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International Benchmarking of the South African National Senior Certificate (NSC)

Kenya ●

Australia (NSW) ●

Zimbabwe ●

South Africa ●



Two Decades of Education Guardianship
2002 - 2022

International Benchmarking of the South African National Senior Certificate (NSC)

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ACRONYMS

A Level	Advanced Level
AQF	Australian Qualifications Framework
ATAR	Australian Tertiary Admission Rank
CEFR	The Common European Framework of Reference for Languages
ECD	Early Childhood Development
HE	Higher Education
HEI	Higher Education Institution
HSC	Higher School Certificate
IGCSE	International General Certificate of Secondary Education
KCPE	Kenya Certificate of Primary Education
KCSE	Kenyan Certificate of Secondary Education
KNQA	Kenyan National Qualifications Authority
KNQF	Kenyan National Qualifications Framework
MoPSE	The Zimbabwean Ministry of Primary and Secondary Education
NESA	New South Wales Education Standards Authority
NQF	National Qualifications Framework
NSC	National Senior Certificate
NSW	New South Wales
RQF	Regulated Qualifications Framework
VET	Vocational Education and Training
ZGCE	Zimbabwe General Certificate of Education
ZIMSEC	Zimbabwe School Examinations Council
ZNQF	Zimbabwe National Qualifications Framework

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Executive Summary

Scope and Methodology

Ecctis has been commissioned by Umalusi to undertake an international benchmarking and comparative subject analysis for the South African National Senior Certificate (NSC). Umalusi is the Quality Council for General and Further Education and Training. It is mandated, through the General and Further Education and Training Quality Assurance (GENFETQA) Act (Act No. 58 of 2001, as amended in 2008) to quality assure all exit point assessments and approve the release of examination results for all qualifications in the General and Further Education and Training Qualifications Sub-Framework. The NSC is the national school-leaving certificate in South Africa, forming the final three years of a national programme of education which follows a pattern of 4+3+3+3. The South African schooling system is divided into two stages: The General Education and Training (GET) stage (Grades R to 9) and the Further Education and Training (FET) stage (Grades 10 to 12). The GET stage is then subdivided into three phases: The Foundation Phase (Grades R to 3), the Intermediate Phase (Grades 4 to 6) and the Senior Phase (Grades 7 to 9).

Ecctis has deployed its established qualification benchmarking methodology in order to ascertain the comparability of the NSC in the context of the Kenyan, Zimbabwean, and Australian (New South Wales) education systems, as well as in the context of international qualifications offered by Cambridge Assessment International Education and the International Baccalaureate Organisation. Specifically, Ecctis used the following upper-secondary qualifications as comparison points:

- The International Baccalaureate Diploma Programme (IB DP),
- The Kenyan Certificate of Secondary Education (KCSE),

- The New South Wales (NSW) Higher School Certificate (HSC),
- The Zimbabwean Forms 5-6 advanced level (awarded by ZIMSEC),
- The Cambridge Assessment International Education AS & A Levels.

Comparative subject analyses have also been carried out in relation to the similarities and differences between NSC curricula and appropriate comparison points in each qualification in English (as an additional language), Mathematics, Geography, Life Sciences (Biology), and Physical Sciences (Physics and Chemistry).

Key Findings

- The NSC is an effectively designed upper-secondary education qualification which aims to develop higher-order thinking skills and desirable and future-focussed outcomes for students, which should prepare them for higher/further education and the world of work.
- The NSC is a diploma-style award in terms of structure. Students take at least seven subjects, with compulsory selection of First Additional Language, Home Language, Life Orientation (including physical education), and Mathematics or Mathematical Literacy.
- The entry requirements, duration, and mode of study of the NSC are comparable to the other qualifications analysed in this report. All analysed qualifications aim to enable students to progress to either higher/further education or the world of work.
- The aims, learning outcomes, and assessment objectives of NSC subjects show considerable similarity with other benchmark qualifications. Overall, there is some scope for further standardisation in the way that these core elements are presented in NSC subject documentation. There are also

many points of comparability between the different qualifications' high-level aims and intended outcomes, though with scope for the NSC to add to these in some areas, namely:

- literacy and numeracy, appreciation of lifelong learning, ICT skills, flexibility and adaptability, and research and project skills.
- The levels of breadth and depth in subject content in the NSC are appropriate for a school-leaving qualification. Suitable detail is given in documentation for stakeholders to know what topics are covered, and in what depth, in each subject curriculum.
- The NSC approach to giving guidance on the sequencing and pacing of subject content is more prescriptive than all other comparison points analysed in this report. This approach prioritises a standardisation in student experiences over enabling teachers to be flexible.
- Assessment methods used in the NSC show many similarities with the approaches deployed by other qualifications. The fixed ratio of external and school-based assessment components across all subjects is most like the NSW HSC's approach.
- The approaches to marking formal assessment in the NSC have many qualities in common with programmes such as the Cambridge International AS/A Levels, IB DP, and NSW HSC. General marking guidelines, which establish features such as a positive approach to marks, are combined with subject-level guidance linked to the question types used in each subject's assessment.
- All Mathematics curricula examined in this report show differences of emphasis on certain topics, but all also have substantial similarities at the level of assessment methods and intended learning outcomes. NSC Mathematics shows less emphasis on use of technology than some comparison subjects but more emphasis on spatial skills.
- The NSC English First Additional Language (FAL) curriculum has much in common with other international curricula teaching English as a second or additional language.

The English FAL curriculum framework uses different language modalities (speaking, listening, reading, and writing) as a structure, which is appropriate for an additional language subject.

- NSC Geography was found to be an effectively structured and designed curriculum. There were many identified similarities between this NSC subject and Geography subjects in comparison programmes in terms of aims, intended learning outcomes, and assessment approaches. Differences, where found, often reflected varying national/regional focuses in terms of what content is prioritised in a Geography curriculum.
- NSC Life Sciences has many similarities with the learning outcomes and assessment objectives of biology curricula in the benchmark programmes. Some content priority differences were identified, particularly where certain comparison curricula include a greater breadth of mathematical skills than NSC Life Sciences. This does not, on its own, constitute a difference of academic level but of what content is prioritised within curricula.
- NSC Physical Sciences combines the content of physics and chemistry, which are generally distinct subjects in other upper-secondary awards. Similar assessment methods are used across the comparison points in these subjects, though some (such as the full Cambridge International A Level and the Higher Level IB DP subjects) provide a slightly more rigorous test of higher order skills than the NSC curriculum.

Comparability of the NSC

The NSC has demonstrable lines of comparability with upper secondary qualifications in each of the benchmark systems, at both a programmatic and subject level, and should support progression to higher education and or workplaces in each system.

Important context for the comparison between the NSC and benchmark programmes is that

each upper-secondary qualification analysed here has a different structural design. Some, like the NSC (as well as the IB DP, NSW HSC, and KCSE), are diploma-style in structure while others are single-subject qualifications (such as the Cambridge International AS/A Levels and the ZIMSEC Forms 5-6). It should also be noted that not all programmes are the same duration and do not all follow the same number of years of schooling; however, different durations and schooling patterns on their own are not judged by Ecctis to necessarily result in differences of qualification level – they are factors to be considered alongside other factors.¹

In terms of high-level points of comparability, all of these qualifications (including the NSC) may offer progression to higher education in either a national or international context (depending on grades achieved and subjects studied). All are typically classroom-based, fulltime (though with flexible options), and all use a combination of external examinations and school-based assessment practices (to varying ratios). All awards target the development of higher-order thinking skills and aim to assess students on deep subject-related knowledge and understanding as well as wider competences in areas such as evaluation and synthesis.

In relation to the IB DP, the NSC qualification generally aligns most closely with the subjects studied at Standard Level (SL). Some of the Higher Level (HL) subjects' detail and complexity – along with the additional capacity for HE-readiness-skills to be developed by the IB DP core components (Extended Essay, Theory of Knowledge, and Creativity, Activity, Service) – place the IB award at a slightly higher overall level. The IB DP is typically one year shorter in duration than the NSC but is likely to build on a similar number of years of previous schooling (with flexibility due to the many national contexts within which the IB operates). A similar number of subjects are studied in both of these diploma-style awards, meaning that students have

access to a comparable breadth of subject-areas.

In relation to the KSCE, the NSC qualification is generally at a higher overall level. Both awards involve study of a comparable number of individual subjects, have some element of compulsory subject-selection in relation to languages and Mathematics, and build on a similar number of years of prior learning. The learning outcomes and assessment objectives of the NSC were generally found to enable more rigorous development of higher-order skills and some subject content in the NSC will draw students into further depth or complexity than the KCSE comparison points.

In relation to the NSW HSC (which is the NSW regional award at Senior Secondary Certificate of Education standard), the NSC involves a comparable number of subjects and a similar number of years of schooling (though the Australian award is typically two years in duration compared to the NSC's three: one year for the qualification but a preparation period totalling three years of the FET phase). There are substantial similarities in the assessment practices of these two qualifications, with both making use of school-based assessment in all subjects. Differences were noted at subject level between the NSC and the HSC, for example there are some differences in subject content or some different approaches to structuring subject curricula. However, the overall level of both qualifications is comparable.

In relation to the ZIMSEC Forms 5-6 (advanced level) qualification, the NSC has comparable entry requirements but many structural dissimilarities. The Zimbabwean award is a single-subject-style qualification involving two years of preparatory study as opposed to the NSC's three-year preparation for a diploma-style award. Review of the ZIMSEC assessment and curriculum, particularly in the second year of study, found that, at an individual subject

¹ For more details on the duration and prior years of schooling related to each qualification, please see Table 8 within the report's Key Findings.

level, a full ZIMSEC advanced level is pitched at a higher level than individual NSC subjects, though students taking the NSC will experience a broader range of subjects.

In relation to the Cambridge International AS/A Levels, the NSC has the same structural dissimilarities highlighted by comparison with the Zimbabwean Forms 5-6. The single-subject style of the AS/A Levels leads students to a typically narrower subject range, which is

counter-balanced by further depth/complexity or extra content breadth within each subject studied. The Cambridge International A Levels are typically studied over two years (for A Level, or AS Level leading to A Level) or one year for the standalone AS level. The NSC qualification is generally comparable to International AS Level; the full International A Level subjects include further opportunity for higher level skills development.

1. Introduction

1.1 Context and Scope

Ecctis has been commissioned by Umalusi – the national accreditation and quality assurance body for general and further education and training in South Africa – to undertake an international benchmarking and comparative subject analysis for the South African National Senior Certificate (NSC). The NSC is the national school-leaving certificate in South Africa, forming the final three years of a national programme of education which follows a pattern of 4+3+3+3. The NSC qualification is assessed in the final year. The South African schooling system is divided into two stages: The General Education and Training (GET) stage (Grades R to 9) and the Further Education and Training (FET) stage (Grades 10 to 12). The GET stage is then subdivided into three phases: The Foundation Phase (Grades R to 3), the Intermediate Phase (Grades 4 to 6) and the Senior Phase (Grades 7 to 9).

The South African amended National Curriculum Statement (the Curriculum Assessment Policy Statements [CAPS], the National policy pertaining to the programme and promotion requirements of the National Curriculum Statement Grades R – 12 [NPPPR] and the National Protocol for Assessment Grade R-12 [NPA]) have been in implementation for over 5 years. Umalusi has therefore commissioned Ecctis to now undertake a benchmarking exercise against a range of national and international programmes of upper-secondary or school-leaving qualifications.

Ecctis has deployed its established qualification benchmarking methodology in order to ascertain the comparability of the NSC in the context of the Kenyan, Zimbabwean, and Australian (New South Wales) education systems, as well as in the context of the international qualifications offered by Cambridge Assessment International Education and the International Baccalaureate Organisation. Comparative subject analyses

have also been carried out in relation to the similarities and differences between NSC curricula and appropriate comparison points in each alternative programme in English (as an additional language), Mathematics, Geography, Life Sciences (Biology), and Physical Sciences (Physics and Chemistry). These comparative subject analyses support a deeper understanding of comparability between the NSC and the selected comparison programmes. They also support Umalusi to identify any subject-level aspects of the NSC which significantly differ from comparison curricula internationally.

1.2 Structure of the Report

The structure of this report is designed to highlight the key processes undertaken by Ecctis and the key findings resulting from the deployment of those methodologies. As a result, **Section 2. Methodology** explains Ecctis' approach to benchmarking and detailed subject-level comparisons between the NSC and the international context of upper-secondary qualifications.

Section 3. Overview of the NSC and Section 4. Contextual Overviews of the International Systems provide programme-level overviews of all qualifications explored in this report. This provides a foundation for **Section 5. Key Findings**, which draws out all of the key findings from all previous sections of the report and from the in-depth comparative subject analysis which is showcased in this report's appendices. The focus on the key findings section is on the question of comparability and the top-level similarities and differences between the NSC and the trends which exist across the international comparison points. **Section 6. Recommendations** then builds on the key findings by producing recommendations regarding how the NSC can continue to sustain and develop its strengths and mitigate or overcome any identified challenges.

The report concludes by showing the bibliography of referenced resources (to maximise transparency in the research). Linked to this report, though in distinct documents, are the appendices which demonstrate in full detail the subject-level comparative analysis.

For stakeholders who wish to understand the top-level findings of this report, Ecctis recommends

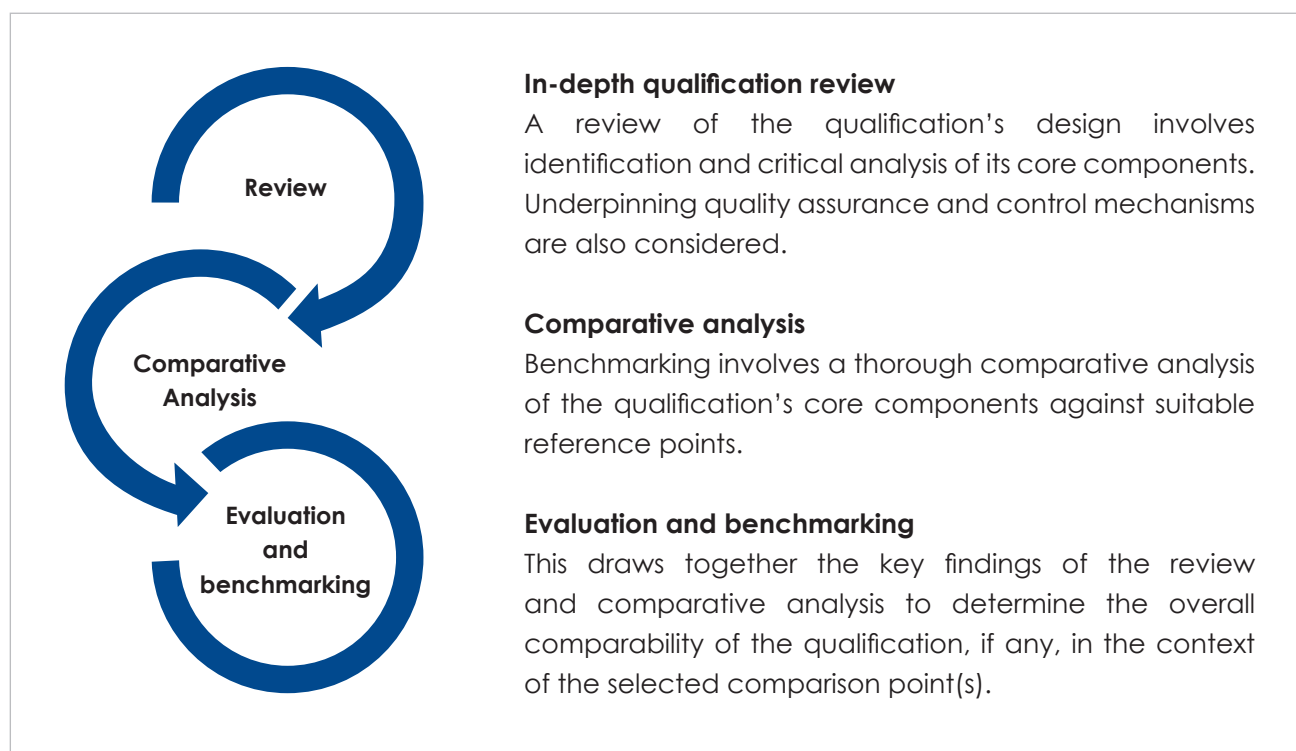
the Executive Summary, the Key Findings and the Recommendations. Stakeholders with specific subject-interests are advised to read the relevant subject appendix in full. Each subject appendix also has its own Key Findings section. The most significant elements of those findings are extracted into Section 6 of the report, but further detail and clear explanation of evidence sources are provided within the appendices.

2. Methodology

This explanation of the methodologies deployed in the report will begin by highlighting some of the key features of Ecctis' approach to benchmarking qualifications. Following subsections will then describe how and why this methodology has been adapted in order to provide a detailed comparability perspective on the NSC at a programme and subject level.²

2.1 Benchmarking

Ecctis has an established methodology for credential evaluation and benchmarking which ensures robust and transparent comparative analysis of qualifications. This report deploys bespoke additions and modifications to this methodology, but the general approach will be first outlined.



In order to benchmark any qualification, it is important to ensure a thorough understanding of its design. This is achieved by first considering the

overarching aims and purpose of a qualification before isolating the core qualification design components, outlined in the Figure below.

² Ecctis uses the term "programme" to refer to the wide programme of study which generally comprises multiple subjects at upper-secondary level. The term "curriculum" is used to describe the narrower features of a specific subject – i.e. content, sequencing, learning outcomes, assessment approaches within that subject, etc. The term "qualification" is used when discussion focusses on the final output that students aim to achieve following a programme of study.



Figure 1: Ecctis benchmarking methodology

Learning outcomes

The term “learning outcome” is used to identify the key knowledge, skills and competencies that candidates are expected to be able to demonstrate upon successful completion of the qualification.

To ensure a thorough understanding of the qualification and inform the subsequent comparative analysis, it is also important to identify the following core qualification components:

- **Entry requirements**
Entry requirements are used as a general indicator when evaluating qualifications given that they indicate the typical level of students at the beginning of a programme.
- **Duration**
Duration is also a consideration in

evaluating qualifications. Whilst not an overriding indicator of academic level, when considered in conjunction with the qualification’s entry requirements, it can nevertheless provide an indication of the volume of study that can be completed within the specified timeframe of the programme.

- **Structure and content**
Consideration of the overall structure as well as different pathways or routes to the qualification where applicable, along with the breadth and depth of content relative to the identified reference points, helps to establish the overall comparability.
- **Modes of learning and assessment**
Considering the modes through which a qualification is delivered supports understanding of the qualification and identification of suitable benchmark reference points.

The review of assessment centres on summative assessment and seeks to identify the following:

- The method(s) used to test students, whether these are internal and/or externally set and how these contribute to the overall qualification
- Whether the methods of assessment provide an adequate evaluation of the key skills outlined in the learning outcomes
- Whether the methods of assessment require all candidates to demonstrate the knowledge and skills required to meet the learning outcomes at the appropriate educational level of each qualification.
- **Associated outcomes**
The term “associated outcomes” is used to encompass any academic (e.g. progression) or professional rights attached to a qualification.

2.2 Bespoke Subject Comparisons

In this international benchmarking of the NSC, as well as comparing the NSC at programme-level with comparators, a priority has also been placed on undertaking comparative analysis at the subject level. Specifically, Ecctis have analysed the similarities and differences between the NSC and the chosen comparison points in the following subjects:

- Mathematics
- English
- Geography
- Physical Sciences (Physics and Chemistry)
- Life Sciences (Biology).

For each subject, a dedicated appendix linked to this report explores the features of the selected NSC curricula related to that subject, explores similar subjects within the international comparison point programmes, and carries out a detailed analytical comparison. At the subject level, this process mirrors Ecctis' general benchmarking approach: identifying

core components; carrying out comparative analysis based on these components; and synthesising this into key findings. In the subject appendices, tables are used to gather relevant information about the core components of all scrutinised subjects, comparative analysis is written-up underneath these tables, and a key findings section at the end of each appendix draws out the most significant points related to comparability.

The comparative subject analysis focuses on drawing out the similarities and differences between the NSC curricula and the international context of similar curricula (as represented by the curricula of subjects within the comparison programmes). Subject comparison centres on the following components:

- **Structural features.** Including: subject-specific requirements; expected prior learning; duration of study; notable progression routes.
- **Subject aims.** These articulate the intentions and purpose of the subject, often in a manner which touches on learning outcomes, content, and various other criteria, as prioritised by curriculum documentation.
- **Learning outcomes.** These are used to identify the key knowledge, skills and competencies that candidates are expected to be able to demonstrate upon successful completion of the qualification.
- **Content areas.** This is a high-level view of the themes and topics to be taught and learned during the curriculum.
- **Assessment objectives.** These are used to identify the knowledge, skills and competencies that students are assessed on.
- **Assessment methods.** These are the methods through which both internal and external assessment takes place – focussing on summative assessment and including details such as the weighting of different exams and the types of questions used within papers.

