' is very long. It goes into considerable detail about the importance of the subject, its elements, its history and some of its key concepts • It introduces the four axes (*Conceptual knowledge, Processes and practices of research, Language and Historical, Social and Cultural Contextualisation*) very briefly towards the end. They are consistent with elementary science and with international practice. • There is no guiding structure to this section. It would help readers navigate the information if there were some

	sub-headings, bullet points, tables or some use of bold text. • It might be better to re-arrange the order of Axis 2 to 'Social, Cultural and Historical Contexts' so that present day relevance is given greater priority than the history of Science. • The meaning of the term 'knowledge unit' is explained. • At a time when curricula worldwide are being rewritten to stress the importance of competences alongside knowledge, the use of the term 'knowledge units' might be taken to suggest satisfaction with the status quo. Some teachers are inevitably reluctant to embrace change and they need to be encouraged to adopt more modern approaches. 'Learning Units' might be a better term. • The term 'Learning Objective' is not introduced and their relationship to knowledge units is not explained. It would be helpful to have a diagram showing the hierarchy of knowledge units, learning objectives and axes. • The examples used to illustrate each learning objective are useful but there is a danger that these come to be regarded as prescriptive and thus limit or overly extend the range of examples used in lessons. • In many cases a wide a range of examples has been included, but readers could do with some guidance as to whether they are all expected content or whether they can be regarded as a list from which to select. • The text describing the coverage of each knowledge unit is a list of questions / continuous text that could be better presented in a table or as bullet points.
Number and quality of objectives	• The number of objectives is consistent across the three grades (21, 22, 20), although the scope of the objectives is diverse, with some requiring much longer to teach than others. An estimate of time required for each and overall time requirement would help to make this a more valuable comparison. • There is some diversity in terms of levels of demand in the objectives. While many do expect learners simply to 'understand', they are also sometimes required to build (create) and to apply their learning by, for example, developing a model. The balance should be further improved with more examples of application of learning, analysis, creating and evaluating. • The eleven digit codes that refer to each learning objective seem unnecessarily complex.

	• Most of the learning objectives are of high quality, well thought through and appropriately aligned with the four axes. • Many of the processes / research and language objectives could be addressed simultaneously with the teaching of related conceptual knowledge objectives rather ta being addressed separately. The guidance should stress the importance and value of an integrated approach.
Rigour of objectives compared to other curricula of reference?	• The objectives are rigorous and they compare well with international curricula of reference, certainly in terms of knowledge development. As described above, some consideration needs to be given to the issue of development of a) learners ability to apply their learning and b) their higher order thinking skills
Coverage of the principles described in the preliminary documentation and introductory texts?	• There is no specific reference to the rights in this section and no indication that any account has been taken of the overall guidance to all subjects.
Balance of knowledge, understanding, skills and competences?	• See comment above under 'Number and quality of objectives' relating to the level of demand of learning objectives. • Setting out the learning under the four axis headings ensures there is a focus on knowledge and understanding (Conceptual knowledge & Historical, Social and Cultural Contextualisation) and on skills (Processes / Research & Language). Broadly speaking this has been done well. • There does not appear to be any clear overall guidance with respect to the competences to be addressed in the knowledge units. Consequently the approach to competences is haphazard. Many of the languages objectives have a clear focus on developing communication. There is some evidence of problem solving, of critical thinking and of creativity but there does not appear to be a coherent approach to addressing these competences.
Is there coherence within each grade?	• The learning across the four axes within each knowledge unit is clearly coherent in the vast majority of cases. • There is no explanation of the rationale behind the sequence of the knowledge units or behind the selection of the two units addressed at each grade. Grade 1: Knowledge Units 1 & 2

	Grade 2: KUs 3 & 4 Grade 3: KUs 5 & 6 However, there is no reason the KUs should not be taught in this sequence and in these grades.
Comment on scope and sequence from grade 1 to 12. Are any key concepts/ideas missing? Are any unexpected/unusual topics included? Is anything misplaced (earlier/later than expected / usual)?	• The organization of the units is described in the section above. • How the learning is divided between the three years of High School is less significant than alignment of learning with the developmental stages learners go through in Elementary School so there is no cause for concern in this respect. .
Is there clear learning progression from year to year? Is it evenly balanced throughout the years?	• Since the units covered in each grade are focused on different topics there is limited scope for interlinking between them.
Expectations in line with other international comparators?	• Expectations are broadly in line with international comparators in terms of knowledge development. • The issue re comparability in relation to development of competences and skills has been covered in other sections.
Any other comments, for example in relation to the potential impact of the standards on outcomes of international tests such as PISA,TERCE,TIMMS, PIRLS	• The focus in PISA tests on application of learning and the increasing trend towards developing and assessing global competences underlines the importance of ensuring that learners are capable as well as knowledgeable. • The importance of knowledge is clearly expressed in these standards. • The processes/research and languages axes do involve engagement in active learning but there is not a clearly expressed strategy for progressive development of skills and competences. Indeed there is not an overall list of competences for the knowledge areas to collectively address. Without this there cannot be a coordinated

	curriculum-wide approach to competency development.

National Standards for Brazil	Subject: High School Science - Chemistry
Comments on the introductory texts for the area and subject	• The overall 'Natural Sciences in High School' introduction explains and justifies, in a very rambling fashion, the splitting of elementary science into the three separate sciences. It ends with the important point about application of learning. • The 'Purposes of Natural Sciences in High School' section is largely consistent with the 'Area's General Objectives' presented in relation to elementary science. Why are they given different titles and why repeat them if they are intended to be the same? It would be good if readers were informed where these come from e.g. whether they are linked to the 'rights' in the overall introduction or whether they have a purely Science focus. • There is no reference to the part of the Sciences in the curriculum as a whole such as contributing to a common approach to the 'rights' or development of competences or cross-curricular skills.
Layout – clarity, ease of navigation and use compared to other national curriculum documentation	• As with elementary science, the introductory text has no guiding structure such as sub-headings, bullets or use of bold text. Readers only find its purpose(s) by reading the whole section. Continuous text does not help readers navigate the document. • The term 'Curriculum Component' is used differently at High School level where each of the three separate sciences is called a curriculum component. Consistency would be good.
Learning Objectives for the curricular component Chemistry	
Layout – clarity, ease of navigation and use (including assessment) compared to other national curriculum documentation	• The text under the heading 'Curriculum Component – Chemistry' is long. It goes into considerable detail about the benefits of studying the subject, its relevance to everyday life, its history and some of its key concepts • It touches on the four axes but does not explain that they are axes used to organize learning in the subject. They are consistent with elementary science (*Conceptual knowledge, Processes and practices of research, Language and Historical, Social and Cultural Contextualisation*) and with international practice. • There is no guiding structure to this section. It would help

	readers navigate the information if there were some sub-headings, bullet points, tables or some use of bold text. • It might be better to re-arrange the order of Axis 2 to 'Social, Cultural and Historical Contexts' so that present day relevance is given greater priority than the history of Science. • The meaning of the term 'knowledge unit' is explained. • At a time when curricula worldwide are being rewritten to stress the importance of competences alongside knowledge, the use of the term 'knowledge units' might be taken to suggest satisfaction with the status quo. Some teachers are inevitably reluctant to embrace change and they need to be encouraged to adopt more modern approaches. 'Learning Units' might be a better term. • The term 'Learning Objective' is not introduced and their relationship to knowledge units is not explained. It would be helpful to have a diagram showing the hierarchy of knowledge units, learning objectives and axes. • The examples used to illustrate each learning objective are useful but there is a danger that these come to be regarded as prescriptive and thus limit the range of examples and techniques used. • 'Examples' is not an appropriate description for what is included. The examples provided are clearly intended as specific requirements of the expected learning relating to each objective. • The text describing the coverage of each knowledge unit is a list of questions /continuous text that could be better presented in a table or as bullet points. • After the text about each knowledge unit, there is a very useful explanation of the structure of each unit, the importance and approach to each of the axes. This provides valuable information but is not signposted with any headings or sub-headings. It could have further stressed the role of the 'processes and practices' in developing learners' competences and independence.
Number and quality of objectives	• The number of objectives is broadly consistent across the three grades (18, 20, 16), although the scope of the objectives is diverse, with some requiring much longer to teach than others. • An estimate of time required for each and overall time requirement would help to make this a more valuable comparison.