The subject comparison appendices each include a Key Findings subsection which draws

out the key similarities and differences between the NSC curricula and the international context of similar subjects. These findings are focused on the general scope of the curricula in question but also the way in which they aim to develop skills in students, how the content facilitates that skill development, and how assessment tests that students can demonstrate skills. This skills focus is discussed further below, in **Subsection 2.6 Skills Focus**.

2.3 Selecting Subject Comparisons

Within each of the programmes selected as comparison points/benchmarks for this study, individual subjects were chosen to examine the similarities and differences with the NSC at subject level in more detail. Because all educational programmes have their own unique

structures and their own local/national contexts or international principles, it is sometimes not the case that one subject within one programme has a directly analogous subject in another programme. It is therefore important to carefully consider which subject curricula are the most appropriate subject-level comparison points.

Ecctis' approach to choosing appropriate subject-level comparison points within programmes was guided by stated subject curriculum aims and the positioning of subjects within the wider structure of an award. Umalusi informed Ecctis of which NSC subjects they wanted to receive subject-level comparative analysis on. Ecctis and Umalusi then jointly selected the most effective comparison subject(s) in the comparison programmes.

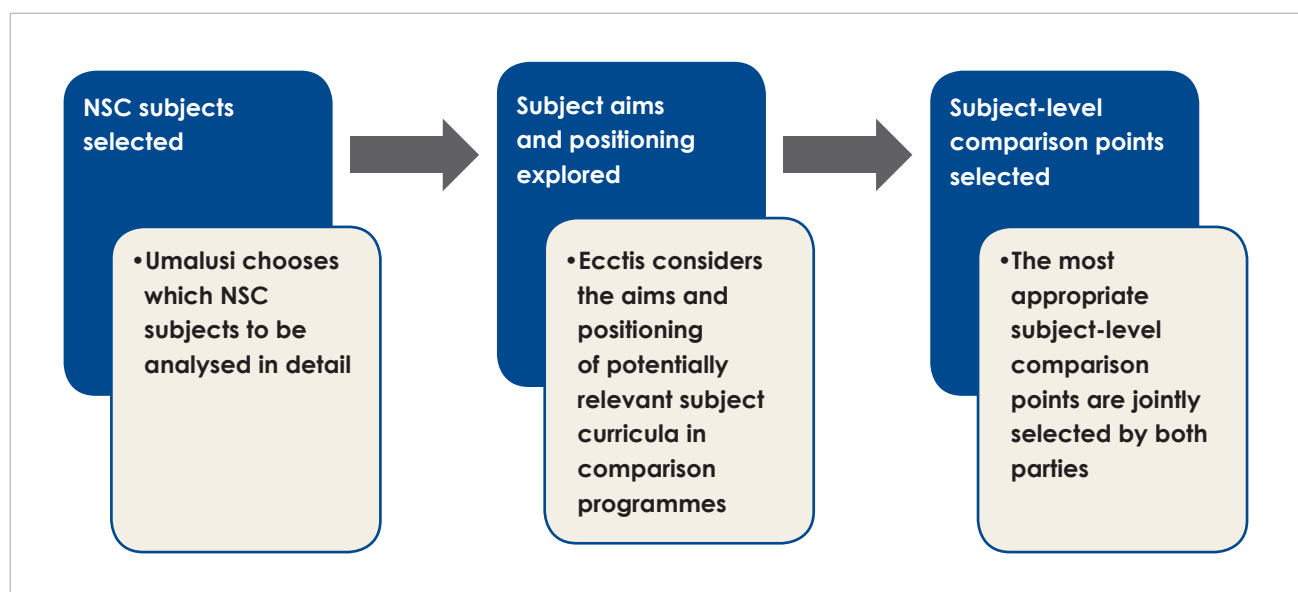


Figure 2: Subject comparison selection process

The following table indicates which subjects were chosen as the most appropriate points for comparative analysis in the International Baccalaureate Diploma Programme (IB DP), Cambridge Assessment International Education (hereafter Cambridge International), AS/A Levels, Kenyan Certificate of Secondary Education (KCSE), New South Wales (Australia),

Higher School Certificate (NSW HSC), and Zimbabwean ZIMSEC Forms 5-6 programmes. NSC subjects are shown in the leftmost column. In some cases, more than one subject in the comparison programmes was judged to provide valuable material for analysis; this is demonstrated in the table.

Table 1: Subject Comparison Points

	IB DP	Cambridge International AS/A Level	NSW HSC	KCSE	ZIMSEC
NSC Mathematics	Mathematics (HL and SL)	AS/A Level Mathematics	Advanced Mathematics Standard 1 and 2 Mathematics	Mathematics A	Pure Mathematics
NSC English (as an Additional Language)	Language B (HL and SL)	AS/A Level English Language	English as an Additional Language or Dialect	English	Communication Skills
NSC Geography	Geography (HL and SL)	AS/A Level Geography	Geography	Geography	Geography
NSC Physical Sciences	Physics (HL and SL) Chemistry (HL and SL)	AS/A Level Physics AS/A Level Chemistry	Physics Chemistry	Physics Chemistry	Physics Chemistry
NSC Life Sciences	Biology (HL and SL)	AS/A Level Biology	Biology	Biology	Biology

As this table demonstrates, some subjects have broadly similar curriculum options within a subject area, whereas other subject areas contain an array of different curriculum options. Where there has been more than one possible subject comparison point within a programme, the selection process described above has enabled the choice of curricula which are most similar to the NSC subject in question, in terms of aims and placement within a wider programme.

In Biology and Geography, each curriculum provided a straightforward choice of comparison point (though the NSC uses the term “Life Sciences” to describe what other programmes label Biology). The NSC’s Physical Sciences curriculum combines both physics and chemistry content within one curriculum. Other programmes separate these subjects, therefore both Physics and Chemistry curricula were used as comparison points across the programmes. The structuring of English language offerings is different across each qualification. Selection of comparison points for this subject area was based on choosing the available curriculum with aims which most resemble those of the

NSC’s additional language subject. Some were very similar, whereas others were simply the closest comparison point, despite differences. Mathematics offerings also vary across programmes, meaning that selection focused on choosing the curriculum in each programme which provided the greatest emphasis on core and pure mathematics, rather than specifically being targeted at an area such as mechanics, statistics, or mathematical literacy for vocational use.

Some comparison programmes have very recently undergone subject curriculum updates and review. In conversations between Ecctis and Umalusi, it was decided that, in such cases, curricula specifications which have undergone a full teaching and assessment cycle would be selected over any that were more recent. This would allow, as far as possible, assessment materials to be analysed which represent the examinations taken in real-world conditions by students, rather than newly designed curricula without an existing assessment record. The details of specifications explored in this report are shown in full in the bibliography.

2.4 Accounting for Differences in Qualification Design

Not all educational qualifications (whether national systems or international) follow the same design principles. Almost all do state the following in their curriculum documents: subject aims, what students are expected to learn and become able to do, and how students will be assessed. However, they do not all structure this information in the same way, and this can make comparisons challenging. Some of the most important sources of comparison in the subject comparison appendices at the end of this report are:

- **Subject aims.** These articulate the intentions and purpose of the subject, often in a manner which touches on learning outcomes, content, and various other criteria as prioritised by curriculum documentation.
- **Learning outcomes.** These are used to identify the key knowledge, skills and competencies that candidates are expected to be able to demonstrate upon successful completion of the qualification.
- **Assessment objectives.** These are used to identify the knowledge, skills, and competencies that students are assessed on.

Some programmes articulate all three of these in a clearly labelled way. Others may only explicitly articulate one to two of these categories, or they may articulate these qualities but using different labels such as “General Objectives” or “Skills and Competencies”. Therefore, in the subject comparison appendices, the methodological approach to comparison aims, learning outcomes, and assessment objectives has some flexibility. In order to understand the comparisons and contrasts between curricula in as much detail as possible, it is important to compare the *closest possible alternative*, if there is nothing in the documentation explicitly labelled according to these categories. This will be explained in the analysis itself, but the result is that some “learning

outcomes” may be compared against, for example, “general outcomes”. While keeping an open mind, which enables comparison across these categories, Ecctis also recognises that having clearly and coherently labelled aims, learning outcomes, and assessment objectives does represent effective practice in curriculum design. Recommendations and findings may therefore be drawn from this area if lack of clarity over labelling is found. Analysis thus strikes a balance between the benefits of drawing comparisons between slightly disparate qualities and recognising the quality implications of not having clearly labelled aims, learning outcomes, and assessment objectives.

Beyond the structural differences in how aims, outcomes, and objectives are articulated, different programmes also provide different levels of detail in their curriculum documentation, regarding both the taught content of the subject and the assessment practices. Ecctis has reflected on these differences in the subject comparison appendices but has also used some thematic groupings (of content areas covered, for example) to enable valuable comparisons between programmes which have different levels of detail within documentation.

2.5 Skills Focus

One method of enabling effective comparisons between different qualifications, despite their variety in structure and detail, is to focus on skill development and assessment. Skills or competencies are often discussed explicitly in a subject's learning outcomes or assessment objectives, however, even if this is not the case, it is often possible to discern the potential for skill development or skill assessment through curriculum documentation. The key findings subsections within each subject comparison appendix contain a discussion of how the compared curricula demonstrate similarities and differences in relation to skills development and assessment.

3. Overview of the NSC

Umalusi is the Quality Council for General and Further Education and Training. It is mandated, through the General and Further Education and Training Quality Assurance (GENFETQA) Act (Act No. 58 of 2001, as amended in 2008) to quality assure all exit point assessments and approve the release of examination results for all qualifications in General and Further Education and Training Sub-Framework.

The South African schooling system is divided into two bands: The General Education and Training (GET) band (Grades R to 9) and the Further Education and Training (FET) band (Grades 10 to 12). The GET band is then subdivided into three phases: The Foundation Phase (Grades R to 3), the Intermediate Phase (Grades 4 to 6) and the Senior Phase (Grades 7 to 9). In this regard the schooling system follows a 4-3-3-3 structure.

The NSC is a qualification at level four on the National Qualifications Framework (NQF). It is a 130-credit qualification offered at public schools and independent schools as a three-year programme. It is awarded to learners who achieve the Exit Level Outcomes as stipulated in the National Curriculum Statement Grades 10 – 12. The NSC is offered by three assessment bodies, namely, the Department of Basic Education; Independent Examinations Board (IEB); and the South African Comprehensive Assessment Institute (SACAI). The DBE provides for public schools while the latter two provide for independent schools. NSC examinations are administered by assessment bodies and quality assured by Umalusi.

NSC examinations are developed and managed by the National Department of Basic Education or independent assessment bodies such as the Independent Examinations Board (IEB) and the South African Comprehensive Assessment Institute (SACAI). The assessment bodies (provincial departments of education) must ensure the overall administration, security and confidentiality of the assessment process.

The National Department of Basic Education is further responsible for monitoring the entire examination cycle for the purpose of ensuring system readiness to deliver a credible examination. The other two private assessment bodies are responsible for developing their own examination guidelines, as well as the setting, managing and monitoring examination.

Public schools in South Africa are overseen by the Department of Basic Education (DBE) and its provincial education departments. Over 90% of learners are enrolled in public schools. Funding for public schools is allocated centrally, with many schools in poorer areas officially designated as “no-fee schools”. There is also a large independent school sector.

Core syllabi are determined by the DBE, though the provincial education departments may adapt these syllabi provided that no content is omitted. The learning requirements for grades R-12 are set out in the National Curriculum Statement (NCS), first published in 2012. Learning outcomes, programme guidelines and assessment guidelines for each approved subject in the NCS are laid out in the Curriculum and Assessment Policy Statements (CAPS) published by the DBE.

Senior secondary school lasts for three years and covers grades 10 to 12. At this level, students work towards the National Senior Certificate (NSC). A minimum of seven subjects must be studied, four of which are compulsory and three of which are electives. The compulsory subjects are:

- First additional language
- Home language
- Life orientation (including physical education)
- Mathematics or Mathematical literacy.

One of the languages offered must be either Afrikaans or English.

Students must pass the assessment requirements in all subjects in grades 10 and 11 to be eligible to sit the final NSC examinations at the end of grade 12.

Over 60 subjects are offered, which are categorised into the following groups: Languages; Business, Commerce and

Management Studies; Agriculture; Engineering and Technology; Services; Arts and Culture; Human and Social Studies and Physical, Mathematical, Computer and Life Sciences. All learners must take seven subjects in total, including the four compulsory subjects. Subject options include:

Table 2: NSC subject options

Languages	Afrikaans, English, IsiNdebele, IsiXhosa, IsiZulu, Sepedi, Sesotho, Setswana, Siswati, South African Sign Language, Tshivenda, Xitsonga
Business, Commerce and Management Studies	Accounting, Business Studies, Economics
Agriculture	Agricultural Management Practices, Agricultural Sciences, Agricultural Technology
Engineering and Technology	Civil Technology, Electrical Technology, Engineering Graphic and Design, Mechanical Technology
Services	Consumer Studies, Hospitality Studies, Tourism
Arts and Culture	Dance Studies, Design, Dramatic Arts, Music, Visual Arts
Human and Social Studies	Geography, History, Religion Studies, Life Orientation
Physical, Mathematical, Computer and Life Sciences	Life Sciences, Physical Sciences, Technical Sciences, Information Technology, Mathematics, Mathematical Literacy, Technical Mathematics, Computer Application Technology

Curriculum details are provided in the Curriculum and Assessment Policy Statement Grades 10-12 (CAPS document). There is one CAPS document per available NSC subject. These outline the aims and nature of each subject, describe how it links to previous phases of South African schooling, provide an overview of topics to be covered, give a timeline and schedule for the curriculum, and give an overview of how assessment functions in the specific subject curriculum. The use of one document to provide cohesive subject information in this manner is effective. Examination guidelines for grade 12 in each subject supplement the information provided in the CAPS, while broader policies in relation to assessment are established by the National Protocol for Assessment Grades R-12 document. Cross-programme information about the wider FET phase and can be found in chapter 6 of the National Policy Pertaining to the Programme and Promotion Requirements of the National Curriculum Statement Grades R-12. Some standardisations of format between CAPS documents may further support stakeholder

understanding (see Recommendations at the end of this report), however, the overall approach to documentation structuring is effective.

Assessment of performance in each of the three years of grades 10-12 consists of school-based assessment (25%), including practical assessment tasks if applicable, and end-of-year examinations (75%). Some subjects incorporate a higher % of practical components to accommodate assessment of their more hands-on nature. All NSC examinations are marked externally in provincial central venues. The only exception is Life Orientation, which has an examination that is externally set but marked at a school level. End-of-year examinations in grades 10 and 11 are administered internally.

The NSC is graded from 1-7 in each subject. To be awarded the NSC, a student must achieve 40% (grade 3) in three subjects, one of which is an official language at Home Language level, and 30% (grade 2) in three subjects. Evidence

showing successful completion of the school-based assessment component in all subjects offered must also be provided. Students whose home language is not English (i.e. another African language as Home Language) receive a language compensation of 3%.

Statements of results are issued by provincial departments of education or the IEB and SACAI, and the final certificate is awarded by Umalusi. The NSC is aligned to level 4 of the South African National Qualifications Framework (NQF). South Africa was one of the first countries to establish an NQF; the NQF was set up by the South African Qualifications Authority (SAQA) following its creation in 1995. The NQF consists of ten levels ranging from level 1, the lowest (notionally equivalent to grade 9 at secondary school), up to level 10, the highest (representing doctoral study).

- **Level 7:** 80 - 100% (Outstanding achievement)
- **Level 6:** 70 - 79% (Meritorious achievement)
- **Level 5:** 60 - 69% (Substantial achievement)
- **Level 4:** 50 - 59% (Moderate achievement)
- **Level 3:** 40 - 49% (Adequate achievement)
- **Level 2:** 30 - 39% (Elementary achievement)
- **Level 1:** 0 - 29% (Not achieved - Fail)

The descriptors of South African NQF level 4 (where the NSC is aligned) are as follows:

- a) **Scope of knowledge**, in respect of which a learner is able to demonstrate a fundamental knowledge base of the most important areas of one or more fields or disciplines, in addition to the fundamental areas of study, and a fundamental understanding of the key terms, rules, concepts, established principles and theories in one or more fields or disciplines.
- b) **Knowledge literacy**, in respect of which a learner is able to demonstrate an understanding that knowledge in one field can be applied to related fields.
- c) **Method and procedure**, in respect of which a learner is able to demonstrate the ability

to apply essential methods, procedures and techniques of the field or discipline to a given familiar context, and the ability to motivate a change using relevant evidence.

- d) **Problem solving**, in respect of which a learner is able to demonstrate the ability to use own knowledge to solve common problems within a familiar context, and the ability to adjust an application of a common solution within relevant parameters to meet the needs of small changes in the problem or operating context with an understanding of the consequences of related actions.
- e) **Ethics and professional practice**, in respect of which a learner is able to demonstrate the ability to adhere to organisational ethics and a code of conduct, and the ability to understand societal values and ethics.
- f) **Accessing, processing and managing information**, in respect of which a learner is able to demonstrate a basic ability in gathering relevant information, analysis and evaluation skills, and the ability to apply and carry out actions by interpreting information from text and operational symbols or representations.
- g) **Producing and communicating information**, in respect of which a learner is able to demonstrate the ability to communicate and present information reliably and accurately in written and in oral or signed form.
- h) **Context and systems**, in respect of which a learner is able to demonstrate an understanding of the organisation or operating environment as a system within a wider context.
- i) **Management of learning**, in respect of which a learner is able to demonstrate the capacity to take responsibility for own learning within a supervised environment, and the capacity to evaluate own performance against given criteria.

j) **Accountability**, in respect of which a learner is able to demonstrate the capacity to take decisions about and responsibility for actions,

and the capacity to take the initiative to address any shortcomings found.³

³ SAQA (2012), *Level Descriptors for the South African National Qualifications Framework*. Accessed 07/09/2021 at https://www.saqa.org.za/docs/misc/2012/level_descriptors.pdf.

4. Contextual Overviews of the International Systems

4.1 The International Baccalaureate Diploma Programme

Established in 1968, the International Baccalaureate (IB) Diploma Programme (DP) is a two-year programme aimed at 16–19-year-old students.⁴ The IB DP is conceived as a preparatory programme for university matriculation and higher education. There are six subject groups comprising the DP and students pursuing the Diploma award are required to select one subject from each of the six groups.⁵ The subject groups are listed as:

- Group One: Studies in Language and Literature
- Group Two: Language Acquisition
- Group Three: Individuals and Society
- Group Four: Sciences
- Group Five: Mathematics
- Group Six: The Arts.⁶

Students study the six chosen disciplines concurrently, with the subjects being offered at two levels: higher level (HL) and standard level (SL). Individual subjects occupy 150 teaching hours at the standard level and 240 teaching

hours at the higher level.⁷ In addition to the six selected subjects, there is a compulsory core of the IB DP which comprises three components: Theory of Knowledge (TOK), the Extended Essay, and Creativity, Activity and Service (CAS). The TOK component is intended to encourage reflection upon the nature of knowledge production within chosen subjects, as well as promote meta-cognitive skills across disciplines. It is integrated into each subject and assessed through a 1600-word essay and oral presentation.⁸ The IB DP curriculum requires 100 teaching hours for TOK.⁹ The Extended Essay is an independent research project relating to one of the selected subjects and assessed via a 4000-word paper.¹⁰ CAS forms a core element of the DP curriculum and requires students to undertake sporting, artistic, and community service initiatives.¹¹

The IB DP curriculum framework is based on a concentric circle model (see Figure below), whereby the learner profile¹² is positioned at the centre of the programme, followed by the core requirements of TOK, the Extended Essay, and CAS. Surrounding these are the six aforementioned subject groups. No formal

⁴ International Baccalaureate (2015), *Diploma Programme: From Principles into Practice*, p. 5.

⁵ International Baccalaureate (2021), *How the Diploma Programme Works*. Available from: <https://www.ibo.org/programmes/diploma-programme/what-is-the-dp/how-the-diploma-programme-works/>

⁶ International Baccalaureate (2021), *Curriculum*. Available from: <https://www.ibo.org/programmes/diploma-programme/curriculum/>

⁷ International Baccalaureate (2021), *Curriculum*. Available from: <https://www.ibo.org/programmes/diploma-programme/curriculum/>

⁸ International Baccalaureate (2021), *Theory of Knowledge*. Available from: <https://www.ibo.org/programmes/diploma-programme/curriculum/theory-of-knowledge/>

⁹ International Baccalaureate (2015), *Diploma Programme: From Principles into Practice*, p. 49.

¹⁰ International Baccalaureate (2016), *Guide to the International Baccalaureate Diploma Programme*, p. 2.

¹¹ International Baccalaureate (2021), *CAS Projects*. Available from: <https://www.ibo.org/programmes/diploma-programme/curriculum/creativity-activity-and-service/cas-projects/>

¹² The IB learner profile constitutes ten attributes that the IB promotes. Students are encouraged to: inquire, be knowledgeable, think, communicate, be principled, open-minded, caring, risk-taking, balanced, and reflective; *Diploma Programme: From Principles into Practice* (2015), p. vii.

entrance requirements are stipulated for the DP as the IB envisages numerous educational pathways leading to the DP.¹³ However, the

IB recommends consulting the subject guides prior to enrolment to ensure an adequate understanding of programme expectations.¹⁴



Figure 3: ID Diploma Programme curriculum model¹⁵

Learners are required to study six subjects concurrently on the DP, typically one from each subject group.¹⁶ There is a further option for students to opt for studying a second subject from groups one to five instead of selecting an arts-based subject from group six. Interdisciplinary subjects, such as Environmental Systems and Societies, are also available as an option for learners.¹⁷ To receive the IB Diploma it is compulsory to take at least three of the subjects at the higher level, with the remaining disciplines studied at the standard level.¹⁸ Up to four subjects can be taken at the higher level. This stems from the programme's

design as a pre-university programme and its baccalaureate structure; the HL subjects are intended to prepare learners for the discipline specialisation of higher education, whilst the SL subjects balance this by broadening the range of subjects studied.¹⁹

Assessment for the DP is criterion-based: student performance is measured against pre-defined criteria outlined in the aims and objectives of the subject syllabi, rather than the performance of other learners sitting the same examinations. Both internal and external assessments are used in the DP. For most subjects, written examinations

¹³ *Diploma Programme: From Principles into Practice* (2015), p. 22.

¹⁴ *Diploma Programme: From Principles into Practice* (2015), p. 22.

¹⁵ International Baccalaureate (2016), *Guide to the International Baccalaureate Diploma Programme*, p. 2.

¹⁶ *Diploma Programme: From Principles into Practice* (2015), p. 6.

¹⁷ *Diploma Programme: From Principles into Practice* (2015), p. 6.

¹⁸ International Baccalaureate (2021), *Curriculum*. Available from: <https://www.ibo.org/programmes/diploma-programme/curriculum/>.

¹⁹ *Diploma Programme: From Principles into Practice* (2015), p. 6.

are taken at the end of the programme which are marked by external IB examiners. Externally-marked summative assessment usually forms the principal method of gauging academic performance, with internally-assessed tasks normally comprising between 20-30% of the total examined material per subject.²⁰ The IB's rationale for focusing on external summative assessment is that it is thought to better support students' progression into tertiary education. Essays, structured problems, short-response questions, data-response questions, case-study questions, and multiple-choice questions are some of the external assessment question types listed by the IB.²¹ Coursework forms part of the assessment for areas of the DP such as the Extended Essay and TOK.²² This is normally carried out over an extended period under teacher supervision. Where students complete internally-assessed tasks, these are marked by teachers and moderated by the IB.²³ Some of the internal assessment methods used include: oral work in languages, fieldwork in geography, laboratory work in the sciences, and artistic performances.²⁴

The grading system for the DP is based upon a numerical score ranging from 1-7 for each subject taken, where 7 is awarded for the highest achievement.²⁵ The final student grade for the DP is calculated through the sum of the scores awarded for each subject. To obtain the Diploma, a minimum of 24 points is required, the DP core (TOK, CAS, Extended Essay) must be completed, and a minimum grade of 3 is

needed in at least four subjects. The TOK and Extended Essay components of the DP are each marked on an A-E scale, where an A grade is the highest award and an E grade represents the lowest. Their combined results can contribute up to three additional numerical points to the overall DP score (see table below). CAS does not constitute a graded part of the DP, although its completion is mandatory to receive the award of the Diploma. The highest attainable score for the DP is 45 points: 6 subjects × 7 points, plus 3 points for the core elements.²⁶ The IB awards the same number of points for HL and SL subjects and assesses them against the same grade descriptors.²⁷ However, HL candidates are expected to demonstrate the various elements of the grade descriptors across a greater extent of knowledge, skills, and understanding.

A bilingual Diploma is awarded to students who achieve:

- Grade 3 or higher in two language subjects from subject group 1, or,
- Grade 3 or higher in a group 1 language subject and a grade 3 or higher in a group 3 or 4 subject taken in a different language.

Certificates are awarded to students that have taken individual subjects but not enrolled on the full DP.²⁸ Prospective candidates can enrol in as many individual subjects as permitted by their school; these are graded with the same 1-7 system used in the full DP.

²⁰ International Baccalaureate (2021), *Understanding DP Assessment*. Available from: <https://www.ibo.org/programmes/diploma-programme/assessment-and-exams/understanding-ib-assessment/>; International Baccalaureate (2014), *International Baccalaureate Diploma Programme: A Guide to Assessment*, p. 3.

²¹ International Baccalaureate (2021), *Assessment and Exams*. Available from: <https://www.ibo.org/programmes/diploma-programme/assessment-and-exams/>

²² International Baccalaureate (2021), *Understanding DP Assessment*.

²³ International Baccalaureate (2021), *Understanding DP Assessment*.

²⁴ International Baccalaureate (2021), *Assessment and Exams*.

²⁵ International Baccalaureate (2021), *Understanding DP Assessment*.

²⁶ International Baccalaureate (2021), *Understanding DP Assessment*.

²⁷ International Baccalaureate (2021), *Understanding DP Assessment*.

²⁸ International Baccalaureate (2016), *Guide to the International Baccalaureate Diploma Programme*, p. 4.

Table 3: Letter-grade:numerical score conversion matrix²⁹

		Theory of Knowledge (TOK)				
Extended essay	Grade Awarded	A	B	C	D	E
	A	3	3	2	2	Failing condition
	B	3	2	2	1	
	C	2	2	1	0	
	D	2	1	0	0	
	E	Failing condition				

4.2 The Cambridge Assessment International Education AS/A Levels

Cambridge Assessment International Education, part of the Cambridge Assessment Group of the University of Cambridge, is a not-for-profit organisation that aims to design and develop programmes and qualifications for international education.³⁰ The organisation offers a range of qualifications including the Cambridge IGCSE, Cambridge O Level, Cambridge International A & AS Level, Cambridge Pre-U, Cambridge AICE Diploma and the Cambridge IPQ. Over 10,000 schools in more than 160 countries offer Cambridge programmes and qualifications.³¹

Through the four stages of the Cambridge Pathway – starting from primary, up to and including upper secondary school – the organisation aims to develop learners': subject knowledge, conceptual understanding, higher order thinking skills, critical thinking, fluency in communicating, and confidence in applying knowledge in new situations.³² In relation to

teaching and learning, Cambridge programmes emphasise engaging students in their own studies through metacognition and active learning.³³ These processes support learners to: observe and evaluate changes in their own learning behaviours, become independent and autonomous thinkers, understand different issues and environments, and analyse, evaluate, and synthesise the information they learn. The Cambridge Learner Attributes were introduced in 2011 and aim "to support the development of five powerful and highly desirable habits that will inspire students to love learning".³⁴

The International Advanced Subsidiary (AS) Level and International Advanced (A) Level qualifications offered by Cambridge International are one of two pre-university pathways that constitute Cambridge Advanced; the other being the Cambridge Pre-U qualification.³⁵ The Cambridge International AS and A Level qualifications differ from their counterparts in the UK national award framework in that their structure, administration, and syllabi are created specifically for an international student

²⁹ International Baccalaureate (2017), *Assessment Principles and Practices: Quality Assessments in a Digital Age*, p. 220.

³⁰ Cambridge Assessment International Education. What we do. Available at: <https://www.cambridgeinternational.org/about-us/what-we-do/> [accessed 09/06/2021]

³¹ Cambridge Assessment International Education. Facts and Figures. Available at: <https://www.cambridgeinternational.org/about-us/what-we-do/facts-and-figures/> [accessed 09/06/2021].

³² Cambridge Assessment International Education. Available at: <https://www.cambridgeinternational.org/Images/417448-overview-brochure.pdf> [accessed 09/06/2021].

³³ Cambridge Assessment International Education (2019), *An International Education from Cambridge*. Available at: <https://www.cambridgeinternational.org/Images/417448-overview-brochure.pdf> [accessed 09/06/2021].

³⁴ Ibid. p. 5.

³⁵ Cambridge Assessment International Education (2021), *Cambridge Advanced*. Available from: <https://www.cambridgeinternational.org/programmes-and-qualifications/cambridge-advanced/>

body.³⁶ As such, Cambridge International AS and A Level qualifications offer a wider range of language curricula and the syllabus material is adapted to different cultural contexts.³⁷

The Cambridge International AS Level and A Levels are offered in 55 different subjects. They are aimed at 16-19-year-old students before university study (see Figure below); learners usually take them over the final two years of secondary education.³⁸ The qualification's broad subject range and flexibility to combine diverse fields of study is designed to improve the candidacy of prospective university students,

as well as appeal to learners' academic preferences.³⁹ The International AS Level curriculum typically operates on the basis of a one-year programme of study, whilst the duration of the International A Level is usually two years. The full International A Level is based on approximately 360 hours of guided learning per subject, over a two year period.⁴⁰ Most of the offered subjects can be started at the International AS Level and extended to an International A Level qualification. However, since 2015 the AS Level has been decoupled from the A Level and it currently exists as an award in its own right.

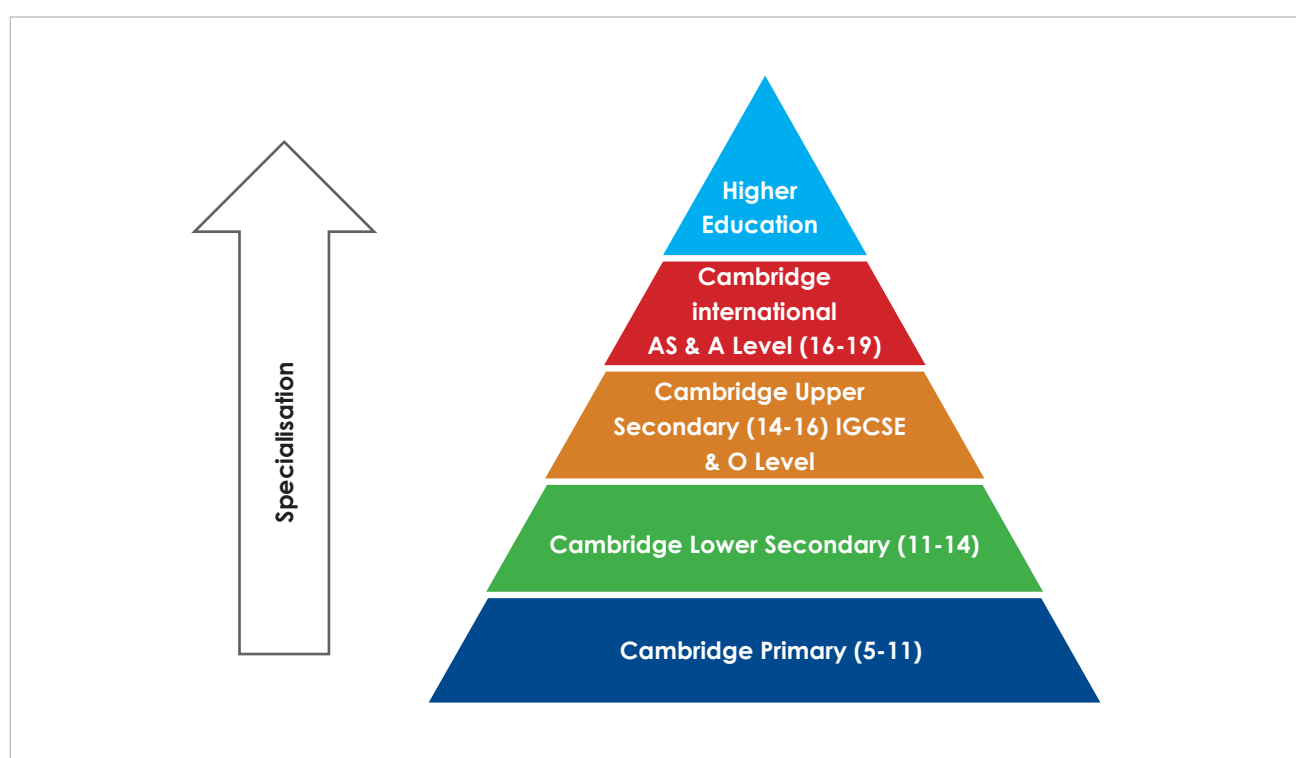


Figure 4: Cambridge International qualifications by age range and level of subject specialisation⁴¹

³⁶ Cambridge University Press (2021), *Cambridge International AS and A Level*. Available from: <https://www.cambridge.org/gb/education/qualification/cambridge-international/cambridge-international-and-level>

³⁷ Cambridge Assessment International Education (2021), *What is the Difference Between OCR A Levels and Cambridge International A Levels?* Available from: <https://help.cambridgeinternational.org/hc/en-gb/articles/203558541-What-is-the-difference-between-OCR-A-Levels-and-Cambridge-International-A-Levels->

³⁸ Cambridge Assessment International Education (2020), *Cambridge International Guide for Universities*.

³⁹ Cambridge Assessment International Education (2018), *How Cambridge International A Levels are preparing more students for top universities*. Available from: <https://blog.cambridgeinternational.org/how-cambridge-international-a-levels-are-preparing-more-students-for-top-universities/>

⁴⁰ Cambridge Assessment (2020), *Cambridge International Guide for Universities*.

⁴¹ Cambridge Assessment International Education (2020), *Cambridge International Guide for Universities*. Cambridge.

There are no compulsory subjects; schools can decide on which combination of disciplines to offer students.⁴² To enrol at the International AS Level, Cambridge International generally recommends that learners gain an IGCSE, Cambridge O Level, or equivalent in the same discipline prior to study.⁴³ The International AS and A Level subjects are arranged into subject groups (see table below). Whilst there are no mandatory International AS and A Level subjects, students that select a range of disciplines across certain subject groups may be eligible for the AICE Diploma award.⁴⁴ A common study arrangement of International AS and A Levels consists of four International AS Level subjects progressing to three International A Level subjects.⁴⁵ This is based on the common admission requirement of UK universities of three A Levels.

- The Arts
- Science
- Technology
- General Studies.⁴⁶

In terms of assessment, there are a number of options that learners can take. Students may select the International AS Level only, where the syllabus content is half a Cambridge International A Level.⁴⁷ There is a staged assessment route, whereby the International AS Level subjects are assessed in one examination series in the first year and the International A Level is completed in a subsequent round of examinations in the second year.⁴⁸ Alternatively, all assessment papers for the International A Level can be taken in the same examination session, usually at the end of the programme.⁴⁹

International AS and A Level subject groups:

- English
- Languages
- Social Sciences
- Mathematics
- Humanities

Each International AS and A Level subject is graded individually, with no Grade Point Average calculated, and separate certificates issued for each examination series.⁵⁰ International A Level qualifications are reported on a grading scale ranging from A* to E, where an A* grade is the highest achievement.⁵¹ International AS Levels are reported on a similar scale ranging from

⁴² Cambridge Assessment International Education (2021), *Curriculum*. Available from: <https://www.cambridgeinternational.org/programmes-and-qualifications/cambridge-advanced/cambridge-international-as-and-a-levels/curriculum/>

⁴³ Cambridge Assessment International Education (2020), *Syllabus: Cambridge International AS & A Level Mathematics 9709*, p. 50.

⁴⁴ To be eligible for the AICE Diploma, students are required to study the AS level Global Perspectives and Research course plus AS and A Level subjects from the following subject groups: mathematics and science, languages and arts, and humanities; Cambridge Assessment (2021), *Cambridge AICE Diploma qualification*. Available from: <https://www.cambridgeinternational.org/programmes-and-qualifications/cambridge-advanced/cambridge-aice-diploma/qualification/>

⁴⁵ Cambridge Assessment International Education (2020), *Cambridge International Guide for Universities*.

⁴⁶ Cambridge Assessment International Education (2020), *Cambridge International Guide for Universities*.

⁴⁷ Cambridge Assessment International Education (2021), *Qualification*. Available from: <https://www.cambridgeinternational.org/programmes-and-qualifications/cambridge-advanced/cambridge-international-as-and-a-levels/qualification/>

⁴⁸ Ibid.

⁴⁹ Ibid.

⁵⁰ Cambridge Assessment International Education (2020), *Cambridge International Guide for Universities*.

⁵¹ Cambridge Assessment International Education (2021), *Qualification*. Available from: <https://www.cambridgeinternational.org/programmes-and-qualifications/cambridge-advanced/cambridge-international-as-and-a-levels/qualification/>

grades A to E, with no A* grade awarded at the International AS Level.

Some countries assign students with a Percentage Uniform Mark (PUM) in addition to the letter grade for each subject.⁵² The purpose of the PUM is to transpose learners' results into

a common scale which gauges academic performance within a letter grade (see table below). For example, the AS Level B grade corresponds with a PUM score of 70-79; a PUM of 79 would mean that the candidate achieved a high B grade score, whilst a mark of 70 would signify a lower B grade performance.

Table 4: International AS and A Level Percentage Uniform Marks⁵³

Int. AS Level grade	PUM Range
a	80-100
b	70-79
c	60-69
d	50-59
e	40-49

Int. A Level grade	PUM Range
A*	90-100
A	80-89
B	70-79
C	60-69
D	50-59
E	40-49

4.3 Kenya KCSE

The Ministry of Education (MoE) oversees provision of primary and secondary education in Kenya, including policy formulation and funding for public schools. The Directorate of Quality Assurance and Standards is a Directorate in the MoE which is responsible for ensuring Quality and Standards.

The Kenya Certificate of Primary Education (KCPE) examination, which is a prerequisite qualification for the Kenya Certificate of Secondary Education (KCSE) examination, is taken by students at the end of the eighth year of primary school (around the age of 14). KCPE is a norm-referenced assessment which is used for, among other reasons, streaming students into secondary school.⁵⁴ The KCPE examination

is administered and managed by the Kenya National Examinations Council (KNEC), working under the MoE.⁵⁵ Learners sit for five papers which cover the nine examinable subjects for the KCPE examination: Kiswahili / Kenyan Sign Language (offered as an option for learners with hearing impairments); English; Mathematics; Science; and Social Studies and Religious Education (having options for Christian/ Islamic Hindu Religious Education depending on learner's religion / preference).

Transition to secondary school education in Kenya is compulsory and 100%, performance in the KCPE assessment influences the placement of learners into secondary schools.⁵⁶ The MoE places all KCPE examinees into public secondary schools.⁵⁷ Vocational training centres are also available for students who do not obtain the

⁵² Cambridge Assessment International Education (2020), *Cambridge International Guide for Universities*.

⁵³ Ibid.

⁵⁴ Malechwanz, J.M. (2019), *Effects of Engagement and Resources on Learning Outcomes in Vocational Colleges: Emerging Research and Opportunities*. IGI Global, United States.

⁵⁵ Ibid.

⁵⁶ Wasonga, T. (2017), "Education and Empowerment: A School Good Enough for the Richest but Open to the Poorest". In: Ukpokodu, N.O. & Ojiambo, P.O. (Eds.) *Erasing Invisibility, Inequity and Social Injustice of Africans in the Diaspora and the Continent*. Cambridge Scholars Publishing, Newcastle Upon Tyne, pp. 238-262.

⁵⁷ Ibid.

necessary grades to progress onto secondary education. Further, parents can opt to enrol their children into private secondary schools, which operate under MoE guidelines. The MoE works closely with the private schools in a Public Private Partnership (PPP) initiative in provision of education, with a ratio of about 80:20, public schools forming the higher proportion.

The KCSE examination is a pre-university qualification. It is a criterion-referenced assessment, forming the principal basis of the entry criteria for undergraduate programmes and tertiary education in Kenya. Learners sit examinations for the KCSE at the end of the fourth year of secondary education, with the KNEC administering the assessments. Secondary education in Kenya comprises Forms 1-4, where learners are usually 14 years of age upon entry and 18 years upon completion of the KCSE.