	• The eleven digit codes that refer to each learning objective seem unnecessarily complex. • All learning objectives begin with an ongoing action verb, e.g. describ*ing*, recogniz*ing,* research*ing.* Learning objectives are normally worded to describe what learners should be able to do as a result of achieving the standard i.e. describe, recognize, research etc • Many of the objectives are at the lower end of demand, at least in terms of their wording in relation to thinking (understand, recognize etc) , although there are a few that demand higher order thinking (apply, analyse, create, evaluate etc). This balance should be addressed to ensure learners deepen their subject learning through a greater focusing on the learning process. • Many of the processes / research and language objectives could be addressed simultaneously with the teaching of related conceptual knowledge objectives. The guidance should stress the importance and value of an integrated approach. • Some of the objectives are not precise enough. For example, o *CNQU2MOA019. Research the heat of combustion for food and fuels.* It is unclear whether the expectation is that learners should carry out a practical experiment or do some desktop research. o *CNQU3MOA009. Acknowledging the mining activity in Brazil…* 'Acknowledging' is a very imprecise word.
Rigour of objectives compared to other curricula of reference?	• There are serious issues in terms of the rigour of objectives. Many of the words used are imprecise and could be interpreted as expectation of a low standard. • Some of the wording of the objectives is inappropriate for a high level course. For example: o CNQU3MOA014. says that learners should *'**Study** the production of alcohol… '.* Study' does not imply any particular standard and could cover a wide range of outcomes from cursory to intensive. o CNQU1MOA004. Says *'Recognizing and performing different forms of reuse and recycling of materials that belong to our daily routine'.* This does not reflect the kind of demand expected of a High school level

	learner. o CNQU3MOA002. *Identifying carbon, nitrogen and sulfur cycles, and their importance for the atmosphere's chemistry*. 'Identifying' could be interpreted simply as being able to tell each cycle apart rather then having a deep understanding of each. • There is a need to review all learning objectives and double check that rigorous expectations are clear and there is no room for misinterpretation.
Coverage of the principles described in the preliminary documentation and introductory texts?	• There is no specific reference to the rights in this section and no indication that any account has been taken of the overall guidance to all subjects.
Balance of knowledge, understanding, skills and competences?	• See comment above under 'Number and quality of objectives' relating to balance of 'know and understand' as opposed to more demanding objectives. • Setting out the learning under the four axis headings ensures there is a focus on knowledge and understanding (Conceptual knowledge & Historical, Social and Cultural Contextualisation) and on skills (Processes / Research & Language). • There does not appear to be any clear overall guidance with respect to the competences to be addressed in the knowledge areas. Consequently the approach to competences is haphazard. Some of the languages objectives have a clear focus on developing communication but some of these are very imprecise, for example CNQU3MOA007. *Developing communications about the environmental problems studied, aimed at raising population's awareness on the subject.* This could be interpreted in a range of ways, not all of which are at a high enough level of demand. • There is a little evidence of problem solving, of critical thinking and of creativity but there is not a coherent approach to addressing these competences.
Is there coherence within each grade?	• The learning across the four axes within each knowledge unit is clearly coherent in the vast majority of cases. • Since there are only two units in each grade coherence within grades is clear. • There is no explanation of the rationale behind the sequence of the knowledge units or behind the selection of the two units addressed at each grade.

	Grade 1: Knowledge Units 1 & 2 Grade 2: KUs 3 & 4 Grade 3: KUs 5 & 6 The units are arranged in a logical sequence and it would be good to have this explained in the text.
Comment on scope and sequence from grade 1 to 12. Are any key concepts/ideas missing? Are any unexpected/unusual topics included? Is anything misplaced (earlier/later than expected / usual)?	• The organization of the units is described in the section above. • How the learning is divided between the three years of High School is less significant than alignment of learning with the developmental stages learners go through in Elementary School so there is no cause for concern in this respect.
Is there clear learning progression from year to year? Is it evenly balanced throughout the years?	• Since the units covered in each grade are focused on different topics there is limited scope for interlinking between them.
Expectations in line with other international comparators?	• Expectations are broadly in line with international comparators in terms of knowledge development but the comments above need to be heeded in relation to writing unambiguous objectives with high, outcome-based expectations of learners. • The issue re comparability in relation to development of competences and skills has been covered in other sections.
Any other comments, for example in relation to the potential impact of the standards on outcomes of	• The focus in PISA tests on application of learning and the increasing trend towards developing and assessing global competences underlines the importance of ensuring that learners are capable as well as knowledgeable. • The importance of knowledge is clearly expressed in these standards.

international tests such as PISA,TERCE,TIMMS, PIRLS	• The processes/research and languages axes do involve engagement in active learning but there is not a clearly expressed strategy for progressive development of skills and competences. Indeed there is not an overall list of competences for the knowledge areas to collectively address. Without this there cannot be a coordinated curriculum-wide approach to competency development.

ANALYSIS OF THE BRAZILIAN NATIONAL LEARNING STANDARDS

Prepared by the Australian Curriculum Assessment and Reporting Authority - ACARA

acara
AUSTRALIAN CURRICULUM, ASSESSMENT AND REPORTING AUTHORITY

November 2015

BRAZILIAN NATIONAL LEARNING STANDARDS

This initial limited review of the Draft Brazilian National Learning Standards was undertaken by a small team from the Australian Curriculum Assessment and Reporting Authority (ACARA). The review is limited owing to the extent of material reviewed and time constraints on the level of analysis owing to ACARA's other work plan commitments. In undertaking this limited review ACARA considered the Guiding Principles and Key Capabilities and supporting text as well the learning areas for three areas provided for analysis: Portuguese Language; Mathematics and Natural Science. It is acknowledged that the material reviewed had been translated into English and it is possible that some terminology and expressions may be misinterpreted owing to some literal translations.

ACARA supports Brazil in its efforts to develop a national curriculum and congratulates the Government for taking this important step.

Guiding Principles of the National Learning Standards

The 12 guiding principles and 8 key capabilities are aspirational and would require a curriculum that emphasises student engagement with contemporary issues, the development of inquiry skills, critical thinking skills and the development of particular attitudes and values. However, it is not clear that the standards as described through the knowledge areas available for this initial analysis (Languages [Portuguese Language]; Mathematics and Natural Sciences) would fulfil the promise articulated through the twelve principles and eight key capabilities.

The twelve principles are heavily weighted in the affective domain. Academic rigour is not emphasised. Individualism is a strong thread in the principles but aspiration, personal excellence and valuing formal academic achievement is not emphasised. Learner diversity and ensuring the curriculum caters for all learners are also not recognised.