During the first two years of secondary education (Form 1 and 2), students may study up to 13 different subjects, depending largely on the subjects a school is offering. In Form 3, learners select a minimum of seven and a maximum of eight subjects which they shall be examined for at KCSE examination. English, Kiswahili, and Mathematics are compulsory subjects. Additionally, students are required to select two of the Science subjects for study, one humanities discipline, and either one technical field or one applied science subject chosen from a number of subject clusters.

The secondary education cycle typically spans four years, with the curriculum divided into five subject clusters:

<p>Cluster 1 (compulsory)</p> <ul style="list-style-type: none"> English Kiswahili Mathematics. <p>Cluster 2 (select at least 2)</p> <ul style="list-style-type: none"> Biology Chemistry Physics. <p>Cluster 3 (select at least 1)</p> <ul style="list-style-type: none"> Christian Religious Education Geography Hindu Religious Education History and Government Islamic Religious Education. 	<p>Cluster 4 (option 1)</p> <ul style="list-style-type: none"> Agriculture Art and Design Aviation Technology Building Construction Computer Studies Drawing and Design Electricity Home Science Metalwork Power Mechanics Woodwork. <p>Cluster 5 (option 2)</p> <ul style="list-style-type: none"> Arabic Business studies French German Kenyan Sign Language Music.
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The KCSE assessment is a cumulative exit examination that is administered to all form 4 students at the end of the secondary schooling phase. The assessment also marks the end of Basic Education in Kenya.⁵⁸ As a summative assessment, the KSCE examination is designed

to measure students' comprehension of the material covered in the four years of secondary schooling. Assessed material for the KCSE usually comprises a combination of coursework and examination papers, the proportion of each varying across subjects. Learners sit individual

⁵⁸ O'Hern, D.M. & Nozaki, Y. (2014), *Natural Science Education, Indigenous Knowledge, and Sustainable Development in Rural and Urban Schools in Kenya*. Sense Publishers, Netherlands.

examinations for both their compulsory and elective subjects.⁵⁹

Individual subject assessments for the KCSE are graded on a 12-point scale from A to E, where A represents the highest mark obtainable. Each letter grade is assigned a corresponding numerical score (see table below). A Mean Grade is also formulated for each candidate being assessed for the KCSE examination. This is calculated as the average score of all the individual subject marks awarded. The Mean Grade takes the form of a letter value and this is frequently used to determine placement of students' into post-secondary education: admission to tertiary education, technical training institutes, and institutes of technology is determined by KCSE examination grades.

The Kenya Universities and Colleges Central Placement Service (KUCCPS), is mandated by the government to place learners into universities and other tertiary training institutions. A mean grade of C+ is generally the minimum score required for direct entry onto undergraduate programmes at public universities. Admission for study varies across universities and is therefore dependent on the criteria set by each institution.

Learners that obtain lower grades may be eligible to pursue Certificate, Diploma or bridging courses with a view to subsequently accessing a Bachelor degree. In some instances, holders of Diplomas and Certificates may be eligible for advanced entrance onto a related Bachelor degree.

For university placement, besides attaining a minimum mean KCSE grade of C+, students are required to possess the necessary amount of Cluster Points. The number of requisite Cluster Points is specific to each programme of study. The KUCCPS uses a formula to calculate the Cluster Point Average. Each university programme specifies four core subjects (cluster subjects) that candidates must have successfully sat for in the KCSE. An aggregate score of these four subjects is weighted against the aggregate score of all KCSE subjects sat for (usually seven) using the KUCCPS formula, producing a cluster point score. A student's cluster point total needs to meet the amount stipulated for a particular programme to be considered for admission. The required amount of cluster points can vary. Aggregate points are cumulated from each relevant subject to form a cluster point score.

Table 5: Letter:Number:Points conversion

Letter grade	Numerical Grade	Aggregate Points
A	12	81-84
A-	11	74-80
B+	10	67-73
B	9	60-66
B-	8	53-59
C+	7	46-52
C	6	39-45
C-	5	32-38
D+	4	25-31
D	3	18-24
D-	2	11-17
E	1	7-10

⁵⁹ Ibid.

The education system in Kenya is undergoing reforms from the 8-4-4 system which comprises 8 years in Primary, 4 years in Secondary and 4 years in university, to 2-6-3-3 (2 years in pre-primary, 6 years in primary, 3 years in Junior Secondary and 3 years in Senior Secondary).⁶⁰ The 8-4-4 model is objective-based, with high-stake summative assessments such as the KCSE examination. This is being replaced by a Competency-based Curriculum. Implementation of the new curriculum started in 2018 and is at Upper Primary level (Grade 5) as of 2021, with the government's target being to completely phase out the existing structure by 2027.

4.4 Zimbabwe ZIMSEC Forms 5-6

School education in Zimbabwe is structured in a 4+5+4+2 system, comprising infant, junior, lower secondary, and upper secondary levels. Infant education consists of two years of early childhood development (ECD) and the first two years of primary school (grades 1 and 2). Junior education covers grades 3 to 7 of primary school (ages 6 to 13). Lower and upper secondary education cover forms 1 to 4 and forms 5 and 6 of secondary school respectively. Education is compulsory up to grade 7. Previously, school education was structured 2+7+4+2, with an optional two years of ECD followed by seven years of compulsory primary education.

The Ministry of Primary and Secondary Education (MoPSE) is responsible for school education in Zimbabwe. National examinations

are administered by the Zimbabwe School Examinations Council (ZIMSEC), which is a parastatal of the Ministry of Primary and Secondary Education.⁶¹

Since 2018, Zimbabwe has been using the Zimbabwe National Qualifications Framework (ZNQF). Students must obtain the Zimbabwe General Certificate of Education (ZGCE) at Ordinary Level, with at least five passes including Mathematics, English, and a science subject to progress to upper secondary school. Upper secondary school covers two years (forms 5 and 6) from ages 17 to 19. At the end of form 6, students sit examinations for the ZGCE at Advanced Level, conducted by ZIMSEC.⁶² Advanced level qualifications are important in order to access higher education. Admission for higher education is based on five ordinary level passes in English, Mathematics and three other subjects, unless specified by a university, plus two advanced level passes in relevant subjects, which is equivalent to a ZNQF level of 3.

Over 25 individual subjects are offered at advanced level and students take between two and four subjects in languages, science, mathematics, humanities, arts, and technical groups. Candidates have the option to take subjects at either principal or subsidiary level. In addition, many advanced level students take English for Communication, which is marked on a 1-9 scale with 1 as the highest mark and a 1-6 as a pass.

⁶⁰ Ministry of education (2018), *National Education Sector Strategic Plan: 2018-2022*. Ministry of Education, Nairobi, Kenya.

⁶¹ In 2015, the MoPSE announced a new curriculum framework for all levels of education up to upper secondary. Detailed syllabi are in preparation and are due to be phased in between 2017 and 2021. ZIMSEC is developing new grade 2, grade 7, O level and A level examinations based on the new curriculum.

⁶² Musarurwa, C. and Chimhenga, S., "Credibility of School Examinations in Zimbabwe: A Reflective Analysis", *Academic Research International*, Vol. Iss. 1, 2011. Accessed at https://www.researchgate.net/profile/Charles-Musarurwa-2/publication/288255506_Credibility_of_school_examinations_in_Zimbabwe_A_reflective_analysis/links/5697804d08aec79ee32b1543/Credibility-of-school-examinations-in-Zimbabwe-A-reflective-analysis.pdf

Table 6: Forms 5-6 subject groups⁶³

Languages	Shona, Shona Literature, Ndebele, Ndebele Literature, Tonga, Tonga Literature, English Literature, French, Tshivenda, Tshivenda Literature, Xichangana, Xichangana Literature
Science	Computer Science, Biology, Chemistry, Physics, Animal Science, Software Engineering, Sports Science and Technology, Agricultural Engineering, Horticulture and Crop Science
Mathematics	Additional Mathematics, Pure Mathematics, Statistics, Mechanical Mathematics
Humanities	History, Geography, Sociology, Economic History, Family and Religious Studies, Heritage Studies
Arts	Dance, Music, Textiles Technology and Design, Art, Theatre Arts
Technical Groups	Building Technology and Design, Design and Technology, Sport Management, Horticulture, Wood Technology and Design, Communication Skills, Food Technology and Design, Home Management, Metal Technology and Design, Technical Graphics and Design, Physical Education, Sport and Mass Displays
Commercial Group	Accounting, Business Enterprise, Business Studies, Economics

At advanced level, students generally take the examinations at principal level. If an unsatisfactory grade has been achieved at the principal level, then a pass can be awarded at the subsidiary level (comparable to a ZGCE at Ordinary Level pass) – with the Grade O being given to signify a fail and that a student still operates at ordinary level. Assessments are graded from A to E, where A is the maximum grade a student can achieve, and E is the minimum grade required to pass. A points system then applies to Grade A to E, with 5 points being awarded to the highest grade, A, down to 1 point awarded to the lowest, E.

4.5 New South Wales Higher School Certificate

In New South Wales (NSW), Australia, students normally undergo 13 years of schooling from kindergarten to year 12. Students in years 11 and 12 work towards achieving the Higher School Certificate (HSC), which is the highest level of attainment that you can reach at school in NSW. The HSC was introduced in 1967 and is overseen by the NSW Education Standards Authority (NESA). Successful candidates are awarded the HSC, which allows access into

higher education depending on their Australian Tertiary Admission Rank (ATAR). The ATAR was introduced to nationalise the Year 12 university ranks across Australia (with the exception of Queensland). The ATAR is calculated by the Universities Admissions Centre (UAC) and is used by higher education providers around the country when deciding whether to offer a place to a prospective student. The ATAR uses study scores from HSC studies, VET programs and extension studies. The scores in each study are scaled against other students in NSW to yield a percentile ranking for each student, reflecting their performance against all other candidates across the state.

In order to be eligible for the HSC a student must:

- Satisfactorily complete years 9 and 10 or gain other qualifications that satisfy NESA
- Attend a government school, an accredited non-government school, an NSW education standards authority recognised school outside NSW or a TAFE college
- Meet the HSC minimum standard of literacy and numeracy within five years of starting your HSC programme (this does not apply to students taking the HSC in 2018 or 2019).

⁶³ ZIMSEC (2018), *Specimen Papers*. Available at <https://www5.zimsec.co.zw/a-level-specimen-papers-november-2018/>

Students must complete at least 12 units of preliminary courses in year 11 and 10 units of HSC courses in year 12, including English, to receive the HSC. From 2020, students in NSW also need a minimum standard of literacy and numeracy to receive the HSC. The minimum standard ensures that students have the basic reading, writing and mathematics skills needed for everyday tasks and future learning. There are four different courses that are offered within the HSC, these include: Board developed courses, Board endorsed courses, Special education (Life skills) and Vocational Education and Training (VET). In total there are over 100 different courses which cover a range of subject areas.

Requirements of study must include at least:

- Six units of Board Developed Courses
- Two units of Board Developed Courses in English
- Three courses of two or more units (either Board Developed or Board Endorsed Courses)
- Four subjects completed.

Each course is worth either one or two units. The majority of courses are worth two units and involve approximately four hours of formal teaching per week. Board Developed courses cover the largest number of courses set and are externally examined by the Board of Studies, Teaching and Education Standards (BOSTES) and contribute to the calculation of the Australian Tertiary Admission Rank (ATAR). Board developed courses are assessed by a combination of state-wide external examinations and moderated school-based assessment.

Courses are available in the following general areas:

- English
- Mathematics
- Science and Technology
- Creative arts
- Health and Physical Education (PDHPE)
- Human Society and its Environment (HSIE)
- Languages

- Personal Development
- Vocational Education and Training (VET).

Board Endorsed courses are developed by schools and Technical and Further Education (TAFE) colleges and universities. The courses count towards the HSC, however, do not have an HSC examination and do not contribute towards the calculation of ATAR. VET courses can be studied either at school or through TAFE NSW and other training providers.

Life skills courses can be taken by students that require special education needs and will count towards the HSC. There are specific entry requirements for the Life Skills courses and students are still required to meet the general eligibility and study patterns to earn the HSC.

The HSC is assessed using school-based assessment and external examination marks. School-based assessment throughout the HSC course (including written tests, written assignments, practical activities, fieldwork and projects) accounts for 50% of the HSC mark and is reported on each students' Record of Achievement. Students also receive examination marks upon completing the assessment for Board Developed Courses, which may be in the form of written exams, submitted works, or practical examinations. These two marks are averaged to give an HSC mark on a scale of 1-100, with 50 being the minimum expected standard. Marks of 50 or more are accompanied by a description of the standard that the mark represents.

The HSC also offers pathways for students with different needs and capabilities. Students have an option of studying and completing the HSC over a maximum of five years. On the other hand, very capable students are given the option to accelerate through courses and sit the exam at the end of Year 11. Macquarie University and the University of New England offer HSC-University Pathways programs for students from year 11 onwards, allowing a student who has achieved high-level results at school to apply to undertake university studies whilst studying for the HSC.

Table 7: NSW HSC subjects

English	English Studies, English Standard, English Advanced, English EAL/D
Mathematics	Mathematics Standard 1, Mathematics Standard 2, Mathematics Advanced
Science and Technology	Chemistry, Physics, Biology, Investigating Science, Science Extension, Economics, Engineering Studies
Creative arts	Dance, Drama, Music 1, Music 2, Music Extension, Textiles and Design, Visual Arts
Health and Physical Education (PDHPE)	Personal Development Health and Physical Education
Human Society and its Environment (HSIE)	Aboriginal Studies, Agriculture, Ancient History, Community and Family Studies, Earth and Environmental Science, Geography, History Extension, Legal Studies, Modern History, Society and Culture, Studies of Religion I, Studies of Religion II, Business Studies
Languages	Arabic, Armenian Continuers, Chinese, Croatian Continuers, Dutch Continuers, Filipino Continuers, French, German, Greek, Hebrew, Hindi Continuers, Hungarian Continuers, Indonesian, Italian, Japanese, Khmer Continuers, Korean, Latin, Macedonian Continuers, Maltese Continuers, Persian Continuers, Polish Continuers, Portuguese Continuers, Punjabi Continuers, Russian Continuers, Serbian Continuers, Spanish, Swedish Continuers, Tamil Continuers, Turkish Continuers, Vietnamese Continuers
Technology	Design and Technology, Food technology, Industrial Technology, Information Processes and Technology, Software Design and Development
Vocational Education and Training (VET)	Automotive, Business Services, Construction, Electrotechnology, Entertainment Industry, Financial Services, Hospitality, Human Services, Information and Digital Technology, Metal and Engineering, Primary Industries, Retail Services, Tourism Travel and Events
Board Endorsed Courses	Aboriginal Languages, Ceramics, Computing Applications, Exploring Early Childhood, Marine Studies, Sport Lifestyle and Recreation Studies, Photography Video and Digital Imaging, Visual Design, Work Studies

5. Key Findings

This section provides an overview of the key findings stemming from Ecctis' review and comparative analysis of the NSC in relation to the selected international comparison points. It begins with individual summary reviews based on the different elements of Ecctis' benchmarking methodology and the different subject areas compared. At the end of **Section 6.1 Review and Comparative Analysis**, a brief synopsis of the key findings is provided in bullet-point form. **Section 6.2 International Comparability of the NSC** uses the information of Section 6.1 to provide comparability statements which relate the NSC to the five international comparison programmes examined in this report (Cambridge International AS/A Levels, IB Diploma Programme, NSW Higher School Certificate, Kenyan KCSE, and Zimbabwean ZIMSEC Forms 5-6).

5.1 Review and Comparative Analysis

5.1.1 Core Programme Components

The entry requirements, duration, and mode of study of the NSC are comparable to the other programmes analysed in this report. All analysed qualifications aim to enable students to progress to either higher/further education or the world of work.

The following table details some of the core components of the NSC and the international comparison programmes. This table focuses on programme-level comparisons; subject-level comparisons are made in the subject comparison appendices linked to this report.

Table 8: Programme-level comparisons

Typical features	NSC	IB DP	Cambridge Intl AS/A Level	ZIMSEC Forms 5-6	KCSE	NSW HSC
Entry	Grade 9 completion or equivalent ⁶⁴	No formal requirements ⁶⁵	No formal requirements, but typically GCSE (Year 11) or equivalent	Entry based on O Level results	Students required to successfully pass KCPE	Grade 10 completion or equivalent
Duration	3 years FET phase leading culminating in 1 year qualification ⁶⁶	2 years	2 years	2 years	4 years	2 years
Total years of schooling	12 years	Up to 16 years	13 years	15 years	12 years	12 years
Qualification structure	Diploma-style	Diploma-style	Single-subject award	Single-subject award	Diploma-style	Diploma-style
Content						
No. of subjects studied	7	6 + 3	No min/max – typically 3-4	2-4	Minimum 7	Typically 5-6 ⁶⁷
Compulsory subjects?	✓ 4 compulsory subject areas: <ul style="list-style-type: none"> • First additional language • Home language⁶⁸ • Life orientation (including physical education) • Mathematics or Mathematical literacy. 	✓ 3 core, and 6 compulsory subject groups: <ul style="list-style-type: none"> • Group 1: Studies in language and literature • Group 2: Language acquisition • Group 3: Individuals and societies • Group 4: Sciences 	✗	✗	✓ Mathematics, English, and Kiswahili	✓ English or English Studies

⁶⁴ A General Education and Training Certificate (GETC) for Adult Basic Education and Training (ABET); a NQF Level 1 Certificate which requires two languages; a recognised equivalent qualification obtained at NQF Level 1 which requires two official languages; or an official document of approval from the relevant Head of Education confirming that a learner who has received home education prior to Grade 10 has reached the required level in Grade 9.

⁶⁵ There are not formal entrance requirements stipulated for the IB DP, as students may come from a variety of different prior schooling backgrounds. The IB has its own Middle Years Programme (MYP) which can provide a continuum of IB learning designed to lead-into the DP or the IB's Career-Related Programme (CP).

⁶⁶ Though flexibility for this to be shortened/ lengthened at the discretion of schools on an individual student basis.

⁶⁷ A preliminary pattern of study that includes at least 12 units and an HSC pattern of study that includes at least 10 units. Typical subjects are 2 units per year.

⁶⁸ One of the languages offered must be either Afrikaans or English.

Typical features	NSC	IB DP	Cambridge Intl AS/A Level	ZIMSEC Forms 5-6	KCSE	NSW HSC
	<ul style="list-style-type: none"> Group 5: Mathematics Group 6: Arts.⁶⁹ 					
Modes of learning	Classroom-based	Classroom-based	Classroom-based	Classroom-based	Classroom-based	Classroom-based
Assessment	External exams, school-based assessment	External exams, school-based assessment	External exams, school-based assessment	External exams, school-based assessment	External exams, school-based assessment	External exams, school-based assessment
Grading	✗	✓	✗	✗	✓	*
Overall grade awarded?		45-point total			Mean subject grade calculated; A (highest) - E	Optional through ATAR ranking
Subject grades awarded?	✓	✓	✓	✓	✓	✓
	Level 7 (highest) - Level 1 (not achieved) ⁷⁰	7 (highest) - 1	A* (highest) - E	A (highest) - E ⁷¹	A (highest) - E	Mark out of 100 which is equated to a Band from 6 (highest) - 1
Associated outcomes	✓	✓	✓	✓	✓	✓
Access to domestic Bachelor degree programme	NSC with 50% in at least four subjects, and 30% in the language of teaching of the HEI	Domestic degree programme N/A. Widely accepted for access to HEIs internationally	Domestic degree programme N/A. Widely accepted for access to HEIs internationally	Two passes in relevant subjects at Advanced Level is generally minimum requirement	A mean grade of C+ is generally the minimum score for direct entry into undergraduate programmes at public universities	ATAR ranking system used to enable entrance

⁶⁹ Students may opt to take a second subject from group 1, 2, 3 or 4 instead of an arts course from group 6.

⁷⁰ Level 1 (0-29%) signals not achieved.

⁷¹ Grade of O signifies a fail that is a subsidiary of the O Level qualification.

This table provides a simple overview of some of the key features of each qualification examined in this report.

Regarding typical duration, it is clear that the NSC's three-year study period is longer than the majority of other programmes included in this report. However, when considered as a component of the full number of years of schooling, all systems are comparable. The IB DP, Cambridge International AS/A Levels, NSW HSC, and ZIMSEC school-leaving programmes are all generally two years in duration. The KCSE is the only programme of those examined here with a longer duration than the NSC. The NSC acts as a school-leaving qualification, the preparation for which comprises the final three years of a 4+3+3+3 pattern of school education in South Africa. In Kenya, the KCSE currently comprises the final four years of an 8+4 scheme. In Australia, school education is 13 years in duration from foundation year to senior secondary. Excluding the foundation year, it is structured into a 6+4+2 system comprising primary, secondary and senior secondary cycles in all states and territories, with the exception of South Australia and Western Australia, where a 7+3+2 system is in place. School in Zimbabwe is compulsory until Grade 7 and is structured in a 4+5+4+2 system comprising infant, junior, lower secondary and upper secondary levels. The Cambridge International AS/A Levels and the IB DP, as international programmes, do not follow a single national compulsory education structure, however both also provide their own progression pathways for students who pursue multiple educational stages within the same system. The IB provides a Primary Years Programme (PYP) for students between the ages of 3 and 12, a Middle Years Programme (MYP) for students between 11 and 16 years old, and then the Diploma Programme (DP) or Career-Related Programme (CP) which are both two-year school-leaving awards. Cambridge Assessment International

Education provides a "Cambridge Pathway"; this pathway flows from Cambridge Primary (age 5+), to Cambridge Lower Secondary (age 11+), to Cambridge Upper Secondary (age 14+) to Cambridge Advanced (age 16+), which includes the International AS & A Levels.

It is possible to compare the number of hours that students are expected to invest in their studies across each of the programmes, though it should be noted that these measures are always only indicative (and often contain different assumptions on whether only classroom time is measured or if independent study is included). It is therefore important not to place too much emphasis on direct numerical comparison. The teaching time allocation per week for the NSC is a total of 27.5 hours for the seven-subject minimum required of all students. This breaks down as roughly 4.5 or 4 hours per week for each subject (and 2 hours per week for Life Orientation). The total number of learning hours expected per NSC subject was indicated as being roughly 40 hours per term, which equates to 160 hours per year, however this may include revision or consolidation hours not included in the measures of some other programmes.⁷² The IB recommends 240 teaching hours for HL subjects and 150 hours for SL. Cambridge Assessment International Education provides guided learning hours information as an indication of the amount of contact time teachers need to have with learners to deliver a particular curriculum. 180 guided learning hours are recommended for AS Level and around 360 guided learning hours for A Level. In NSW, students must satisfactorily complete a year 11 pattern of study that comprises at least 12 units and a year 12 pattern of study comprising at least 10 units. A unit of study comprises 60 hours indicative time, where "indicative" means "the time expected for a typical student to achieve the objectives and outcomes of the course".⁷³ The KCSE documentation analysed does not

⁷² Department of Basic Education, National Curriculum Statement (2011), *Curriculum and Assessment Policy Statement Grades 10-12 Physical Sciences*, p. 13.

⁷³ NSW Education Standards Authority, *Study of Preliminary and HSC courses: units of study and indicative time*. Available at: <https://ace.nesa.nsw.edu.au/ace-8064>.

prescribe learning hours and the Zimbabwean documentation indicates that 10 periods of 35 minutes each week should be dedicated to each subject studied in Forms 5-6.

Regarding entry requirements, many of the programmes have some expectation of either passing or gaining a specific achievement at the directly previous stage of schooling (whether that is labelled as lower secondary, middle, or primary). The NSC is similar to the NSW HSC, ZIMSEC forms 5 and 6, and KCSE in that students are expected to produce evidence of achievements up to (or up to a similar level to) the previous year of schooling. The NSC does have a number of flexible pathways through which this level of academic achievement can be ascertained. The IB DP and the Cambridge International AS/A Levels do not have strictly listed entry requirements, partly due to their nature as programmes which operate in a wide range of international contexts. However, even those international awards may make use of recommendations and school-based judgements on a student-by-student basis to ensure students are pursuing the appropriate academic qualifications for their personal progression pathways.

Regarding associated outcomes, all qualifications analysed here are likely to enable access to higher education within their respective regions, depending on the grades achieved by the individual and the requirements of specific higher education institutions. Analysis of top universities in the UK suggests that some will not currently directly accept NSC students without further qualifications, whereas others may directly accept NSC students with particularly high grades such as 76666-77777 (excluding Life Orientation). Entry requirements to specific courses are often shaped by subject-specific grade achievements.

The typical mode of learning is identical for all programmes and all programmes also have flexible options. Particular flexibility has been demonstrated in response to the Covid-19

global pandemic, where typically class-taught curricula have had to develop alternative provision.

The number of subjects studied varies significantly between the different programmes analysed here. The NSC's seven-subject minimum is similar to the pattern of study in the IB DP, NSW HSC, and the KCSE. These programmes emphasise breadth in range of subjects studied. By contrast, the A Level structure underpinning the Cambridge International and ZIMSEC programmes emphasises depth in a smaller number of subjects, and also foregoes compulsory subjects.

Regarding the enforcement of compulsory subjects, the NSC is the most prescriptive of the qualifications examined here, with four compulsory subjects: First Additional Language, Home Language, Life Orientation (including physical education), and a choice between Mathematics or Mathematical Literacy. The KCSE also prescribes three out of a minimum of seven subjects, while the NSW HSC prescribes English be studied. The IB DP has compulsory core elements, but the subjects are guided by a grouping system rather than prescribing specific curricula.

No two grading systems are identical across these six programmes of secondary education. Each subject studied in the NSC is certified with an individual grade from 7-1 (with 7 representing the highest level of achievement). The IB DP also uses a 7-1 grading scale, though places more emphasis than the NSC on the cumulative total score achieved by adding together each individual subject studied. The NSW HSC uses a six-performance-band grading framework for each subject, while also showing the examination and assessment marks. The KCSE, ZIMSEC, and Cambridge International awards all use an alphabetical grade-signifier system rather than a numerical one. A cross-programme qualification result is provided in the IB DP and KCSE, and is available through the ATAR ranking system in Australia.

5.1.2 Aims, Learning Outcomes, and Assessment Objectives

The aims, learning outcomes, and assessment objectives of NSC subjects show considerable similarity with comparison programmes. Overall, there is some scope for further standardisation in the way that these core elements are presented in NSC subject documentation. There are also many points of comparability between the different programme-level aims and intended outcomes, though with scope for the NSC to add to these in some areas.

Format

Not all programmes share the same structure for articulating their aims, learning outcomes, and assessment objectives. Across the range of programmes analysed in this report, no two have the same format in relation to their articulation of these core features.

Each NSC subject guide begins with a broad introduction to the underpinning aims and intentions of the wider qualification. This includes the “general aims of the South African curriculum”, in which it is explained what the principles are that the National Curriculum Statement is based on and what the National Curriculum Statement aims to produce regarding what learners are able to do. Following these programme-level statements, each subject guide also details the aims of the individual subject. These are generally articulated as “specific aims”, though the format is not the same across all subjects. Some provide a bullet point list of subject aims (e.g. Additional Languages), some develop a multiple-paragraph description (e.g. Physical Sciences), some provide subsections with considerable additional detail (e.g. Life Sciences), while others immediately describe subject-specific skills in a subsection after the aims (e.g. Mathematics). There is scope for the structuring of the subject aims within each guide to be slightly more standardised in order to support stakeholder understanding of the particular intended outcomes of each curriculum.

In some subjects, the specific aims of the curriculum also provide an overview of the intended learning outcomes, however some subjects also incorporate further sections of information covering, for example, “specific skills” or an overview of “skills and content”. There is general consistency in the use of the language of “cognitive levels”, or areas of “cognitive demand” to structure presentation of weighted assessment objectives at subject-level. There is, however, variety in the way these are *presented* within subject documentation. For example, in NSC Mathematics the cognitive levels are presented alongside bullet-point lists of “skills to be demonstrated”; in NSC Geography the cognitive levels are split into lower, middle, and higher order; in NSC Life Sciences the areas of cognitive demand are attached to lists of “useful verbs” which indicate the types of action associated with each type of cognition. The clear use of percentages to indicate weightings of cognitive areas in the assessment programme is a strong aspect of these subject guides and helps develop a broad understanding of what students must achieve in the subject. However, further standardisation in the structure of how these areas of cognitive demand are presented may be helpful to certain stakeholders who teach or learn more than one subject and therefore use multiple subject guides to understand the NSC curriculum.

Not all comparison curricula have entirely consistent structures for aims, learning outcomes, and assessment objects, so the NSC is not unique in this. The IB and Cambridge Assessment International Education are perhaps the most internally consistent between their subject guides – offering clear and distinct sections on “aims” and “assessment objectives”. KCSE documentation provides relatively little detail on these core elements compared to some other programmes, as the aims, learning outcomes, and assessment objectives are generally blended into either a short list of “general objectives” or a longer list of “specific objectives”, which also covers all content to be taught within the subject. Zimbabwean subject guides often provide clearly stated

aims, “syllabus objectives”, and “assessment objectives”, though (like the NSC) the structure and level of detail can vary between subjects. The NSW HSC uses clearly labelled “aim” and “rationale” subsections to establish the purpose of a course, then uses a variety of “objectives” and “skills” descriptors to convey outcomes and assessment objectives in a shiftable format.

Programme-Level

Regarding the content of the subject-level aims, outcomes, and objectives, the NSC curricula generally show a high level of similarity with the comparison programmes. However, this is discussed in more detail on a case-by-case basis in the key findings for each subject area (below) and the subject comparison appendices linked to this report.

The top-level aims of the South African curriculum are articulated in documentation as what the curriculum aims to do, what the curriculum “serves the purpose of”, what “principles” the curriculum is based on, and what kind of learners should be produced by the curriculum. The key extracts from these descriptions are presented below:

“This curriculum aims to ensure that children acquire and apply knowledge and skills in ways that are meaningful to their own lives. In this regard, the curriculum promotes knowledge in local contexts, while being sensitive to global imperatives.

The National Curriculum Statement Grades R-12 serves the purposes of:

- *equipping learners, irrespective of their socio-economic background, race, gender, physical ability or intellectual ability, with the knowledge, skills and values necessary for self-fulfilment, and meaningful participation in society as citizens of a free country;*
- *providing access to higher education;*
- *facilitating the transition of learners from education institutions to the workplace; and*

- *providing employers with a sufficient profile of a learner’s competences.*

The National Curriculum Statement Grades R-12 is based on the following principles:

- *Social transformation: ensuring that the educational imbalances of the past are redressed, and that equal educational opportunities are provided for all sections of the population;*
- *Active and critical learning: encouraging an active and critical approach to learning, rather than rote and uncritical learning of given truths;*
- *High knowledge and high skills: the minimum standards of knowledge and skills to be achieved at each grade are specified and set high, achievable standards in all subjects;*
- *Progression: content and context of each grade shows progression from simple to complex;*
- *Human rights, inclusivity, environmental and social justice: infusing the principles and practices of social and environmental justice and human rights as defined in the Constitution of the Republic of South Africa. The National Curriculum Statement Grades R-12 is sensitive to issues of diversity such as poverty, inequality, race, gender, language, age, disability and other factors;*
- *Valuing indigenous knowledge systems: acknowledging the rich history and heritage of this country as important contributors to nurturing the values contained in the Constitution; and*
- *Credibility, quality and efficiency: providing an education that is comparable in quality, breadth and depth to those of other countries.*

The National Curriculum Statement Grades R-12 aims to produce learners that are able to:

- *identify and solve problems and make decisions using critical and creative thinking;*

- *work effectively as individuals and with others as members of a team;*
 - *organise and manage themselves and their activities responsibly and effectively;*
 - *collect, analyse, organise and critically evaluate information;*
 - *communicate effectively using visual, symbolic and/or language skills in various modes;*
 - *use science and technology effectively and critically showing responsibility towards the environment and the health of others; and*
 - *demonstrate an understanding of the world as a set of related systems by recognising that problem solving contexts do not exist in isolation.*⁷⁴
- Literacy and numeracy
 - Appreciation for lifelong learning
 - Active engagement with citizenship
 - Learner independence
 - ICT skills
 - Communication and collaboration competences
 - Creativity and capacity to be innovative
 - Higher-order thinking skills such as analytical and critical thinking
 - Flexibility and adaptability
 - Research and project skills, or others likely to serve as preparation for higher education
 - Ethical and moral literacy
 - Deep disciplinary knowledge
 - Interdisciplinary competence.

The NSC is not the only qualification to articulate top-level aims, philosophies, and intended student learning outcomes which operate across subjects. The table in Appendix 1 provides a summarised view of how the comparison curricula use programme-level articulations of learning outcomes to express similar and contrasting ideas to the NSC.

Comparing these top-level statements, it is clear that there are many overlaps in the development of aspirational student profiles, articulations of programme aims, and statements of intended outcomes which are cross-subject relevant.

Some of the recurring themes amongst these lists include developing:

This list also shows substantial similarities with the programme-level aims and outcomes articulated within NSC documentation. This indicates that there is significant overlap between the aims and intended outcomes of the NSC and the comparison curricula. Specifically, the table below indicates where similarities and differences emerge between the NSC's programme-level statements and the list of qualities extracted from similar lists in the comparison programmes. A ✓/*/✗ code is used to indicate – at a glance – the themes which are (✓) / are almost (*) / are not (✗) explicitly described in NSC programme-level statements.

⁷⁴ Department of Basic Education, National Curriculum Statement (2011), *Physical Sciences Curriculum and Assessment Policy Statement Grades 10-12*, pp. 4-5.

Table 9: Programme-level themes compared to NSC

Aim/Outcome Themes	Evidence within NSC Programme-Level Statements	Explicitly Described?
<p>Literacy and numeracy</p>	<p>Statement of curriculum purposes describes development of knowledge and skills needed for access to HE – implying literacy and numeracy.</p> <p>Statement of curriculum principles describes “minimum standards of knowledge and skills”.</p> <p>Literacy and numeracy are not explicitly described.</p>	<p>✗</p>
<p>Appreciation for lifelong learning</p>	<p>Statement of curriculum principles describes learners developing “Active and critical learning: encouraging an active and critical approach to learning, rather than rote and uncritical learning of given truths”. This does not explicitly describe lifelong learning but would be an important element of developing that outlook.</p> <p>Lifelong learning is not explicitly described.</p>	<p>✗</p>
<p>Active engagement with citizenship</p>	<p>Statement of curriculum purposes describes “meaningful participation in society as citizens of a free country”.</p> <p>Statement of curriculum principles describes “Human rights, inclusivity, environmental and social justice: infusing the principles and practices of social and environmental justice and human rights as defined in the Constitution of the Republic of South Africa. The National Curriculum Statement Grades R-12 is sensitive to issues of diversity such as poverty, inequality, race, gender, language, age, disability and other factors”.</p> <p>Statement of curriculum principles describes learners “Valuing indigenous knowledge systems: acknowledging the rich history and heritage of this country as important contributors to nurturing the values contained in the Constitution”.</p> <p>These qualify as an explicit statement of active citizenship.</p>	<p>✓</p>
<p>Learner independence</p>	<p>Statement of the nature of learners produced by the curriculum describes being able to “work effectively as individuals” and “organise and manage themselves and their activities responsibly and effectively”.</p> <p>Statement of curriculum principles describes “Active and critical learning: encouraging an active and critical approach to learning, rather than rote and uncritical learning of given truths”. This implies the ability to think as an individual.</p> <p>These qualify as an explicit statement of learner independence.</p>	<p>✓</p>

Aim/Outcome Themes	Evidence within NSC Programme-Level Statements	Explicitly Described?
ICT skills	<p>Statement of the nature of learners produced by the curriculum describes being able to “collect, analyse, organise and critically evaluate information” and “communicate effectively using visual, symbolic and/or language skills in various modes”. This may involve use of ICT.</p> <p>Statement of curriculum purposes describes “facilitating the transition of learners from education institutions to the workplace”. Workplaces are often likely to require ICT, so this may tangentially link to that area of skills.</p> <p>ICT skills are not explicitly described.</p>	✗
Communication and collaboration competences	<p>Statement of the nature of learners produced by the curriculum describes being able to “work effectively as individuals and with others as members of a team” and “communicate effectively using visual, symbolic and/or language skills in various modes”.</p> <p>These qualify as an explicit statement of communication and collaboration competences.</p>	✓
Creativity and capacity to be innovative	<p>Statement of the nature of learners produced by the curriculum describes being able to “identify and solve problems and make decisions using critical and creative thinking”.</p> <p>This qualifies as an explicit statement of creativity and capacity to be innovative.</p>	✓
Higher-order thinking skills such as analytical and critical thinking	<p>Statement of the nature of learners produced by the curriculum describes being able to “identify and solve problems and make decisions using critical and creative thinking” and “collect, analyse, organise and critically evaluate information” and “use science and technology effectively and critically”.</p> <p>Statement of curriculum principles describes “Active and critical learning: encouraging an active and critical approach to learning, rather than rote and uncritical learning of given truths”.</p> <p>These qualify as an explicit statement of higher-order thinking skills such as analytical and critical thinking.</p>	✓
Flexibility and adaptability	<p>Statement of curriculum purposes describes “facilitating the transition of learners from education institutions to the workplace”. This implies flexibility within the curriculum, though not explicitly as an outcome for learners.</p> <p>Statement of the nature of learners produced by the curriculum describes being able to “demonstrate an understanding of the world as a set of related systems by recognising that problem solving contexts do not exist in isolation.” This implies an ability to adapt – to understand contexts and solve problems in a variety of contexts.</p> <p>Flexibility and adaptability are not explicitly described as outcomes.</p>	✗

Aim/Outcome Themes	Evidence within NSC Programme-Level Statements	Explicitly Described?
<p>Research and project skills or others likely to serve as preparation for higher education</p>	<p>Statement of the nature of learners produced by the curriculum describes being able to “identify and solve problems and make decisions using critical and creative thinking” and “demonstrate an understanding of the world as a set of related systems by recognising that problem solving contexts do not exist in isolation”.</p> <p>Statement of curriculum purposes describes “providing access to higher education”. This may indirectly imply development of HE-relevant skills.</p> <p>Research and project skills are not explicitly described as outcomes.</p>	<p>✗</p>
<p>Ethical and moral literacy</p>	<p>Statement of curriculum purposes describes having the “values necessary for self-fulfilment, and meaningful participation in society as citizens of a free country”.</p> <p>Statement of curriculum principles describes “Human rights, inclusivity, environmental and social justice: infusing the principles and practices of social and environmental justice and human rights as defined in the Constitution of the Republic of South Africa. The National Curriculum Statement Grades R-12 is sensitive to issues of diversity such as poverty, inequality, race, gender, language, age, disability and other factors”.</p> <p>Statement of the nature of learners produced by the curriculum describes being able to “use science and technology effectively and critically showing responsibility towards the environment and the health of others”.</p> <p>These qualify as an explicit statement of ethical and moral literacy.</p>	<p>✓</p>
<p>Deep disciplinary knowledge</p>	<p>Statement of curriculum principles describes “High knowledge and high skills: the minimum standards of knowledge and skills to be achieved at each grade are specified and set high, achievable standards in all subjects” and “Progression: content and context of each grade shows progression from simple to complex”.</p> <p>Statement of curriculum purposes describes knowledge and skills being developed to facilitate movement to workplaces and higher education.</p> <p>These qualify as an explicit statement of deep disciplinary knowledge.</p>	<p>✓</p>

Aim/Outcome Themes	Evidence within NSC Programme-Level Statements	Explicitly Described?
Interdisciplinary competence	<p>Statement of curriculum principles describes “Human rights, inclusivity, environmental and social justice” and “Valuing indigenous knowledge systems”. These are all implicitly interdisciplinary in nature.</p> <p>Statement of the nature of learners produced by the curriculum describes being able to “communicate effectively using visual, symbolic and/or language skills in various modes” and “demonstrate an understanding of the world as a set of related systems by recognising that problem solving contexts do not exist in isolation.” These skills are interdisciplinary in nature, though not articulated as such by these statements.</p> <p>Interdisciplinary competence is described in all but name.</p>	*

From this table, seven of the 13 identified themes are explicitly described in top-level aims and outcomes of the NSC. One theme, Interdisciplinary competence, is not described explicitly but it is heavily implied (i.e. present in all but name) – indicating scope to be more explicit in the way this is articulated. Five of the 13 themes were judged not to be explicitly articulated, though for each there was some evidence that the theme could be implicitly or tangentially related to statements of NSC purpose and intended outcomes.

None of the comparison programmes would be likely to show explicit articulation of all 13 identified themes; it is not therefore a necessity for the NSC to alter its programme-level statements in order to articulate all 13. However, this analysis indicates that there is possible scope for the NSC to expand its overall aims and outcomes, particularly in relation to literacy and numeracy, appreciation of lifelong learning, ICT skills, flexibility and adaptability, and research and project skills.