Personal and social attributes are emphasised in the principles over knowledge and skills – enjoyment and nurturing, for example, are given as strong messages, however, education that promotes intellectual challenge to build a clever, work-capable nation is not. Again, there does not appear to be alignment between the standards articulated in the knowledge areas and what the principles describe.

The curriculum structure is organised through four knowledge areas under which the learning standards are presented. In part this simplifies the curriculum for teachers, however the grouping of some subjects/learning areas appear forced together for

convenience (or assumed alignment), this is particularly the case in the Languages area.

The five integrated topics appear to have been set as priority areas for Brazil. They present for the reader a strong indication of what to expect to see as themes embedded across the four knowledge areas. These themes are not observable in the material considered in this initial analysis.

LANGUAGES (Portuguese Language)

The introduction to the content is very idealistic in terms of the acquisition of contemporary skills and capabilities, however there is no evidence of 21st century learning within the content.

The inclusion of four such diverse areas of learning as Portuguese Language, Modern Foreign Language, the Arts, and Physical Education as components of the same curriculum knowledge area is problematic. The knowledge and skill demands of these areas are quite diverse and writing a curriculum that enables teachers to fully equip students with the necessary knowledge and understanding in all four areas would be very difficult and likely to produce a diluted curriculum with inauthentic and purposeless links drawn between the four areas. The document states that 'language is the connecting link' between the four areas – it could be argued that language is needed to learn in all four areas, however language is also needed to learn in the other areas including mathematics, natural sciences and human sciences.

It needs to be emphasised that learning an additional or foreign language and learning Portuguese are not readily interchangeable or even parallel as the purposes for learning these languages are different. At this stage it is difficult to ascertain if this is recognised in the material presented.

Learning a foreign language requires a curriculum that will drive different pedagogical approaches to those used in learning the language of the social, educational and economic interaction of the society. The curriculum should outline different levels of proficiency in Portuguese to those for any other language.

Some clear messages about literacy are missing – fundamentals like decoding need to be stronger and foregrounded in the goals. There is not a strong message about literacy as a critical tool for learning – literacy for this purpose should be emphasised.

The language area makes a number of references to writing but very few references to reading and no references to comprehension, though the need to read and comprehend is implicit in the goals of the higher levels. This again relates to a need to address fundamental literacy in the early years.

The goals use the recognised successful approach of organising learning in the curriculum so that students in the early years deal mostly with familiar concepts and themes, with direct relationships to their own lives. As students move through school learning experiences are based on more remote contexts outside the students' own experience. This is a positive aspect of the standards presented for Portuguese Language.

The expectations/rate of progress as articulated in the standards seems slow, for example 'command of the alphabet' is expected 'by the end of the third year in Elementary Education' – this is a very low expectation. However the expectations of students by the end of high school, for example: to use language critically appropriate to the social context and in line with societal and work demands are quite demanding. Therefore, stronger emphasis on ensuring mastery of literacy basics in the early years is more likely to support the achievement of the more aspirational expectations of the later years.

MATHEMATICS

The content is quite aspirational up to the end of 8th Grade. The standards as presented would be challenging for learners though this is not maintained from Grade 9 onwards.

There are some sequencing issues where there is assumed knowledge in one year while the actual content is not taught until the following year (eg in 9th Grade MTMT9FOA172 'Determine the distance between any two points …located in the Cartesian plane without using formulas' this require students to have some knowledge of Pythagoras but this is not covered until 10th Grade).

It is a concern that there is only one mathematics course for 11th and 12th Grades and no opportunity for differentiation of courses to meet the needs of students taking different pathways after 12th Grade.

There is no reference to calculus in the 11th or 12th Grades, unlike other mathematics courses around the world. This is a significant omission.

NATURAL SCIENCE

There are general aims/objectives defined for the curriculum; however these are not common across all levels of learning (elementary, high school).

The natural science standards follow a different structure to the languages and mathematics knowledge areas. While this might be defensible, there is no justification provided. The use of the unit structure is helpful in part. The descriptions of what the units will involve and the key questions to be explored do not always match what is articulated in the standards, which are primarily knowledge focussed.

The scope and sequence offers a broad range of areas for study some of which would be considered beyond contemporary science curricula of other countries.

The four axes around which the curriculum is built are fundamentally sound. These align with contemporary science curriculum and are identified within each of the 'topic areas'. However, this means the structure of the curriculum is based around the 'topics' not the essential elements required to be learnt.

There is some evidence of a scope and sequence related to the above topics and axes within topics; however, the standards document looks incomplete making the continuity and scope and sequence less obvious. It appears an incomplete curriculum.

The content as described relates well to the topics list. However, there is not a strong connection to the 12 guiding principles or the list of 8 general capabilities. In other words, the integration of these principles into what the students are expected to do in science is not obvious.

There are standards for what students are expected to be able to do, however the statements are "knowledge" focussed. There does not appear to be a progression of difficulty for what students are expected to do (ie an identifiable development of skills). The level of difficulty is more related to the complexity of the knowledge to be acquired than what students are expected to do with it; hence the standards lack structure and a sense of learning progression.

The full spectrum of contemporary accepted science content is covered in the earlier years of schooling (typically Biology; Chemistry; Physics and Earth Sciences). However, Earth Sciences is missing from the high school curriculum.

BRAZILIAN NATIONAL LEARNING STANDARDS

ANALYSIS AND RECOMMENDATIONS

Prepared by Phil Daro, coordenador de Matemática do Common Core

December 2015

BRAZILIAN NATIONAL LEARNING STANDARDS

ANALYSIS AND RECOMMENDATIONS

Phil Daro

Specific comments and suggestions have been incorporated through "track changes" in the attached copy of the translated Standards. This analysis will summarize and formulate the most important recommendations for improving a good draft. Because the purpose of the analysis is to inform revision of the draft, it will feel iighted in the direction of what needs changing. This iighting for improvement should not be interpreted as heavy criticism of the draft. It is a good draft. It does need systematic attention toward making progressions of topics through the grades more coherent. Our recommendations are included below:

Mathematical Expertise

1. The Introductory text for Mathematics is eloquent. It will support aspirations but, like any text rich with meaning, it will suffer the degradations that come from an over-advised and under-resourced distribution of practitioners working under the pressures of time and difficult conditions. To increase the impact and practicality of the ideas in the introduction, an enumerated list should be distilled from the text and declared "Standards". The Common Core in the U.S.A. with similar intent created eight "Standards of Mathematical Practice". Each describes a particular expertise students should develop over and above learning content.

We recommend Brazil do something similar, using its Introductory text as an introduction to Standards of Practice. Without enumeration and formal designation as Standards, the management systems surrounding instruction cannot digest practices. Avoid mixing teaching practices with student practices. The Standards of Practice should address student expertise exclusively. Keep the number of expertise Practice standards to seven +/- 2. It is best if different versions can be constructed for elementary and secondary.

Progression across grade levels

2. Although many of the standards are well made, there is too often a lack of well designed progression across grade levels in particular domains where there are important dependencies of new knowledge and expertise on prior knowledge and expertise. This is most severe in elementary and lower secondary. Within a particular domain, for example 'fractions', the standards should form a sensible progression over the grades.

The importance of progressions goes beyond the obvious need to build adequate foundations of knowledge each year for successive years. Even in favorable circumstances, each classroom will have many students who function at below grade

level stages of a progression for a given problem on a given day. Consequently, teachers have to work with a multi-grade stretch of a progression everyday. This is a normal condition in every nation. Having a well designed progression in the Standards can make this everyday job of the teacher more practical and successful.