5.1.3 Subject Content

The levels of breadth and depth in NSC subject content are appropriate for a school-leaving qualification. Suitable detail is given in documentation for stakeholders to know what topics are covered, and in what depth, in each subject curriculum.

Important context for the comparison between the NSC and comparison programmes, in terms of content, is that each upper-secondary qualification analysed here has a different structural design. Some, like the NSC, are diploma-style in structure. These awards cover a wider breadth of subjects, may include compulsory subjects, and take a holistic view of a student's achievement in order to award a whole-programme diploma (as well as single-subject grades). The NSW HSC, KCSE, and IB DP have similarities to the NSC from this structural perspective. The two A-Level-style awards examined in this report (Cambridge International AS/A Levels and ZIMSEC Forms 5-6 advanced levels) instead follow a single-subject structure. These enable students to pursue a narrower range of subjects (potentially enabling greater depth or further content within a subject), avoiding compulsory subject-selection, and providing single-subject accreditation rather than a holistic diploma. These two styles of programme design result in some differences in subject-level depth and complexity.

The curriculum and assessment policy statements (CAPS) for each NSC subject analysed by Ecctis clearly show what content will be covered within the curriculum. The manner of showing this information was not always completely standardised in terms of format and structure, but the level of detail was effective and likely to be clear and helpful for stakeholders. Some

elements within documents were recognised as being particularly valuable additions:

- Geography: The CAPS document provides a specific subsection detailing “continuity and progression in the Geography curriculum” from grades 4 to 12. This identifies the key topics covered in each grade and provides an effective synthesised presentation of how students will be expected to add incremental depth and breadth.
- Geography: The CAPS document provides separate content breakdowns in terms of “content” and “skills and techniques” for grades 10, 11, and 12. This clearly shows the cyclical nature of the curriculum which allows students to revise topics as well as learn new topics and skills each year.
- Mathematics: The CAPS document provides a simple summary of how many weeks are to be spent learning each relevant content topic within all four terms of grades 10, 11, and 12 respectively. This provides a helpful at-a-glance overview of the full subject content.
- Life Sciences: The CAPS document provides three specific subject aims (Specific Aim 1: Knowing Life Sciences; Specific Aim 2: Investigating Phenomena in Life Sciences; Specific Aim 3: Appreciating and Understanding the History, Importance and Applications of Life Sciences in Society) and then details a list of tasks that “learners must be able to do”, categorised according to each specific aim. Each item on this list is a verb-based skill; for example, “recognise patterns and trends” and “critically evaluate scientific information”. This provides an effective link between the subject aims and a specific list of skills outcomes which can be linked to subject content.
- English (FAL): The CAPS document provides a lengthy explanation of how teachers should plan to deliver the content – including details on sequencing and teaching techniques. The level of advisory detail here is likely to be very useful for less experienced teachers in particular.
- Physical Sciences: The CAPS document

provides a breakdown of content into six “main knowledge areas”. The content in each year is then clearly and effectively split into these six content areas. The effective signposting of this enables immediate understanding of curriculum structure for all stakeholders.

Each of these qualities provide sound and useful contributions to the structuring of content in NSC subject documentation. There is the potential to make NSC documents even more clear and stakeholder-friendly by deploying each of these promising practices across more of the subject documentation (in a uniform way where appropriate).

Regarding the topics covered within each subject, the individual summaries below provide further detail for each subject area. Overall, it is evident that there are some differences (often as a result of selecting different priorities for the aims of the subject or due to cultural/national preferences), however, this would be expected when comparing any school-leaving curricula. Of all programmes analysed in this report, the NSC subjects demonstrate the strictest guidelines in terms of what will be taught, within exactly what timeframe, and in what sequence. This results in a high level of content detail in each subject guide.

There are also some general findings around the depth and complexity of content covered in relation to the comparison programmes. The KCSE often delivers curriculum content that operates at a lower level of depth and complexity compared to the other programmes analysed here. This is not universally the case, without exception, but it was the general trend observable across the subjects analysed. There were also some indications of greater depth and complexity of subject content, compared to the NSC, in some aspects of other programmes. In particular, the second year of the NSW HSC and Cambridge International A Levels, Form 6 of ZIMSEC subjects, and the HL options in the IB DP showed either more depth or complexity of content *in some areas* when compared to

the closest NSC subject. Again, this is not the case without exception, but emerges as a top-level finding when looking across the range of subjects.

Sequencing

The NSC approach to giving guidance on the sequencing and pacing of subject content is more prescriptive than all other programmes analysed in this report. This approach prioritises a standardisation in student experiences over enabling teachers to be flexible.

As described above in relation to subject content, the NSC CAPS documents provide the

most prescriptive guidance of content pacing and sequencing of all programmes analysed in this report.

A summary of sequencing and pacing approaches is provided in the following table. In many cases there is variation between different subjects within a programme in terms of how details of pacing and sequencing are explained. For example, a language curriculum may be structured quite differently from a science curriculum. The table below therefore provides a generalised view of each programme, within which subject-level variation exists and is detailed in this report's subject comparison appendices.

Table 10: Approaches to Sequencing / Pacing

Programme	General Approach to Sequencing / Pacing
<p>NSC</p>	<p>Subject CAPS documents provide a detailed breakdown of subject content areas, generally broken down into:</p> <ul style="list-style-type: none"> • What is taught in every year (grades 10, 11, 12), and every school term (1-4) within that year, • How many hours should be scheduled for the teaching of each topic, • How many hours should be assigned to each knowledge area of sub-theme within a wider topic, • How much time should be ascribed to internal assessment or revision/consolidation of learning. <p>This level of detail represents a highly prescriptive approach to sequencing and pacing of content within each subject. This should provide stakeholders with a clear expectation of what will be taught / learned and should help to develop a consistency of experience between students at different South African schools.</p>
<p>IB DP</p>	<p>Subject guides (which are supplemented by Teacher Support Materials) provide an overview of subject content. The nature/level of detail has the following characteristics:</p> <ul style="list-style-type: none"> • Demonstration of what is "core" content covered by SL and HL students as well as what further detail is covered only by HL students, • Often, recommended teaching hours for each key topic area, • Subtopics within each wider topic area are listed but not associated with specific recommended teaching hours, • There is no specific recommendation for exactly how / when consolidation / revision work takes place, though individual subject guides may give general advice about certain amounts of time being given for review and progress checks on specific aspects of work. <p>This level of detail represents a less prescriptive approach to sequencing and pacing compared to the NSC. IB documentation explicitly prioritises the value of providing flexibility for the wide variety of contexts in which IB schools operate.</p>

Programme	General Approach to Sequencing / Pacing
Cambridge International AS / A Levels	<p>Subject guides provide details on subject content and are supported by wider documentation. The nature/level of detail has the following characteristics:</p> <ul style="list-style-type: none"> • Demonstration of the differences between content studied within the AS Level syllabus and the A Level syllabus, • A list of topic areas, as well as sub-topic themes, linked to learning outcomes, • Subject guides do not link the teaching of topics to a specific number of either prescribed or recommended hours, • Guidance is provided on how teachers can find further resources such as lesson-planning advice and approved textbooks. <p>This level of detail represents a less prescriptive approach to sequencing and pacing compared to the NSC. Although sequencing and pacing detail is low in subject guides, it is likely that teachers of Cambridge International AS / A Levels will be able to access resources which provide further advice or recommendations on syllabus structure within a subject.</p>
KCSE	<p>The examinations and syllabus document provides content details for every subject. The nature/level of detail has the following characteristics:</p> <ul style="list-style-type: none"> • Each key topic area is listed, including specific objectives of what learners should be able to do in relation to that topic and what content sub-themes are included within that area, • There is no information in this document on recommended or prescribed teaching / learning hours, • There is no indication of whether the order in which content is listed corresponds to the order in which it should be taught. <p>This level of detail represents a less prescriptive approach to sequencing and pacing compared to the NSC. It is possible that further guidance is contained in documentation not accessed by Ecctis, such as textbooks.</p>
ZIMSEC Forms 5-6	<p>The forms 5-6 syllabus documents provide details on content, scope, and sequencing. The nature/level of detail has the following characteristics:</p> <ul style="list-style-type: none"> • A brief overview is given of how each key content area is split between forms 5 and 6, • Sub-themes and learning outcomes provide additional detail within each wider subject area, • There is no information in this document on recommended or prescribed teaching / learning hours, • Some subjects indicate that key areas are revised or given additional detail in form 6, after first appearing in form 5. <p>This level of detail represents a less prescriptive approach to sequencing and pacing compared to the NSC. It is possible that further guidance is contained in documentation not accessed by Ecctis, such as textbooks.</p>

Programme	General Approach to Sequencing / Pacing
NSW HSC	<p>The stage 6 syllabus documents provide details on content, scope, and sequencing. The nature/level of detail has the following characteristics:</p> <ul style="list-style-type: none"> • A distinction is made between broad content areas covered in the preliminary course and in the HSC course, • In some subjects, but not others, percentage of course time and corresponding “indicative” number of hours associated with each broad content area are listed, • Outcomes, content sub-themes, and skill areas are used to breakdown wider content areas, • Supplementary documentation available on the NESA website provides sample scope and sequences, where each week of each school term is linked to specific topics and course units – implying a specific time expenditure per topic. <p>Although the subject guides do not provide as prescriptive a recommendation as the NSC CAPS documents, the supplementary online material may bring the detail on sequencing and pacing to a similar level to the NSC.</p>

As this table shows, the NSC has the most prescriptive approach to determining how subject content will be sequenced and paced in schools. The NSW HSC is the nearest programme to the NSC in these terms, while the Zimbabwean and Kenyan qualifications showed less detail, at least within the documentation that was available to Ecctis upon writing this report. The international qualifications delivered by Cambridge Assessment International Education and the IB appear to prioritise the need for flexible approaches within varying school contexts, rather than the prescriptive approach of the NSC.

Mathematics

Mathematics curricula examined in this report show some significant differences with regards to certain topics, though many topics are common to all programmes. Furthermore, there are substantial similarities at the level of assessment methods and intended learning outcomes, however, NSC Mathematics has less emphasis on use of technology than some comparison points and had more emphasis on spatial skills.

Mathematics is one of the fundamental subjects in the NSC. In the Academic (General) pathway, students must offer four subjects from Group A, to include either Mathematics or Mathematical Literacy. Ecctis has analysed only the curriculum

information for Mathematics (not Mathematical Literacy). Students offering NSC Physical Sciences are required to take Mathematics as a compulsory subject. All NSC Mathematics subjects are intended to develop a functioning knowledge of the subject, including competences in mathematical reasoning. This is intended as preparation for more abstract mathematics in subsequent education or career paths.

NSC Mathematics covers a variety of different skills that are presented as learning outcomes including the following: spatial skills, communication, problem-solving, critical analysis, and mathematical process skills. The key similarities that NSC Mathematics exhibits in relation to the comparison curricula includes the focus on the development of problem-solving and communication skills. These are explicitly prioritised across all other comparison programmes. Another skill that NSC Mathematics emphasises is the development of critical analysis skills; this also features in comparison programmes as a priority skill.

Differences that are apparent between NSC Mathematics and other comparison curricula include the outcome of spatial skills. There is no mention of spatial skills in any of the other programmes' learning outcomes. Secondly, the use of technology is not referenced within the subject-specific learning outcomes or

assessment objectives for NSC Mathematics, however, this is key in IB DP, ZIMSEC Forms 5-6, and NSW HSC curricula. For example, an outcome from NSW HSC Mathematics Advanced expresses the aim to develop the ability to use advanced mathematical models and techniques, aided by appropriate technology, to organise information, investigate, model and solve problems and interpret a variety of practical situations.

There are many content similarities between the NSC Mathematics curriculum and the comparison points examined. For example, many statistics topics emerge in NSC Mathematics and also feature throughout the international examples. On the other hand, mechanics topics feature strongly in the Cambridge International AS/A Level context, yet this is not offered as a main topic in other curricula, including NSC Mathematics. NSC Mathematics is therefore different from the Cambridge International AS/A level in this regard, but not from some other international curricula. ZIMSEC Forms 5-6 has a distinct mechanics option, but only the Pure Mathematics award was analysed by Ecctis.

The majority of core mathematics topics that are covered in NSC Mathematics were present in most other programmes' curricula – for instance, algebra, functions, analytical geometry, differential calculus and trigonometry. However, Euclidean Geometry and the content within it was not common to other curricula. Statistics and probability, also described as statistical analysis, is covered in NSC Mathematics, which is coherent with the majority of other programmes with the exception of ZIMSEC (which features a separate curriculum focussing on statistics). Similar to NSC Mathematics, KCSE Mathematics, NSW HSC Advanced and Standard 1 and 2 also include finance-based topics. Lastly, it can be noted that KCSE and NSW Standard 1 and 2 did not cover some topics in the same detail as NSC and other programmes.

When looking across the comparison programmes' content, there were some common topics identified that were not present

in the NSC. These were integration (present in all except NSW Standard) and vectors (present in all but NSW Standard/Advanced – they are covered in Mathematics Extension instead). Other programmes also tended to include content involving random variables and the binomial and normal probability distributions in statistics, rather than linear regression.

Additionally, there were other specific differences between the NSC and particular comparison programmes. For example, the "Networks" topic in NSW HSC Standard 1 and 2, the Additional Higher Topics such as "Sets, relations, and groups" in IB DP Mathematics HL, and the mechanics and advanced statistical content in Cambridge International.

Though NSC Mathematics generally covers topics in similar depth and detail to most other programmes and has complexity in certain topics such as Euclidean Geometry, it can be noted that more areas of complexity can be identified in the content of some other programmes, namely Cambridge International A Level, IB DP HL, and ZIMSEC Forms 5 and 6. This is due to the inclusion of demanding sub-topics in integration, vectors, complex numbers, and the unique topics each of them offers (Advanced statistics/mechanics content in Cambridge International, Additional Higher-Level topics in IB DP, and Numerical Methods/further extension of topics in ZIMSEC Forms 5 and 6).

NSC Mathematics includes investigation projects as a method to assess students practical and investigation skills, as do IB DP, ZIMSEC, and NSW Standard/Advanced. Only the IB DP and NSC explicitly state the weighting of assessment criteria for the marking of these tasks, which, when compared, have similar focus on communication, presentation, and understanding of the mathematics involved. Overall, both programmes offer an investigative task which allows for mathematical exploration and can be accessed by all students – whilst having scope for higher-attaining students to produce work showing deeper complexity and understanding. However, it can be noted that

where IB has one, extensive project, the NSC has more frequent internal assessments, which investigations form one part of.

NSC Mathematics uses four cognitive levels to guide all assessment tasks, which are: knowledge, routine procedures, complex procedures, and problem solving. These skills are continuously assessed and therefore applied within multiple topics of the NSC curriculum. Due to the similarity of core content across the curricula, the mathematical skills embedded in the content of each curriculum are very similar. NSC Mathematics includes content on finance and growth, within which skills that can be developed include critical analysis on different loan options and the application of knowledge of geometric series to solve annuity and bond repayment problems. NSW HSC Standard 1 and 2 assess similar skills within the financial mathematics topic. Other content topics in the NSC, such as functions, focus on the development of problem-solving, and graph work involving the prescribed functions are included in other curricula such as IB DP Mathematics.

Within the NSC topic "statistics", students collect, organise, and interpret univariate numerical data. NSC Mathematics uses mathematical problems that cover topics related to health, social, economic, cultural, political and environmental issues to develop problem-solving in real life scenarios. Analysis skills are further developed during statistics, where students use statistical summaries and correlation to analyse and make meaningful comments on the context associated with given bivariate data, including interpolation, extrapolation and discussions on skewness. Similar to NSC Mathematics, IB DP Mathematics SL uses the topic "statistics" to develop skills in the form of the collection of raw data and the displaying of data in various different graphs, charts and diagrams, with a strong emphasis on understanding and interpreting the results obtained. This also features in KCSE Mathematics, Cambridge International AS/A Level Mathematics, and NSW HSC Mathematics Advanced and Standard 1 and 2.

NSC Mathematics has both internal and external assessment methods. The internal assessments contribute a total of 25% to the final mark. Internal assessments include investigation or projects, tests, assignments and examinations. Unlike NSC Mathematics, KCSE Mathematics and Cambridge International AS/A Level Mathematics are the only curricula analysed here that do not include any internal assessments.

The NSC external assessment is in the form of a final examination, consisting of two papers, worth a total of 75% of the total mark for the subject. Four cognitive levels are used to guide all assessment tasks. Both external examination papers consist of short, multiple-part questions, which is similar to the majority of other programmes. NSW HSC Mathematics curricula differ from this model as each examination paper includes a combination of multiple-choice questions and short, multiple-part questions.

All qualifications vary regarding the total number of marks for external assessments. In general, the majority of programmes have two examination papers, where individual examination papers require a time between two and three hours to complete the assessment, which is comparable to the NSC. The main difference is NSW HSC Mathematics curricula, which only require one formal external written examination and have a higher proportion (50%) of formal assessment stemming from internal tasks.

IB DP Mathematics SL and HL are the only curricula to not allow calculators in an external examination paper. All other curricula, including the NSC, allow calculators and provide an information/formulae sheet in all the external examinations.

Questions in both Papers 1 and 2 of the NSC Mathematics external examinations aim to assess performance at different cognitive levels, with an emphasis on process skills, critical thinking, scientific reasoning and strategies to investigate and solve problems in a variety of contexts. The quantity of questions and sub-

questions in each examination are similar across all of the curricula.

All qualifications award method marks in external examination papers, therefore students are encouraged to show their workings and use a logical approach to solving each problem. For example, IB DP SL states that answers must be supported by working and/or explanations (in the form of, for example, diagrams, graphs or calculations). Where an answer is incorrect, some marks may be given for correct method, provided this is shown by written working. In the NCS Mathematics, “mis-read” marks are also given to students when information is incorrectly copied from the question, resulting in a wrong final answer. The NCS has always supported this form of marking and has named this principle “Consistent Accuracy”. More specifically, in the NSC Mathematics Exam Guidelines, it is outlined that “Consistent Accuracy marking regarding calculations is followed in the following cases: 1) Sub-question to sub-question: when a certain variable is incorrectly calculated in one sub-question and needs to be substituted into another sub-question full marks can be awarded for the subsequent sub-questions provided the methods used are correct and the calculations are correct; 2) Assuming values/answers in order to solve a problem is unacceptable.”⁷⁵

Overall, NSC Mathematics demonstrates many similarities to the range of comparison curricula in areas such as aims, assessment methods, question types, and marking criteria. The inclusion of an internal assessment component offers a good opportunity for students to develop and demonstrate their mathematics skills outside of a timed-assessment setting. Certain differences in content priorities were identified between the NSC curricula and comparison programmes,

but content topics were not universally identical across the comparison curricula either.

English

The NSC English First Additional Language (FAL) curriculum has much in common with other international curricula teaching English as a second or additional language. The curriculum framework uses different language modalities (speaking, listening, reading, and writing) as a structure, which is appropriate for an additional language curriculum.

The NSC English First Additional Language (FAL) curriculum is designed to enable students to “use their additional language at a high level of proficiency to prepare them for further or higher education or the world of work”. To successfully obtain the NSC, students are required to study both a first additional language and home language subject, where one of the languages offered must be either Afrikaans or English. The NSC English FAL syllabus defines first additional language as “the language learnt in addition to one’s Home Language”, referring “to the level and not the language itself”.

Similar to the NSC, the IB DP and NSW HSC programmes offer English on a primary and secondary language basis, whilst including a mandatory language component. For the IB DP, students can take a Language *ab initio*, Language B and / or Classical Languages (Latin or Classical Greek) subject.⁷⁶ These subjects constitute the Group Two: Language Acquisition subject cluster and “it is a requirement of the programme that students study at least one subject from group 2”.⁷⁷ The KCSE programme requires students to enrol on the English and Kiswahili languages subjects, both of which

⁷⁵ Umalusi (2021), *Report on the Quality Assurance of the Department of Basic Education (DBE) November 2020 National Senior Certificate Examinations and Assessment*.

⁷⁶ International Baccalaureate (2018), *Language B Guide*, pp. 6-7.

⁷⁷ International Baccalaureate (2021), *Language Acquisition*. Available from: Diploma language acquisition | International Baccalaureate® - International Baccalaureate® (ibo.org) [Accessed 17/08/2021].

are included in the compulsory subject cluster Group 1.⁷⁸ To obtain the NSW HSC, students are required to “complete at least 12 units of Preliminary courses and 10 units of HSC courses, including English”.⁷⁹ To meet the compulsory English requirements of the programme, four English courses are offered: English Studies, English Standard, English Advanced, and English as an Additional Language or Dialect (EAL/D). The English Studies course is oriented towards students pursuing vocational progression routes, whilst English Advanced students may further enrol in an English Extension course. The Cambridge International AS/A Level English Language subject is a stand-alone qualification and does not constitute a mandatory component of a broader programme of study. Cambridge International offer English Language, English Language and Literature (AS Level only), and English Literature A Level subjects.⁸⁰ The ZIMSEC Communication Skills subject is taken across Forms 5-6 (the upper secondary cycle), where students study at least two subjects for the award of the Zimbabwe General Certificate of Education at Advanced Level.

The NSC English FAL language skills and content extends across the four key language modalities (reading, writing, listening, and speaking). Some similar material is included in the outcomes and objectives of the Cambridge International AS/A Level English Language, ZIMSEC Communication Skills, the KCSE English, and NSW HSC EAL/D qualifications. The NSC English FAL skills and content are explicitly categorised under productive / receptive skills-based subheadings, where the components associated with each modality are listed. The scope of the ZIMSEC Communication Skills assessment objectives

is similar, to the extent that different items corresponding to productive and receptive skills-based categories are specified.

The listed NSC English FAL language skills contrast with the IB DP Language B assessment objectives. Where the NSC English FAL skills and content are separated into different components constituting productive and receptive abilities, the IB DP Language B objectives approach this area holistically through the study of “a range of written, audio, visual and audio-visual texts”.⁸¹ The scope of the NSC FAL language skills includes grammar and “language structures and conventions”. This differs from the outcomes and objectives of the IB DP Language B, Cambridge International AS/A Level English Language and HSC EAL/D curricula, which do not include this focus. In this respect, the NSC English FAL language skills are more similar to the KCSE English outcomes.

A creative language skills component is included in the NSC English FAL, Cambridge International AS/A Level English Language, KCSE English, and NSW HSC EAL/D curricula. The outcomes and objectives of these qualifications consider different aspects of creative language skills. Where NSC English FAL focuses on the structural and language features of creative texts, creativity is included in the Cambridge International AS/A Level English Language competencies in the form of creative writing (“write clearly, accurately, creatively and effectively”).⁸² KCSE English focuses on creative thinking and writing (“Communicate appropriately in functional and creative writing” and “Think creatively and critically”), whilst the NSW HSC EAL/D creativity component involves creative thinking (“Think in

⁷⁸ Kenya National Examinations Council (2014), *Kenya Certificate of Secondary Education: Examination Regulations and Syllabuses*, p. 5.

⁷⁹ NSW Education Standards Authority (2021), *HSC Courses: Choosing your Compulsory English Course*. Available from: HSC courses | NSW Education Standards [Accessed 17/08/2021].

⁸⁰ Cambridge Assessment International Education (2021), *Cambridge International AS and A Level Subjects*. Available from: Cambridge International AS and A Level subjects [Accessed 17/08/2021].

⁸¹ International Baccalaureate (2018), *Language B Guide*, p. 14.

⁸² Department of Basic Education (2011), *English First Additional Language Curriculum and Assessment Policy Statement Grades 10-12*, pp. 10-11; Cambridge International Examinations (2016), *Syllabus: Cambridge International AS & A-Level English Language*, p. 15.

ways that are imaginative, creative, interpretive, and critical").⁸³

The NSC English FAL curriculum content includes a significant number of productive and receptive skills units. In this respect, its scope is broadly similar to that of the HSC EAL/D, KCSE English, and ZIMSEC Communication Skills qualifications. The NSC English FAL subject content also includes a substantial amount of material focusing on grammar, similar to the KCSE English qualification. The NSC English FAL subject content includes a fairly even distribution of material covering the four language modalities, similar to the ZIMSEC Communication Skills content. The content of the ZIMSEC Communication Skills curriculum differs, though, through its absence of grammar units. The structure of the NSC English FAL productive, receptive, and grammatical skills content is dissimilar to the arrangement of the IB DP Language B curriculum material. The NSC English FAL productive and receptive skills content centres on the constituent abilities associated with these modalities. In contrast, the IB DP Language B content integrates the study of productive and receptive language skills into particular tasks and core themes. For example, five prescriptive themes "are used to provide a framework for language acquisition", whilst grammar "should not be an aim in itself". Rather, it "should always be taught in context".⁸⁴ This represents a general difference in approach between the awards.

The NSC English FAL content includes a literary skills component, like the IB DP Language B and NSW HSC EAL/D curricula. The literary content of both the NSC English FAL and IB DP Language B subjects is based on the study of literary texts.⁸⁵ For example, "Intensive reading focusing on the

formal study of literature" is listed as teaching material for the NSC English FAL curriculum, whilst the IB DP Language B includes the "study of at least two literary texts". The content of NSW HSC EAL/D course differs by concentrating on the application of literary devices ("Apply knowledge, skills and understanding of literary devices, language concepts and mechanics into different contexts").⁸⁶

The Grade 12 NSC English FAL assessment structure is based on a weighting of 75:25 externally / internally assessed components. Assessment of the IB DP Language B curriculum differs from the NSC English FAL as students can sit examinations at a Higher or Standard level. However, at both levels, the same ratio of 75:25 externally / internally assessed tasks are used on the IB DP Language B. The assessment structure of the ZIMSEC Communication Skills qualification operates on a similar weighting of 70:30 externally / internally assessed components. The NSW HSC EAL/D assessment structure is based on a 50:50 ratio of external / internal components, whilst the Cambridge International AS/A Level English Language and KCSE English qualifications operate on an 100% external assessment basis.

The NSC English FAL examination papers employ a similar question type format to the IB DP Language B, KCSE English, and NSW HSC EAL/D assessment papers. This consists of some papers that use short response questions along with a broader range of question types (such as the NSC English FAL paper 1), and examination papers that focus more on extended answer and essay-based questions (such as NCS English FAL papers 2 and 3). The NSC English FAL examination papers each carry a different weighting, similar to the structure of NSW HSC EAL/D, KCSE English,

⁸³ Kenya National Examinations Council (2014), *Kenya Certificate of Secondary Education: Examination Regulations and Syllabuses*, p. 29; NSW Education Standards Authority (2017), *English EAL/D Stage 6 Syllabus*, p. 15.

⁸⁴ International Baccalaureate (2018), *Language B Teacher Support Material*, p. 6-7.

⁸⁵ Department of Basic Education (2011), *English First Additional Language Curriculum and Assessment Policy Statement Grades 10-12*, pp. 19-48; International Baccalaureate (2018), *Language B Teacher Support Material*, pp. 10-11.

⁸⁶ NSW Education Standards Authority (2017), *English EAL/D Stage 6 Syllabus*, pp. 34-74.

and IB DP Language B written assessments. The Cambridge International AS/A Level English Language examination papers differ as they have a greater focus on extended answer and essay-based questions. This tallies with the fact that the Cambridge International AS/A Level in English Language is not designed for second- or additional-language students, and so assesses some complex language skills in more depth.

Both the NSC English FAL and ZIMSEC Communication Skills syllabi indicate that their respective assessments are structured on taxonomic models of cognitive skills. The NSC English FAL Grade 12 assessment model incorporates categories informed by Barrett's Taxonomy of comprehension, basing the "programme of assessment requirements" on Literal and Reorganisation Skills (40%), Inference (40%) and Evaluation and Appreciation (20%).⁸⁷ In contrast, the ZIMSEC Communication Skills examination paper² uses a number of categories informed by Bloom's Taxonomy which are weighted at: Simple Recall 10%, Comprehension 60%, and Analysis, Synthesis and Evaluation 30%.⁸⁸ The NSC English FAL differs from the NSW HSC EAL/D in that the latter does not explicitly base its assessments on a particular taxonomic model of cognitive skills. The NSW HSC EAL/D weights its Year 11 and 12 internal assessments 50% towards "Knowledge and understanding of course content" and 50% towards "Skills in responding to texts and communication of ideas appropriate to audience, purpose and context across all modes".⁸⁹

Overall, there were particular similarities noted between the NSC English FAL and the NSW HSC EAL/D, as well as aspects of KCSE English, ZIMSEC Forms 5 – 6 Communication Skills, and IB DP English Language B. The Cambridge International AS/A Level in English Language was the further outlier in this group as it has aims

linked to more complex aspects of language education for already highly proficient speakers of English.

Geography

NSC Geography was found to be an effectively structured and designed curriculum. There were many identified similarities between this NSC subject and comparison points in terms of aims, intended learning outcomes, and assessment approaches. Differences, where found, often reflected varying national/regional focuses in terms of what content is prioritised in a Geography curriculum.

NSC Geography is an optional subject. The qualification forms part of a coherent progression through from Grades 4-12 in Geography. The qualification document suggests that each topic in Geography can be explored by applying a conceptual framework that embraces geography's four "big ideas", namely: Place, Spatial processes, Spatial distribution patterns, and Human and environment interaction. These concepts run through the content and topics, and it is recommended that at least one is included in each enquiry that students are introduced to.

Each of the comparison programmes also has a Geography subject, making cross-programme comparison relatively straightforward. The IB DP offers Geography at Higher level or Standard Level. Cambridge International offers a Geography AS Level over one year, an AS Level in year one leading to an A Level in year two, or an A Level split over two years. In NSW, a stage 6 curriculum in Earth and Environmental Sciences is also offered (which has some substantial overlaps with Geography), however, Ecctis identified the Geography syllabus as the most valuable direct comparison point with NSC

⁸⁷ Department of Basic Education (2011), *English First Additional Language Curriculum and Assessment Policy Statement Grades 10-12*, p. 79.

⁸⁸ Zimbabwe Ministry of Primary and Secondary Education (2015) *Communication Skills Syllabus Forms 5-6 2015-2022*, p. 23.

⁸⁹ NSW Education Standards Authority (2017), *English EAL/D Stage 6 Syllabus*, pp. 6-7.

Geography.

The NSC curriculum design is clear and well-structured, and time guidelines are provided to offer a weighting guide for teachers to help with curriculum planning and ensure that the content is appropriately taught ahead of periodic assessments. There are strong and relevant physical and human geography elements which are situated within a unifying concept of space, as all geographical phenomena have a spatial element. Skills development is built into each grade, and a useful table lists key questions that geographers can ask of all geographical phenomena and processes. There is a connection with other aspects of the Further Education and Training (FET) phase of South African education. Questions can be applied within each of the "big ideas" identified earlier. Assessment is made up of both internal and external assessment. These include mid-year and end-of-year examinations in each of Grades 10-12, along with a trial examination and some assessment tasks, so that students are able to gain marks towards the final grade throughout, rather than relying solely on terminal assessment. This is a forward-looking Geography curriculum building on current ideas, and aimed at developing the conceptual thinking of those students who complete it.

The focus of the NSC is more closely linked to South African contexts than the other Geography curricula. This is to be expected as national and regional awards often emphasise content areas with particular national or regional relevance. The Kenyan and Zimbabwean awards also demonstrate this regional focus. The NSC qualification shares the broader scope of the other curricula, although it does not include, to the same extent, the global focus of qualifications such as the IB DP and the Cambridge International A Level. These cover more ground, but do not have the specificity of the NSC regarding industrial areas and specific topics linked to South Africa.

The NSC qualification has a strong emphasis on

skills development. The idea of competences or soft skills is an element of many of the qualifications and the NSC also explores these in the documentation provided for teachers. One particular growth area in geographical skills is that of the use of Geographic Information Systems (GIS). GIS is covered in the NSC qualification along with the development of some more traditional skills. The NSC aims to make Geography students proficient in the use of aerial photography and other forms of mapping. The intent is clear: that those students who follow this qualification will be prepared for entry into a suitable career in key industrial sectors including mining, agriculture, and forestry, and bring some key skills and knowledge with them. The NSC Geography curriculum has skills which are consistent with the other qualifications in this area, including some generic ones alongside the more explicitly geographical ones. There is a greater emphasis on photographic interpretation (images are a key tool of the geographer when it comes to comparisons between locations) and on exploring change: all important larger aims for geographers to be able to demonstrate.

Regarding subject content, the NSC award has many similarities with the comparison curricula. The NSC Geography curriculum has no elective content. NSC Geography has some elements which one could describe as traditional rather than future-focussed. Some of the urban models such as Harris and Ullman have been a little overtaken by modern urbanisation trends, and globalisation has also changed the dynamics of trade with regard to terms such as "break of bulk" points. The rivers element of the geomorphology topic has quite a defined focus on drainage systems and river networks in Grade 12, whereas other specifications tend to prioritise processes and landforms. However, this links with the focus on topography and geology in Grade 11, which makes sense when looked at holistically. This approach is different to the other specifications but works well and has good coherence. The exemplar assessment materials from November 2020 focus on the drainage

network and underlying geology, including the stream order of the network channels. There is less of a focus on process and river landforms and the flood risk that rivers pose than one finds in qualifications such as IB and Cambridge International. The food security focus is timely and relevant, and one which is mirrored in the IB DP and Cambridge International AS/A Level qualifications as well.

One theme which emerges when looking at the qualifications is that the NSC Geography students will emerge with a good understanding of landscape and topography, which lies at the heart of the discipline. Students will be introduced to a range of landforms which the other specifications do not mention, including a specific look at the Karoo landscapes which are found in South Africa. The approach to development is effective and provides appropriate scope for critical thinking.

The sequencing of the qualifications is broadly comparable on the basis of the information that is provided in the curriculum documentation. The NSC has a slightly more content-focussed approach than the conceptual ideas which are included in the NSW Stage 6 qualification, for example, which has topics such as Global Challenges and Urban Places. These integrate a whole range of skills and knowledge into a larger topic lasting 40 hours. The NSC is made up of smaller sections, each of which has a guideline on how long it should be taught for. Documentation indicates that the sequencing of the Geography curriculum is guided in a more granular way compared to the comparison programmes.

The NSC Geography curriculum has skills coverage which is broadly in line with the other qualifications against which it is being benchmarked. Students taking this subject should be clear on the nature of the skills being developed and the practical purpose for acquiring these. There are some key skills required for Geography around the use and construction of different types of maps at varying scales. These are well covered and developed across

the curriculum rather than being taught in one discrete section. Some of the skills are assessed using simpler question methods than are used in comparison programmes – such as multiple-choice questions. The IB has a greater focus on the interpretation of data, including statistical measures. The ZIMSEC qualification has the additional soft skills development of the Ubuntu philosophy. This requires students to undertake a community-based project, which will allow there to be opportunities for the development of practical and applied skills.

Assessments are broadly similar for each of the curricula: all involve significant time in external examinations, providing a rigorous test of the knowledge and skills acquired. In comparison to the other curricula, NSC Geography's assessment structure is similar in the nature of the examination papers and the combination of internal and external assessments. This offers scope for candidates to achieve in areas which allow them to show their particular strengths. The assessments for the NSC are different from some of the other qualifications. The IB has a distinctive structure which includes a number of papers drawing in elements from a range of different topics. The NSW qualification has a similar structure where different sections are pulled together rather than being dealt with separately.

Overall, the NSC curriculum shows many similarities to the structure, content and assessment approaches of the Geography curricula within comparison programmes. Areas such as statistical elements of geography and regional/national content focuses were identified as points of contrast between NSC Geography and some comparison points, however, the curriculum was noted to be generally future-focussed and with effective links to skill-development.

Life Sciences (Biology)

NSC Life Sciences has many similarities with the learning outcomes and assessment objectives of Biology curricula in the comparison

programmes. Some content priority differences were identified, including where certain comparison curricula offered a wider range of mathematical skills and had greater emphasis on mathematical skills in external examinations than NSC Life Sciences.

Life Sciences is an optional subject in the NSC which is described as “the scientific study of living things from molecular level to their interactions with one another and their environments”. In many other national and international programmes (including those compared in this report), the same field of study is captured under the label “Biology”. This NSC subject is structured using four “knowledge strands”: Life at the Molecular, Cellular and Tissue Level; Life Processes in Plants and Animals; Environmental Studies; and Diversity, Change and Continuity. Across the three preparatory years of the NSC, these knowledge strands are revisited with additional detail or new sub-topics in each year.

In each of the comparison programmes analysed there is an optional subject named Biology. In the IB DP, the Biology curriculum is offered at Standard level and Higher level. Cambridge International offers a Biology AS Level over one year, an AS Level in year one leading to an A Level in year two, or an A Level split over two years.

All six of the systems compared here cover the core biology content of cells and cell division, molecules of life, transport systems, genetics, and some physiology. The biggest variations come in the levels of detail and extent of coverage of biotechnology, ecology, evolution, and mathematical methods. NSC Life Sciences, for example, includes a history of life on Earth which is unique among these six qualifications. Statistical methods are covered by the IB DP, Cambridge International, and ZIMSEC curricula, but not by NSC, NSW or KCSE. It is interesting to note that these same three are the only ones

to cover respiration and photosynthesis at the molecular level.

In terms of assessment objectives, there is broad similarity between the six systems compared here. NSC, IB, Cambridge International and ZIMSEC all list their assessment objectives in order of increasing cognitive demand, starting from recall of knowledge and progressing to synthesis and evaluation. The NCS assessment objectives make implicit references to the assessment of practical or experimental skills, which is evident in the assessment objective focusing on the assessment of students' knowledge and skills in “applying scientific knowledge, assessed by predicting, applying, using knowledge, demonstrating, solving, implementing and judging”.⁹⁰ However, the development of practical or experimental skills is also explicitly outlined in the NSC's Specific Aim 2: Investigating Phenomena in Life Sciences, and the assessment of these skills are part of the final (albeit internal) assessment.⁹¹

The IB DP and Cambridge International more explicitly state the mathematical outcomes that students are expected to demonstrate during their studies of Biology, as both are the only programmes to set out a list of “Mathematical Requirements”. Furthermore, NSC covers a narrower range of mathematical skills than Cambridge International, IB DP and ZIMSEC syllabi, as these cover statistical analysis in addition to the skills included in NSC. KCSE and NSW HSC are also light on mathematical skills. A traditional view is that biology is a lot less dependent on numeracy than physics or chemistry. However, the study of genetics requires understanding of ratio and possibly the Hardy-Weinberg equations. Population studies require the understanding of sampling techniques, possibly including direct proportion, capture-mark-recapture methods and ideas about types of distribution curves. Practical skills involve the understanding of measurement

⁹⁰ Department of Basic Education (2011), *Life Sciences Curriculum and Assessment Policy Statement Grades 10-12*, p. 67.

⁹¹ *Ibid*, p.13.

and uncertainty, types of graphs, detection of outliers, ideas about correlation and statistical methods: chi-squared, standard deviation, variance, t-test.

In examination papers, NSC had considerably less emphasis on mathematical skills than Cambridge International, and somewhat of a lesser emphasis than the IB DP. Furthermore, mathematics-based questions in NSC are usually simplistic, whereas those on the Cambridge International paper are significantly more challenging, especially on Paper 5. Continuing this comparison, the NSC mathematical skills are more comparable to those on Cambridge International paper 2, which is one of the International AS Level papers. Indeed, the differences regarding mathematical skills are less strong when comparing NSC with Cambridge International AS Level than Cambridge International A Level. Also important to note is that mathematical skills will be used in the internal assessments that programmes such as NSC and IB DP use.

Three of the subjects compared here (NSC, IB and ZIMSEC) use an internally assessed component in addition to externally marked papers. These are worth 25% (NSC), 20% (IB) and 30% (ZIMSEC). All of the assessments that have been seen include short and extended answer question styles. Some use multiple choice (NSC, IB, Cambridge International, ZIMSEC, and NSW HSC) and some have essays (Cambridge International, KCSE, and ZIMSEC). Some incorporate choice of questions (IB, Cambridge International, and ZIMSEC) whereas the others do not. Higher-order skills such as evaluation and synthesis are assessed to the greatest extent on the external papers by IB and Cambridge International and to the least extent by KCSE.

Overall, NSC Life Sciences shows many similarities with comparison curricula identified in this report. Intended learning outcomes, assessment objectives, and assessment methods are broadly similar across these curricula, though there are some noted differences in what is prioritised in terms of content, and therefore skills

development.

Physical Sciences (Physics and Chemistry)

NSC Physical Sciences combines the content of physics and chemistry, which are generally distinct subjects in other upper-secondary awards. Similar assessment methods are used across the comparison points in these subjects, though some provide a slightly more rigorous test of higher order skills than the NSC curriculum.