I strongly recommend an organized and deliberate project to write progressions across grades for each of the high priority domains (see Recommendation 3, below for suggested high priority domains). The standards themselves should be derived from these progressions.

Example, Fractions:

Standards for fractions should be based on a progression. A fractions progression, for example, begins from concrete part/whole and sharing situations. But students should not be lead into a maze of complexities in the world of part/whole and sharing. Instead, they should develop concepts of fractions as an extension of prior understanding of number and measurement, as should be explicit in the standards. Visual models play a critical role with fractions and should be explicit in the standards, especially in grades 3-5. As efficiently as possible, visual models should progress toward deepening knowledge of the number line.

By defining unit fractions as numbers, the properties of numbers already learned can be extended to fractions. It is essential to make this explicit. We recommend doing this in a grade 3 standard. Unit fractions are numbers. The representation of quantities and numbers already in use should be extended to fractions in a systematic fashion. In particular, the number line is essential for understanding fractions as numbers. And fractions are essential for understanding the number line.

Yet the number line is difficult mathematics in its own right, so it needs its own development. This development begins with measurement of length and the sense of numbers that grows from measurement. Work with rulers and length in grades 1 and 2 are important building blocks for the number line. Adding and subtracting lengths, student drawn diagrams of operations with rulers should be explicitly part of grade 2 standards.

In grade 3, unit fractions can be defined concretely as numbers on the number line obtained from partitioning the length from 0 to 1 into equal parts. comprehending this definition will take time and depends on prior work with concrete part/whole tasks, and equal sharing, partitioning tasks. The number ¼ is the point exactly one partition from 0 when the length from 0 to 1 is partitioned into 4 equal parts. The number ¼ behaves just like the numbers 1,2,3 do on the number line. Students can also learn that numbers have more than one name. ½ and 2/4 are two names for the same number. 2/2, 3/3, and 4/4 are different names for 1. Restrict to simple fractions. That's enough for grade 3.

In grade 4, students go further into equivalence, relying heavily on concrete and visual models. They learn how to generate equivalent fractions by multiplying numerator and denominator by the same number. They understand why this makes sense with visual models including the number line. They also learn that ¼ + 1/4 + ¼ = ¾. Any fraction can be written as the sum of unit fractions. Unit fractions can be counted just as students learn to count 10s (32 is 3 tens and 2 ones) or objects. 3 tens + 4 tens is 7

tens. 3 quarters + 4 quarters is 7quarters (7/4). They also learn that ¾ = 3 x ¼. Any fraction can be written as the product of a whole number and a unit fractions.

In Grade 5, work with unit fractions and the number line flows together with work on equivalent fractions to form the basis for arithmetic with fractions with unlike denominators. Students learn to add and subtract fractions with unlike denominators by changing the fractions to equivalent fractions with like denominators. Like denominators means the same unit fractions. Adding and subtracting are a direct extension of arithmetic with whole numbers once we have the same unit fractions. Note: "least common denominator" is an unnecessary distraction from the more important idea of equivalence and is best omitted from the standards.
Also in grade 5, the area model used for whole numbers can should be extended for fractions. The unit squares which compose the area of rectangles with integer sides can be partitioned according to the definition of fractions. ¾ x 2/5 results in the 1 x 1 square partitioned on one side into 4 parts, and the other side into 5 parts. The resulting ¼ by 1/5 rectangles can be used to compose the product as a fraction of 1x1, 1 square unit. This extension of area model should be explicit to strengthen the progression.
In grade 6 and on, the value of a ratio a:b is the number a/b. This can only make sense to students if they have a firm grasp that a/b is a number.

Priorities for Progressions

3. In elementary grade standards, We recommend prioritizing the following domains for progression design:

Number

1. Base 10 decimal system and calculation with base 10 numbers
2. Operations and algebraic reasoning (writing number expressions and equations for different types of problems)
3. Fractions

Measurement and magnitude

4. Length measurement, numbers from measurement, operations (+,-,x,/) on measures using rulers and visual diagrams leading to number line
5. Length as a representation of quantities with non length units, such as elapsed time, leading to representation of rates with derived units in coordinate plane.

Geometry

6. Reasoning with properties of shapes
7. Area, composing and decomposing areas, support for operations with numbers (area model of multiplication, distributive property,etc)

Statistics

8. Data as a context for deepening expertise with number, table structures and visual representations of number situations and graphs.

Data and Statistics

4. Statistics is a wonderful and important domain for all students. Yet, its development over grades can be a challenge. Ideas like randomness, probability, independence and

conditional require adequate cognitive readiness. There are many questions about developmental readiness for these ideas. We should not rush them into grade levels where many students will not be ready. Because time has to be budgeted in any case, work with data in the early grades should have modest ambitions vis a vis understanding statistics. Instead, data tasks should be used freely to extend and deepen understanding of number. Data situations can be naturally motivating for students. As students mature, the core ideas of statistics can be introduced and developed, but this may well come after grade 5. The progression for statistics should be developed with these considerations in mind.

Measurement

5. Aspects of measurement that support understanding of number, magnitude and relationships among magnitudes should be developed coherently. Of particular importance is the foundational role of length for representing number (and eventually variables) on number lines and in coordinate spaces. For these concepts and representational tools to be accessible to students, they need experiences with measurement of length as a representation of other quantities, for example elapsed time. This should be explicit in the standards.

An important progression extends from measurement to the study of rates in grades 6,7 and 8. This culminates in double number lines coordinated at 0 and coordinate graphs. Analysis of units and derived units should be explicit as part of making sense of real world situations involving relationships among quantities.

Functions

6. There should be more emphasis on functions in 8^{th} and 9^{th} grade in exchange for less emphasis on solving equations. A progression drawing on quantities from measurement to variables in proportional relationships to linear functions and their graphs can be well supported by concrete situations. Ratios should be explicated in the standards as a building block for proportional relationships rather than as a special type of problem to learn how to solve by special methods.

BRAZILIAN NATIONAL LEARNING STANDARDS

ANALYSIS AND RECOMMENDATIONS

Prepared by Sheila Byrd Carmichael

January 2016

Review of Brazilian National Learning Standards (NLS): Portuguese Language
Sheila Byrd Carmichael, January 2016

I. Documents Reviewed

The following documents were examined when conducting this analysis:

- *Brazilian National Learning Standards: Excerpts of Preliminary Version (Unofficial Translation), Sections One through Five, entitled:*
  - *Guiding Principles of the National Learning Standards*
  - *Preliminary Document to the National Learning Standards*
  - *Introductory texts for the Area Languages*
  - *Introductory texts for the Curricular Component Portuguese*
  - *Learning objectives for the Curricular Component Portuguese*

II. Organization of the Standards

Preceding the actual standards, called the "Learning Objectives for the Curricular Component Portuguese," are several lengthy introductory sections that 1) explain the "Guiding Principles" for the "National Learning Standards" generally (i.e., for all content areas, "Languages, Mathematics, Human Sciences, and Nature Sciences"); 2) describe the "Principles, Organization Method, and Content" for all content areas; and 3) outline an approach to the study of languages not typically observed in sets of English language arts standards in the United States:
In the Common National Curricular Base (NLS), the Languages Area encompasses four curriculum components: Portuguese Language, Modern Foreign Language, Arts, and Physical Education. These components articulate themselves in the sense that they include experiences in the creation, the production and the fruition of languages. Reading and writing a short story, watching a film or a dance performance, playing capoeira, making a sculpture or visiting an art exhibition, are all language experiences (page nine).

While the focus of the actual objectives for the Portuguese language ultimately is on the kind of content and skills usually described in sets of English language arts standards in the United States, the introductory material makes clear that the purpose of the study of languages in this context is "its relevance to the expression of and interaction among the subjects" (page 10). Knowledge of languages, the authors remind us, is "executed not as an end, but as means to a deeper understanding of the ways to express oneself and to participate in the world" (page 10).

1 Throughout this analysis, the author has retained the precise wording and mechanics in this

The standards are presented by grade level (grades one through 12) and fall into six categories, called "Fields of Activity" in the translation reviewed:

- Practices of Everyday Life (grades one through eight)
- Artistic and Literary Practices
- Political and Citizen Practice
- Investigative Practices
- Cultural Practices of Information and Communication Technologies
- Work World Practices (high school only)

These categories seem designed to reinforce the theme of integration that characterizes the approach to language study in the NLS. They reflect the authors' assertion that language is "a means of interaction between subjects…" (page 18) and convey the importance of "contextualization of school knowledge" (page 19).
A series of "learning objectives" (hereafter simply "objectives") describe gradespecific expectations within each category.

III. Methodology for Analysis

This analysis of the standards conveys the ways in which the standards do or do not address the "ELA-Content-Specific Criteria" established by the Thomas B. Fordham Institute (TBFI) for its State of State Standards report in 2010.2 These criteria fall under the following categories:

1. Reading
2. Writing
3. Listening and Speaking
4. Oral and Written Language Conventions
5. Research
6. Media

2. The complete report, including the criteria, is available here. See also Appendix A for a copy of the criteria.
These criteria (see Appendix A) guided the reviewer to examine the standards and objectives in the most comparable NLS language categories or, more often, in a number of the NLS language categories since the NLS categories and the Fordham categories are quite differently conceived. For example, the TBFI criteria for "Research" standards guided the reviewer to examine objectives in at least three NLS language categories, "Investigative Practices," "Cultural Practices of Information and Communication Technologies," or even "Work World Practices" in order to account for differences in organization. This review also considers the "Clarity and Specificity" criteria for the TBFI 2010 report, the "top" score point descriptions for which (a 3 out of a possible 3 points in that analysis) are noted here: Standards are coherent, clear, and well organized.

1. The scope and sequence of the material is apparent and sensible. They provide solid guidance to users (students, teachers, curriculum directors, test

developers, textbook writers, etc.) about the content knowledge and skills required to do well on the exam. The right level of detail is provided. .

2. The document(s) are written in prose that the general public can understand and are mostly free from jargon. The standards describe things that are measurable (i.e., can lead to observable, comparable results across students and schools). The standards as a whole clearly illustrate the growth expected through the grades.

Please note that The Thomas B. Fordham Institute was not consulted in any way for this review, nor were any of its employees asked to examine Brazil's standards for this review.
No scores have been assigned in this review; the criteria simply provided a benchmarking scheme for the reviewer, who had helped develop the criteria, and who maintains their efficacy for evaluating K-12 ELA standards. Results of the holistic analysis are summarized in the following section, Section IV.

IV. Summary of Strengths and Weaknesses

In general, the strength of the standards is the laudable nature of their stated goals, for example:

1. The standards acknowledge the importance of integration across content areas.
2. The standards prioritize the "real world" applicability of the grade-by-grade objectives.
3. The standards communicate the need for students to understand and use language in ways that promote good citizenship.
4. The standards encourage curiosity both within and outside of the classroom. In addition, the standards exhibit some particularly interesting additions, not seen often enough in U.S. standards, such as requiring memorization and recitation of literary works.

Much of the discussion that follows regarding the weaknesses of the objectives, however, will concern the fact that the lofty goals above and others stated in introductory materials (such as those on page 20) do not necessarily translate well into specific, actionable, and measurable or observable expectations for students in school classrooms.
Despite the acknowledgement that these standards comprise only the "common basis of the curriculum of every Brazilian school—a basis that is not the entire school curriculum but part of it" (page six), they largely eschew the rigor, coherence, and specificity that should characterize even basic common expectations for all students. The standards do state that "a diversified curriculum" must be added to the "common core," one that:

...must be built in consonance with the common core and with the realities of each school—in respect not only to local culture but also to the choices of each educational system regarding the experiences and knowledge to be offered to students throughout their schooling. (page six)

Such language only exacerbates, unfortunately, the potential for inconsistency in the quality of curricula across school districts, schools, and perhaps even classrooms.

In this way, the NLS language standards seem to emulate the Common Core State Standards (CCSS) for English Language Arts in the United States, which also concede that they must be "complemented by a well-developed, content-rich curriculum" (CCSS, page six). In both cases, the assurance of a consistently rigorous curriculum for all students remains elusive because of the myriad ways in which these sets of primarily skills-based standards may be interpreted and implemented. That said, the CCSS arguably does more to ensure the quality and complexity of "inputs and outputs" through its appended discussions of "text complexity" and "close reading," as well as its "Text Exemplars," "Sample Performance Tasks," and "Samples of Student Writing."

The weaknesses in the current draft of the NLS for Portuguese discussed below come in the form of gaps, redundancies, idiosyncrasies, and—in the aggregate—a general lack of specificity and coherence that makes it hard to say that they exemplify language standards that will guarantee rigorous, coherent, and consistently implemented curricula in classrooms. In general, the standards could be improved remarkably by editing the heavy use of academic jargon, reorganizing the objectives into more distinct categories or strands; making the content more rigorous (especially in grades one through eight), more sequential, and more coherent both within and across grade levels; including a list of exemplar texts and/or authors; and adding sample student tasks, scoring rubrics, and student work—accompanied by scoring criteria and annotations that explain why the sample student work meets the objectives.

These refinements are achievable without sacrificing the worthy goal of establishing an integrated curriculum. It is possible to convey the content and skills unique to the various disciplines and to do so in an integrated context. Eminent education historian, Arthur Bestor, long ago observed that "...many offerings in the liberal arts and sciences have failed to provide the intellectual discipline which they promise." In that spirit, he suggests, we can and must train students to think, for example, like historians, literary critics, scientists, and mathematicians. Accordingly, students can learn to use each discipline to its advantage in the service of any manner of "integrated" intellectual challenges in the future. "The answer," Bestor confirms, "is not to banish the scholarly and scientific disciplines, but to hold them rigorously to their task."3 Brazil would be wise to consider how to make its language standards reflect more clearly the unique and important aspects of the discipline of language study first and foremost, and then consider the most efficacious way to integrate the discipline with others as they subsequently develop integrated curricula. As is, the standards do not clearly convey the most essential content and skills unique to the study of Portuguese.

3 Arthur Bestor, Education Wastelands, (Urbana and Chicago: University of Illinois Press,1953), pp. 20-21.

Following is detailed commentary (particularly about reading), organized by the TBFI criteria described on pages two and three ("ELA Content-Specific Criteria" and "Clarity and Specificity).

ELA Content-Specific Criterion 1 (Reading)

Reading Acquisition

The objectives for reading acquisition are erratic and not described in a systematic way that would help ensure the quality of reading instruction in early childhood and elementary programs nor the careful treatment of both literary and informational text throughout the grades.

An added section for grades one through three called "Alphabetic/Orthographic Written System and Writing Technologies Acquisition" contains some objectives related to reading acquisition skills (including some expectations for learning to write), but it is disjointed and uneven in its detail. For example, one packed objective in grade one states:

Perform phonological analysis of words, segmenting them orally into smaller units (parts of words, syllables), identifying rhymes, alliterations, and observing the sound function of phonemes in words; relate the sound elements to their written representation.

This one objective addresses related but also distinct content and skills that must be taught in a particular sequences (starting sooner than grade one) and delineated in detail for teachers.

Other objectives are at once odd in their juxtaposition of content, as well as vague, such as this objective, also from grade one:

Write your own name and use it as a reference in order to write and read other words; build phoneme/grapheme connections.

How do students use their names as reference points for reading and writing other words? How do they "build [knowledge of?] phoneme/grapheme connections," and how will teachers assess that "building" unless the sequence of phonemes and graphemes is detailed in the objectives?

Many objectives are simply too vague to be understood and their purpose gleaned, such as the grade two objective in this category:

Understand the function and importance of storage and text circulation spaces such as the school library, websites, bookstores, newsstands, etc.

A recognizable progression of rigor in reading skills acquisition is also absent. For example, a grade one objective states:

Recognize that syllables vary in their consonantal-vowel combination (i.e. learn the following syllable patterns: CV, CCV, CVV, CVC, V, VC, VCC, CCVCC) and that vowels are present in all syllables in Portuguese.

The second grade objective, presumably designed to address a new level of content and skills acquisition in this realm essentially restates the same objective:

Recognize that syllables can vary as much as the combination of consonants and vowels (CV, CCV, CVV, CVC, V, VC, VCC, CCVCC); recognize vowels are present in all syllables in Portuguese.

Mapping the objectives into more specific categories (e.g., "Phonemic Awareness, Phonics, etc.) in a side-by-side fashion, as here, might help writers and users recognize and fill gaps in content and eliminate redundancies within and across grades.

Grade One Grade Two Grade Three Grade Four...

Objective 1

Objective 2...

Treatment of Literary and Informational Texts

The objectives for analyzing literary and informational texts are also erratic: they sometimes address specific genres and characteristics of genres (including various literary devices); sometimes not. They sometimes detail approaches to reading various kinds of literature or informational text; sometimes not. Understanding and explaining the structures of literary and informational texts are not addressed in any systematic way; and, overall, it is difficult to tease out a coherent progression of content and skills in terms of how to analyze the many genres of literary and informational texts—including literary nonfiction—because the overlapping expectations are spread among the vague categories of "Literary and Artistic Practices," "Political & Social Citizenship Practices and "Investigative Practices."

"Literary and Artistic Practices" is perhaps the most straightforward of the categories and does addresses some aspects of analyzing "literary" texts, though few genres or their defining elements are delineated in systematic detail. Neither are stylistic devices discussed in much detail, except in high school, and even then rather sporadically. More often, the expectations are a strange mix of very vague or oddly specific expectations, as in the following set from grade four:

Literary & Artistic Practices

This axis deals with participation in situations involving reading/listening and oral/written production while creating or enjoying literary productions that both represent cultural and linguistic diversity and favor aesthetic experiences.

> LILP4FOA120. Read, appreciate, and reflect about traditional literary texts of popular, African-Brazilian, African, and Indigenous cultures, as well as of other peoples' cultures. Comprehend some of the characteristics of those texts.
>
> LILP4FOA121. Recount fables using the characteristics found in the source text.
>
> LILP4FOA122. Watch/Listen attentively and with an interest to songs, longer written stories, and theater plays of longer duration.
>
> LILP4FOA123. Orally recount stories they read using some of the techniques employed in storytellers' performances (intonation, voice modulation according to the character).
>
> LILP4FOA124. Recite texts and poems by heart while planning presentation contexts in soirees and recitals.

LILP4FOA125. Recognize the resources used to mark characters' indirect speech in narrative texts.
LILP4FOA126. Produce literary narrations adequately using direct speech markings for the lines of characters.
LILP4FOA127. Understand the sense of humor contained in strip and regular comics by relating text and image.
LILP4FOA128. Comprehend the meaning in poems by understanding words or expressions used figuratively.
LILP4FOA129. Write poems using rhymes and sonority resources.

The first standard suggests that students could read any text of any genre and merely "comprehend some" of their unnamed characteristics—ultimately a meaningless objective. While memorization and recitation are both worthy endeavors if the text is worthy, the texts are not named, so students might be asked to memorize texts of dubious quality and complexity. Why are comic strips deemed worthy of special attention? Fables might easily be explored at an earlier grade level, and no specific forms of poetry are called out here, as they are at some other grade levels (for students to produce, not analyze). Why is the very specific and simple (K or first grade) skill of correctly using quotation marks specified here, at grade four? Where is the discussion of literary elements and of the stylistic devices of specific genres of texts?
The categories in which we might expect to find objectives related to analyzing literary nonfiction (e.g., essays, speeches, memoirs, biographies) do not describe a coherent progression of objectives related to analyzing these or other kinds of informational texts, such as secondary sources pertaining to history or the sciences. Both the "Political & Social Citizenship Practices" category and "Investigative Practices" offer glimpses of the content and skills necessary for understanding and explaining informational texts, but neither does coherent justice to these essential skills or to the content students could be gleaning from such texts. Instead, they encourage political practices, such as formulating an argument, without having delineated what comprises a valid and true argument in the first place—or how to analyze a written or oral argument according to the laws of logic. In grade six for example, students are asked to:
Respond in writing to questions or surveys requesting a critical position; use consistent arguments and linguistic diversity that are appropriate to the communication requirements.
In grade seven, students must:
Recognize the points of view and the arguments that make the case for those views in different genres of communication, such as interviews, debates, opinion pieces, political discourse, religious preaching, charges, etc.
By high school, the expectations in this area become slightly more specific and rigorous, as in these grade ten "Investigative Practices" objectives:

LILP1MOA244. Recognize organization forms and linguistic features of genres related to knowledge production; take topical organization into consideration (i.e. from general to particular, from particular to general, etc.).

LILP1MOA245. Create summaries of didactic texts and of scientific publishing texts; recognize the typical characteristics of the summary-genre; comprehend that a summary, beyond its many social uses, is a strategy for reading and for studying.

LILP1MOA246. Create scripts for the oral presentation of study and survey results in conferences, science fairs, and other school and academic events; self-evaluate the oral presentation performance; evaluate the performance of other students in their oral presentations.

Still, the expectations could be more specific and assessable: how can we assess whether or not students "take topical organization into consideration" when recognizing "organization forms and linguistic features of genres related to knowledge production"? These phrases may be murky because of translation issues, but the skills necessary for analyzing various of kinds of informational texts must be described clearly, especially so that Brazil's high school graduates will have been well prepared for the postsecondary world, where these kinds of texts are omnipresent.

Finally, where reading is concerned, NLS for Portuguese do not meet two key criteria set forth by the TBFI for reading: 1) that they "reflect the importance of reading grade-appropriate works of outstanding [Brazilian]4 literature that reflect a common heritage," and, 2) that they describe the amount, quality, and complexity of both literary and non-literary texts to be studied through the use of lists (authors and/or titles), sample passages, and/or commentary.

A typical objective under "Literary and Artistic Practices" is the following grade four objective:

4. The TBFI criteria reference American literature.

Read, appreciate, and reflect about traditional literary texts of popular, African-Brazilian, African, and Indigenous cultures, as well as of other peoples' cultures. Comprehend some of the characteristics of those texts.

As noted earlier, this kind of objective essentially conveys that teachers may teach any texts at all and that students may "read, appreciate, and reflect" on those texts in any way at all; how will such appreciation and reflection be assessed?

The NLS could vastly improve the clarity and rigor of its reading standards by making expectations for reading much more explicit and by appending a list of authors and texts that students should read, or—at the very least—a list of exemplary authors and texts that would clarify the quality and complexity of texts to be studied at each grade level.

ELA Content-Specific Criteria 2 (Writing)

Writing, in its various necessary forms, is not addressed in a category of its own. As with reading, the writing objectives appear sporadically in most categories, but with no particularly obvious progression in rigor across the grade levels. Teachers would have to search and find the writing objectives in the various categories, and students would be writing a certain type of poem at one grade level, developing a narrative at another, or creating "argumentation-genre texts" ("using different types of arguments") at yet

another level. Mostly, the objectives provide minimal direction and/or apparent purpose. At times, the objectives do get more specific and the purpose is clear.
In grade five, for example, under the category "Cultural Practices of Information and Communication Technologies," students must:
Write/produce e-mails, messages, photographic and audiovisual register for online posting in virtual spaces used for school activities such as chat rooms, Twitter, and blogs.
It's difficult to understand exactly what is expected of the student here—and why. Is writing Twitter posts the best use of students' time? In grade ten, however, under the category of "Investigative Practices," students are asked to:
Create summaries of didactic texts and of scientific publishing texts; recognize the typical characteristics of the summary-genre; comprehend that a summary, beyond its many social uses, is a strategy for reading and for studying.
This objective is much more specific and its purpose clear (although it could be improved by naming the "characteristics" mentioned). More consistency in "grain size," detail, and discernible purpose is recommended.
It is difficult, therefore, to track a clear and specific progression of how students are meant to employ the writing process in the service of various writing genres at each grade level. Learning the writing process itself does not appear as an expectation in the standards, nor is it anywhere is clearly defined (though the introductory material does mention it).
Many genres of writing are mentioned, but the objectives would be much easier to teach and more efficacious if they were to delineate the characteristics and quality of the writing products for each of the genres (e.g., narration, exposition, argument, persuasion) appropriate at each grade level. It would be ideal if the standards were to append exemplars of the kind of student writing expected and annotations that explain why the writing meets the objectives at each grade level.

ELA Content-Specific Criteria 3 (Listening and Speaking)

As with writing, no "Speaking and Listening" strand exists in the NLS standards for language, though the "Cultural Practices of Information and Communication Technologies" category description suggests that the category addresses, among other things, "listening and oral production… disseminat[ing] and preserv[ing] information, experimentation and creation of new languages and forms of social interaction." At a number of grade levels, however, listening and speaking skills are not discussed in that category at all. In other categories, such as "Investigative Practices" and "Everyday Life Practices," some speaking and listening skills do appear, and occasionally oral presentations and "retelling" skills are presented under "Literary and Artistic Practices," as in grade nine:
Orally recount the plot of cinematographic and theatrical productions; reconstruct the various planes and languages that constitute the narrative sequence.
The objectives for speaking and listening could certainly be more detailed, and organized in ways that more clearly convey expectations for both informal and formal class discussions (such as Socratic Seminars), as well as for presentations. The

standards only obliquely address requirements for formal presentations and do not address at all the expectations for informal discussions and the "rules" that should govern classroom discourse in general.
Including examples of potential informal and formal discussions (and the inclusion of evaluation rubrics, such as this one from the Brooklyn Latin School—used for evaluating individual performance in a Socratic Seminar) would also help teachers understand these difficult-to-assess expectations and how to hold students accountable for them.

ELA Content-Specific Criterion 4 (Oral and Written Language Conventions)

The NLS standards do not contain any objectives for oral and written language conventions. A search for the word "grammar" revealed only a handful of rather incomprehensible references (perhaps a translation issue?) in the introductory materials:
The language is considered as a poly-system that aggregates multiple varieties, as the social situation of oral use, reading and writing. The awareness of the variation and changes in the language, and the appreciation of all varieties as having an effective and legitimate grammar are therefore decisive for the way to conduct the work facing the linguistic knowledge from the teacher. The appreciation of the different varieties of language implies appreciation of different social identities.

(and)

The approach of grammatical categories (phonetic / phonological, morphological, syntactic, morphological and syntactic) and writing conventions (concordance, regency, orthography, punctuation, accentuation etc.) should come in the service of oral comprehension and written and oral and written production, and not vice versa. In this way, the linguistic aspects covered in activities of reading, writing and speaking, can broaden the knowledge of the students in relation to varieties that they still don't dominate, without disqualifying the varieties of origin. As the advance in education, it is expected a gradual increase in the level of systematization and the use of grammatical categories, always in perspective of the USE-REFLECTION-USE, and it is worth repeating, not the accumulation of content disconnected from social-discursive practices of language.

While this reviewer is not familiar with the Portuguese language, certainly it must be governed by rules for grammar and usage (in spite of "variation and changes" deemed legitimate here) that students need to internalize and articulate in order to comprehend written works well, to create coherent written work of their own, and to communicate effectively when speaking, whether formally or informally. Delineating those expectations "in the service of oral comprehension and written and oral and written production" is entirely do-able and necessary for literacy. Including a category and specific expectations for understanding Portuguese grammar should therefore become a priority when revising the standards.

On a related note, vocabulary development seems almost non-existent in these standards, as well, although it is discussed in the introductory material briefly. Vocabulary is mentioned only occasionally, as in this "Political and Social Citizenship Practices" objective in grade seven:

Comprehend texts created within the political and judicial spheres, as well as petitioning texts—examples include citizens' petitions and the Brazilian Statute on Children and Adolescents; analyze text organization (articles, sections, chapters, etc.), morphological and syntaxes features, as well as vocabulary selection.

This objective (and other mentions of "vocabulary") in the NLS for language seem to address vocabulary only as it relates to diction. Developing a deep understanding of etymology and morphology, on the other hand (especially how morphology relates to grammar) will help students increase their vocabularies immeasurably and with confidence as they encounter new words with roots and affixes previously learned.

ELA Content-Specific Criterion 5 (Research)

In order to establish understanding and faithful execution of the research process, standards should identify research as a stand-alone strand, though it would of course remain a cross-cutting proposition, since we know that many ways exist to render research findings, whether orally, in writing, or through mixed media. As is, the Portuguese standards do assign research skills to a category called "Investigative Practices," yet the objectives do not flow logically from early grades, where the research process should be introduced, into more sophisticated kinds of research conducted independently and with specific outcomes explained for the delivery of research findings.

Here, for example, are the "research" standards for grade six:

> LILP6FOA176. Plan and present oral expositions about various topics using study sources provided by the teacher; adjust language (lexical and structural choices) for a school environment context.
>
> LILP6FOA177. Select information from various texts used in research activity identifying the main ideas and presenting them in the form of notes.
>
> LILP6FOA178. Analyze and create lists and tables in order to understand and organized the information contained in explanatory texts used in study and research tasks.
>
> LILP6FOA179. Create surveys about topics relating to various knowledge areas and report the outcomes using lists and charts.

None of these standards relates obviously to those in the previous or subsequent grade, nor do they detail any required components for proficient "oral expositions," "notes," "lists and tables," or "lists and charts." Without further guidance, any manner or conveying findings might suffice here.

While students are asked to consider various types of sources, as in this grade 12 objective, specific protocols for adjudicating the credibility of sources, so critical to responsible research, are not included:

Analyze in oral and written texts of an argumentative nature the strategic use of persuasion features such as title creation, the disclosure or concealment of

information sources, and the use of resources that ascertain or attenuate the stances taken by the author.

The standards could be improved by charting a course in the research process from grade one through grade twelve that is initially more teacher-directed and that gradually releases students to conduct independent research, establishing and refining research questions, locating and evaluating the credibility of sources, and requiring students to render finding orally, in writing, or in mixed media that employ consistent and responsible citation protocols.

ELA Content-Specific Criterion 6 (Media)

As is the case with other strands many "media" expectations referenced in the criteria must be hunted down in the NLS standards, in the "Investigative Practices" category or the "Cultural Practices of Information and Communication Technologies."
In almost all cases, the objectives for analyzing, evaluating, creating, and presenting multimedia works are as vague as in other categories. Following is an example from grade six:
Use multimodal resources for the reception and production of texts in different media (spoken newscasts, radio programming, blogs, etc.).
In today's world, it is essential that students be asked to recognize and evaluate the credibility of sources, identify potential biases and specific propaganda techniques in print and non-print media, and learn how to present information through multimedia in responsible and effective ways.
Instead, the objectives are vague and often not necessarily relevant for academic purposes, as in this grade 11 objective:
Analyze practices that propel the reader into virtual browsing based on searching engines and the selection of visited links in face of the various information services (artistic and literary archives, libraries, and virtual museums), as well as the performance of various daily social actions (purchasing, dating); consider the multimodal nature prevalence of the digital language.
It is hard to imagine exactly how or why students need to perform these vaguely described activities in an academic context.
The standards do not discuss some of the specifically mentioned techniques used in some multimedia formats, such as the effect of various visual and aural techniques or how and why information in print differs from that presented in other media.

V. Conclusion

To summarize, the NLS standards for Portuguese language contain many of the basic elements for strong standards; they simply need to be re-organized so that the essential characteristics of the various sub-disciplines of language are clearly addressed. Those characteristics must also be specifically explained in ways that demonstrate a logical progression in rigor for each sub-discipline across the grades. The ostensible goals of the integrated (though awkwardly artificial) categories, such as

"Political and Social Citizenship Practices" may still be attained if replaced with simple sub-disciplines of language study: in this case, for example, a strand related to the analysis and production of informational text would suffice, along with the treatment of some material in an oral language strand (or "Speaking and Listening" strand).
Among the most urgent recommendations, as discussed herein, are:

1. Streamline and delete repetitions from reading and other strands.
2. Ensure that essential content is not glossed over (e.g., the sequencing of early reading acquisition skills) but rather is included in all content areas.
3. Refine the verbs that introduce the objectives so that they are measurable or observable.
4. Append a reading list or other reading samples (preferably with commentary) to illustrate the quality and complexity of expected reading at all levels.
5. Specifically enumerate the Brazilian or other literature in translation that students should read and understand at all levels.
6. Append samples of the quality and complexity of writing at all levels, addressing especially the differences among arguments, informative/explanatory writing, and the rendering of research findings in various media.
7. Include objectives for grammar and vocabulary development.

Finally, above all, use language that is as straightforward and jargon-free as possible so that teachers and students understand what is expected of them and why.

BRAZILIAN NATIONAL LEARNING STANDARDS

Sue Pimentel

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BRAZILIAN NATIONAL LEARNING STANDARDS

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The language/literacy standards are quite different from the Common Core State Standards in form, structure, and specificity of outcomes. I sense strongly the cultural demands of the Brazilian standards, so I want to focus my comments on strengths and elements you might fortify in the next draft within the confines of those demands.

Though there may be vast differences in the manner in which the two sets of grade-level standards are written and organized, there are several important similarities in the emphases of the Brazilian standards and the Common Core State Standards. They represent vital markers in the college- and career-readiness research and what is needed for good citizenship, including:

1. Argumentation—This includes both students understanding arguments and being able to produce their own. Brazil focuses those standards under the heading of Political and Social Citizenship. The Common Core's emphasis is broader and includes arguments that pertain to historical, scientific, technical, and even literary texts, but both focus on this important college- and career-ready skill.
2. Research and inquiry—another vital college- and career-ready skill.
3. Literacy in other content areas, such as social studies (politics and citizenship) and the arts. Brazil includes a stronger focus on workplace and everyday communications while the Common Core focuses more heavily on literacy in social studies, history, science and technical subjects.
4. Individual freedoms and rights—Brazil does this by dedicating a whole section to promoting these ideas from grade 1 to grade 12. The Common Core focuses on students studying seminal and foundational US docs and the Great Conversation (fight for civil rights) that followed.

In addition, both have a focus on reading and comprehending traditional literature. Here Brazil focuses almost exclusively on Brazilian and African literature while the Common Core focuses on American literature but also includes folktales, fables, myths, and other traditional literature from around the world.

When we were building the Common Core State Standards, we found the college- and career-readiness research to be strong in other areas that I did not see as well represented in your standards. Based on that research, here are some things your writing team may want to consider as they work to refine their draft:

1. Consider defining the complexity of the texts (in terms of vocabulary, syntax, ideas, and structure) that students should be reading as they move up the grades. We found that top performing nations in PISA all define the complexity of what students should be reading. Some did it through required reading lists, others offered sample reading lists, and still others defined the quantitative and qualitative complexity of texts students need to be reading to be prepared for college and on-the-job reading. We opted for the third option because of local control and broader aspects of our culture here in the US.
2. Regarding argumentation: Be sure to focus students' attention on the relevance and sufficiency of the evidence the author is providing and the reasoning he or she is using beyond just techniques and procedures. The standards do mention "cohesion" of arguments which may include evidence and reasoning but I would put those in a parentheses to explain (or add evidence and reasoning explicitly if cohesion means something else).
3. Beyond argumentation, students need to build their knowledge of the world and their vocabularies widely in part to become good readers and writers, but also to have the knowledge they need to live rich and rewarding lives. The introduction to your standards makes this point as well:

   "Thus, while it is intended that children, youths and adults learn to read and listen, building coherent ways for texts of different oral genres, written and multimodal, and to write and speak, producing suitable texts for different interaction situations, it is also expected that they can gain, through reading, writing, speaking and listening, the knowledge that is relevant for their lives."

   That means focusing on content-rich informational texts from the early grades on up. There is some mention of informational texts in Brazil's research and inquiry strand but I would want to see a strand as strong as your Literary and Artistic Practices and Political and Social Citizenship strands dedicated to informational texts. (Again, the research on the connection between students reading and writing abilities and the strength of their knowledge base and vocabulary is long-standing and compelling. In addition, top performers on PISA include strong complements of informational texts in their standards.)

4. Consider including a focus on students supporting their claims (inferences, conclusions, etc.) about what they read with evidence from those texts. This is what students will be required to do on assessments, and more than that, employers and college faculty will insist on the same. Research has shown the ability to extract and use evidence is integral to effective preparation for college and careers. Postsecondary educators expect students to enter college able to support claims with multiple and appropriate sources of evidence. Curiously, we

found here in the US that too often, students were being asked questions about what they were reading that did not require them to actually read the text at all or hardly at all! The standards have begun to change that.

5. One more small comment—I noticed in the early grades that words like "developing interest" and "enjoyment," "respect the rhythm" "experiment," and the like appear in the standards. I understand the sentiment though these are more "standards" or signals for your teachers than they are for students. One wouldn't want to fail or mark down a student because he or she didn't display interest or respect (for rhythm) or enjoyment! They are hard to measure...and maybe that is just fine!