The NSC Physical Sciences curriculum combines the investigation of physical and chemical phenomena within one subject. This is an optional subject within the NSC science subjects. As well as addressing key ideas and traditional areas of inquiry in physics and chemistry, the curriculum also pays specific attention to Indigenous Knowledge Systems (IKS) and the means by which people apply the scientific method and understand the physical environment. The NSC curriculum structure is very different compared to all of the other curricula, in that it is much more helicoidal in its approach, meaning that the same topic areas are revisited in each year of the subject, but each time in greater depth and complexity.

The scope of the learning outcomes from the NSC Physical Sciences with the other curricula is broadly similar. With the main differences focusing on the national and cultural values in each country and the broader issues around language, access to education and development. This is particularly true in the national curricula of: South Africa, Zimbabwe, Kenya and to a lesser extent Australia. This is less so in the more international curricula of IB DP and Cambridge International.

Of the different curricula in this comparison, the content of the NSC Physical Sciences curriculum sits somewhere above, in complexity and of subject matter, KCSE Physics and Chemistry, however it is not as complex in terms of depth and breadth as the Cambridge International A Level, IB DP Physics and Chemistry (particularly Higher Level), ZIMSEC Chemistry and Physics

A Level and the full NSW HSC courses. The elements of the NSC Physical Sciences overlap most closely to the Cambridge International AS Level material (Physics and Chemistry), the core material of the IB DP (Physics and Chemistry) and the core elements of the NSW HSC programme. There is no exit qualification that is AS Level equivalent in Zimbabwe between O Level and advanced level.

The skills coverage in all of the sciences curricula demonstrate the need for a good mathematical skills base. As the depth becomes greater, particularly throughout the Cambridge International A Level and HL IB DP Physics subjects, the mathematical requirements are greater in their complexity, demonstrating the skills progression. Good analytical skills are also required beyond the mathematical requirements, as the very best students should be able to make the calculations, but then evaluate what they mean in relation to the situation presented.

All of the curricula examined seek to develop internationally recognised scientific methodology, and make students aware of the process of discovery, investigation and critical analysis, especially as many students will progress to major in these sciences at university. The Cambridge International A Level, IB DP Higher Level and ZIMSEC Forms 5-6 are particularly strong in these areas.

NSC marking strategy is very clear for both paper 1 (Physics) and Paper 2 (Chemistry).⁹² Papers are marked externally. To score full marks, the correct answer and the correct working / use of formulae, supporting the correct answers and correct units score the full marks for the question; writing just the correct answer does not score full marks. A clear penalty system used for

combinations of correct / incorrect processes is given in the guidance. Also included are detailed examples and sample marks given for a mix of correct, partially correct, and incorrect answers – giving as much support as possible to markers, teachers, and ultimately transparency to students who can see that there is a consistent and fair approach across the sciences subjects.

Overall, the Higher Level IB DP curricula and the second years of the Cambridge International and ZIMSEC curricula demonstrated some more complexity and depth of content compared to the NSC Physical Sciences curriculum. However, there are many similarities around the skills and learning outcomes that all physical sciences subjects aim to develop and the methods used to assess these.

5.1.4 Assessment

Assessment Methods

Assessment methods used in the NSC show many similarities with the approaches deployed by other comparison programmes. The fixed ratio of external and school-based assessment components across all subjects is most similar to the NSW HSC's approach.

The subject-level details of assessment approaches are described in each subject comparison appendix linked to this report. However, there are also some high-level similarities and differences in assessment methods which are summarised here to provide a cross-programme comparison.

The following table summarises the use of assessment methods in each of the qualifications examined in this report.

⁹² Department of Basic Education (2017), *Physical Sciences, Grade 12. Examination Guidelines*, pp. 31-34.

Table 11: Programme Assessment Methods Overview

	NSC	IB DP	Cambridge Intl AS/A Level	ZIMSEC Forms 5-6	KCSE	NSW HSC
External assessment	✓	✓	✓	✓	✓	✓
Weighting	75%	Varies by subject	Varies by subject	60-70%	Varies by subject	50%
Methods	Exam Typically two exam papers per subject ⁹³	Exam Typically two-three exam papers per subject	Exam Typically two-four exam papers per subject	Exam Typically two-four exam papers per subject	Exam Typically two-three exam papers per subject	Exam Typically one-two exam papers per subject
Internal assessment	✓	✓ (often used)	✓ (rarely used)	✓	✓ (rarely used)	✓
Weighting	25%	Varies by subject	Varies by subject	30-40%	Varies by subject	50%
Methods	Vary by subject but should follow CAPS guidance	Vary by subject, but should follow IB guidance	Vary by subject, but should follow Cambridge guidance	Vary by subject but should follow MoPSE guidance	Vary by subject but should follow KNEC guidance	Vary by subject but should follow NESA guidance

⁹³ In some subjects 25% of end-of-year examination mark must come from a Practical Assessment Task.

The table above demonstrates that programmes have individual approaches to the balance of external, written examinations and school-based assessment tasks. Moreover, within programmes there is often variation between subjects, where some are judged to require formal, summative, school-based assessment tasks (such as practicals, projects, performances, and oral/aural assessments), whereas others are judged to be fully assessable through timed, written, end-of-year examinations. All programmes are likely to make use of formative, informal assessment practices in order to support student development, though some programmes provide more guidance on the format this should take and the reasons for deploying it.

Like the NSW HSC and Zimbabwe Forms 5-6, the NSC has a school-based assessment component for every subject. Flexibility is provided to develop appropriate assessment tasks for the specific subject in each instance. Like the NSW HSC, the external-to-internal assessment ratio is identical for all subjects (with the exception of Life Orientation). On a subject-by-subject basis, the assessment patterns of the NSC often resemble the patterns identifiable across the range of international programmes analysed in this report.

Marking Approaches

The approaches to marking formal assessment in the NSC have many qualities in common with comparison programmes such as the Cambridge International AS/A Levels, IB DP, and NSW HSC. General marking guidelines, which establish features such as a positive approach to marks, are combined with subject-level guidance linked to the question types used in each subject's assessment.

Each international programme demonstrates some differences in approaches to marking, though there are also similar features between the NSC and some comparison programmes. This is an area of curriculum design where substantial differences may be noted from subject-to-subject *within* programmes. Some subjects lend themselves to different question types, and therefore different marking approaches are required to appropriately reward correct, partially correct, or merit-worthy responses. The table below provides a synopsis of notable elements of marking guidelines presented within different subjects analysed in this report.

Table 12: Marking Approaches Overview

	NSC	IB DP	Cambridge Intl AS/A Level	ZIMSEC Forms 5-6	KCSE	NSW HSC
General Marking Principles Described	✓	✓	✓	✗	✗	✗
Positive Marking Specified	✓	✓	✓	✗	✗	✓
Mathematics Accuracy	✓	✓	✓	✓	✓	✓
Method Independent	✓	✓	✓	✓	✓	✓
Follow-Through	✓	✓	✓	✗	✗	✓

	NSC	IB DP	Cambridge Intl AS/A Level	ZIMSEC Forms 5-6	KCSE	NSW HSC
Skill / Cognitive Level Weighting	<p>Knowledge (20%); Routine Procedures (35%); Complex Procedures (30%); Problem Solving (15%)</p>	<p>Weighting of AOs not specified.</p> <p>AO1: Knowledge and understanding AO2: Problem-solving AO3: Communication and interpretation AO4: Technology AO5: Reasoning AO6: Inquiry approaches</p>	<p>Weighting of AOs not specified.</p> <p>"The abilities assessed in the examinations cover a single area: technique with application."</p> <p>The examination will test the ability of candidates to:</p> <ul style="list-style-type: none"> understand relevant mathematical concepts, terminology and notation recall accurately and use successfully appropriate manipulative techniques recognise the appropriate mathematical procedure for a given situation apply combinations of mathematical skills and techniques in solving problems present mathematical work, and communicate conclusions, in a clear and logical way 	<p>Weighting of AOs not specified.</p> <p>9.1.1: use mathematical symbols, terms and definitions appropriately</p> <p>9.1.2: sketch graphs accurately</p> <p>9.1.3: use appropriate formulae, algorithms and strategies to solve routine and non-routine problems in Pure Mathematics</p> <p>9.1.4: solve problems in Pure Mathematics systematically</p> <p>9.1.5: apply mathematical reasoning and communicate mathematical ideas clearly</p> <p>9.1.6: conduct mathematical proofs in the expected manner</p> <p>9.1.7: construct and use appropriate mathematical models for a given life situation</p> <p>9.1.8: conduct research projects (including those related to enterprise) accurately and systematically</p>	<p>Weighting of AOs not specified.</p> <p>AOs not specified.</p> <p>AOs not specified</p>	<p>Fluency and Communication (50%); Problem Solving, Reasoning and Justification (50%)</p>

	NSC	IB DP	Cambridge Intl AS/A Level	ZIMSEC Forms 5-6	KCSE	NSW HSC
English Level of Response	✓	✓	✓	✓	✓	✓
Qualities named in Band Descriptors	Content and Planning (incl. awareness of purpose / audience / context). Language, Style, and Editing (incl. tone, register, style, vocab, conventions, punctuation, spelling, grammar) Structure (incl. paragraph and sentence construction)	Command of language (incl. vocab, grammar, accuracy, pronunciation / intonation, idioms). Message (incl. relevance, development of ideas, clarity / logic of presentation, conversation). Conceptual understanding (incl. choice of text type, register and tone, understanding of purpose / context / audience, conventions). Interactive skills (incl. communication, comprehension, interaction, fluency)	Knowledge and Understanding (incl. appreciation of content and ideas, relating content to structure, form, audience, purpose, genre, style, and awareness of intentions). Analysis of Language Effects (incl. analysing parts of and whole text). Organisation (incl. structure, fluency of quotation, clarity). Vocab. Originality, engaging writing, strong voice, development of ideas, range of rhetorical devices, effective outcome linked to purpose, fluency and technical accuracy. Appreciation of forms and conventions, grasp of voice and linguistic technique. Detailed perception of context, awareness of mode	Development of points, organisation, panache, proficient use of English. Vocab, clarity, comprehension. Thoughtful presentation, relevance, perceptive thought, coherence, balance and sensitivity, structured discussions, range of material deployed. Linguistic ability, tone, fluency, sentence structure, lack of errors, paragraphing	Ease of expression and lack of spelling, punctuation, and grammar errors. Planning and organisation. Vocab and language maturity. "Spark". Fluency, communication of personality, command of language	Organisation, development, appropriate language for audience, context, and purpose. Engaging writing, sustained response. Demonstration of knowledge, discernment, expression appropriate to form. Interpretation

Skill / Cognitive Level Weighting	NSC	IB DP	Cambridge Intl AS/A Level	ZIMSEC Forms 5-6	KCSE	NSW HSC
	<p>Literal and Reorganisation (40%); Inference (40%); Evaluation and Appreciation (20%)</p>	<p>Weighting of AOs not specified. AO1: Communicate clearly and effectively in a range of contexts and for a variety of purposes. AO2: Understand and use language appropriate to a range of interpersonal and/or intercultural contexts and audiences. AO3: Understand and use language to express and respond to a range of ideas with fluency and accuracy. AO4: Identify, organize and present ideas on a range of topics. AO5: Understand, analyse and reflect upon a range of written, audio, visual and audio-visual texts</p>	<p>AO1: read with understanding and analyse texts in a variety of forms AO2: demonstrate a knowledge and understanding of English language (including, at A Level, spoken language) and its use in a variety of contexts AO3: write clearly, accurately, creatively and effectively for different purposes/audiences, using different forms</p>	<p>Simple Recall (10%); Comprehension (60%); Analysis, synthesis and evaluation (30%)</p>	<p>Weighting of AOs not specified. AOs not specified</p>	<p>Knowledge and understanding of course content (50%); Skills in responding to texts and communication of ideas appropriate to audience, purpose and context across all modes (50%)</p>

	NSC	IB DP	Cambridge Intl AS/A Level	ZIMSEC Forms 5-6	KCSE	NSW HSC
Geography						
Level of Response	✗	✓	✓	✗	✗	✓
Qualifies named in Band Descriptors	N/A	Categorised by assessment objective (see below)	Knowledge and understanding detail, use of examples integrated into answer, contextual understanding, conceptual understanding, clarity, thorough evaluation, making links between topic areas; evaluation and conclusion	N/A	N/A	Knowledge and understanding, explanation, use of case studies, sustained and cohesive response, and appropriate terms and concepts
Method/ Correct Formula Marks	✓	✓	✓	✓	✓	✓
Skill / Cognitive Level Weighting	Low order – Knowledge/ Remembering (25%); Middle order – Understanding / Applying (50%); High order – Analysing, Evaluating, Creating (25%)	Weighting of AOs not specified. AO1: Knowledge and understanding of specified content AO2: Application and analysis of knowledge and understanding AO3: Synthesis and evaluation AO4: Selection, use and application of a variety of appropriate skills and techniques	AO1: Knowledge (30% AS; 25% A) AO2: Understanding and Application (30% AS; 25% A) AO3: Skills (28% AS; 24% A) AO4: Evaluation (12% AS; 26% A)	AO1: Knowledge with understanding (22.5%) AO2: Skills and their application (45%) AO3: Judgement and decision making (32.5%)	Weighting of AOs not specified. AOs not specified	AO1: Knowledge and understanding of course content (40%) AO2: Geographic tools and skills (20%) AO3: Geographical inquiry and research, including fieldwork (20%) AO4: Communication of geographical information, ideas and issues in appropriate forms (20%)

	NSC	IB DP	Cambridge Intl AS/A Level	ZIMSEC Forms 5-6	KCSE	NSW HSC
Physical Sciences						
Method/ Correct Formula Marks	✓	✓	✓	✓	✓	✓
Follow-Through	✓	✓	✓	✗	✗	✓
Skill / Cognitive Level/ Weighting	<p>Level 1: Remembering (15%)</p> <p>Level 2: Understanding (35-40%)</p> <p>Level 3: Applying and Analysing (35-40%)</p> <p>Level 4: Creating and Evaluating (10%)</p>	<p>Exam: Knowledge and Understanding and Application (+-40%); Formulate, Analyse and Evaluate (+-40%); Demonstrate appropriate skills for investigations (+-20%).</p> <p>Internal Assessment: Personal engagement (8%); Exploration (25%); Analysis (25%); Evaluation (25%); Communication (17%)</p>	<p>Chemistry:</p> <p>AO1: Knowledge with understanding (42%)</p> <p>AO2: Handling, applying and evaluating information (35%)</p> <p>AO3: Experimental skills and investigations (23%)</p> <p>Physics:</p> <p>AO1: Knowledge with understanding (37%)</p> <p>AO2: Handling, applying and evaluating information (40%)</p> <p>AO3: Experimental skills and investigations (23%)</p>	<p>Skill A) Knowledge with understanding (+-30%)</p> <p>Skill B) Handling, applying and evaluating information (+-40%)</p> <p>Skill C) Experimental skills and investigations (+-30%)</p>	<p>Weighting of AOs not specified.</p> <p>AOs not specified</p>	<p>AO1: Skills in working scientifically (60%)</p> <p>AO2: Knowledge and understanding of course content (40%)</p>

	NSC	IB DP	Cambridge Intl AS/A Level	ZIMSEC Forms 5-6	KCSE	NSW HSC
Life Sciences						
Method/ Correct Formula Marks	✓	✓	✓	✓	✓	✓
Follow-Through	✓	✓	✓	✗	✗	✓
Skill / Cognitive Level Weighting	A: Knowledge (40%) B: Comprehension (25%) C: Application (20%) D: Analysis, Synthesis and Evaluation (15%)	Exam: Knowledge and Understanding and Application (+-40%); Formulate, Analyse and Evaluate (+-40%); Demonstrate appropriate skills for investigations (+-20%). Internal Assessment: Personal engagement (8%); Exploration (25%); Analysis (25%); Evaluation (25%); Communication (17%)	AO1) Knowledge with understanding (40%) AO2) Handling information and solving problems (37%) AO3) Experimental skills and investigations (23%)	Skill A) Knowledge with understanding (+-33%) Skill B) Handling information and solving problems (+-47%) Skill C) Experimental skills and investigations (+-20%)	Weighting of AOs not specified. AOs not specified.	AO1: Skills in working scientifically (60%) AO2: Knowledge and understanding of course content (40%)

There are multiple trends identifiable across this range of approaches. The NSC, like most other qualifications analysed here, explicitly prioritises positive approaches to marking (whereby marks are awarded for displaying knowledge and competences, rather than actively subtracted for each error). The Zimbabwean and Kenyan systems are less explicit than the other programmes on this priority.

All programmes analysed here also provide marks in science and mathematics curricula for correct deployment of method, even if a final answer is incorrect. Mis-read marks are also given to students when information is incorrectly copied from the question, resulting in a wrong final answer. The NCS has always supported this form of marking and has named this principle “Consistent Accuracy”. More specifically, in the NSC Mathematics Exam Guidelines it is outlined that “Consistent Accuracy marking regarding calculations is followed in the following cases: 1) Sub-question to sub-question: when a certain variable is incorrectly calculated in one sub-question and needs to be substituted into another sub-question full marks can be awarded for the subsequent sub-questions provided the methods used are correct and the calculations are correct; 2) Assuming values/answers in order to solve a problem is unacceptable”. In addition, most programmes also explicitly have provision for “follow through” marks, whereby numerical errors in one sub-question do not inhibit marks in following sub-questions if the error is carried through. Again, the Zimbabwean and Kenyan mark schemes were the exceptions in not explicitly stating this.

For longer answer questions in language subjects (but also sometimes in Geography), most programmes deploy a system of providing “level of response” descriptors for bands of marks. In some cases, these band descriptors use the subject’s assessment objectives to categorise marks for different elements of a response; in other cases, the “level of response” descriptors use the language of qualities and skills to describe achievement at each marking level.

Like the NSW HSC, IB DP, and Cambridge International AS/A Levels, the NSC uses level of response descriptors in the English language curricula examined. However, unlike those comparison programmes, the NSC does not use this marking approach in Geography. This is indicative of the NSC Geography assessment focussing on shorter question types (indeed “a paragraph of approximately eight lines” is the phrase used in assessment papers to guide students’ length of response for the NSC Geography questions requiring the longest answers).

One means by which these marking practices can be differentiated is evidence of overarching marking principles being used to give marking guidance. For all programmes, it is possible that further guidance is available in the form of professional development opportunities or documentation unseen by Ecctis; however, from the mark schemes reviewed by Ecctis, there was evidence of general marking principles in the NSC, IB DP, and Cambridge International AS/A Levels. These provide valuable information for markers on broad approaches such as positive marking, follow through marks, method marks, and application of grade bands.

5.1.5 Summary of Findings

- The NSC is an effectively designed upper-secondary education qualification which aims to develop higher-order thinking skills and desirable and future-focussed outcomes for students, which should prepare them for higher/further education and the world of work.
- The entry requirements, duration, and mode of study of the NSC are comparable to the other programmes analysed in this report. All analysed programmes aim to enable students to progress to either higher/further education or the world of work.
- The aims, learning outcomes, and assessment objectives of NSC subjects show considerable similarity with comparison programmes. Overall, there is some scope for further standardisation in the way that

these core elements are presented in NSC subject documentation. There are also many points of comparability between the different programme-level aims and intended outcomes, though with scope for the NSC to add to these in some areas:

- literacy and numeracy, appreciation of lifelong learning, ICT skills, flexibility and adaptability, and research and project skills.
- The levels of breadth and depth in subject content are appropriate for a school-leaving qualification. Suitable detail is given in documentation for stakeholders to know what topics are covered, and in what depth, in each subject curriculum.
- The KCSE often delivers curriculum content that operates at a lower level of depth and complexity compared to the other qualifications analysed here, including the NSC.
- There were also some indications of greater depth and complexity of subject content, compared to the NSC, in some aspects of other programmes. In particular, the second year of the NSW HSC and Cambridge International A Levels, Form 6 of ZIMSEC subjects, and the HL options in the IB DP showed either more depth or complexity of content in some areas when compared to the closest NSC subject. This is not the case without exception but emerges as a top-level finding when looking across the range of subjects.
- The NSC approach to giving guidance on the sequencing and pacing of subject content is more prescriptive than all other qualifications analysed in this report. This approach prioritises a standardisation in student experiences over enabling teachers to be flexible.
- Assessment methods used in the NSC show many similarities with the approaches deployed by other comparison programmes. The fixed ratio of external and school-based assessment components across all subjects is most similar to the NSW HSC's approach.
- The approaches to marking formal assessment in the NSC have many qualities

in common with comparison programmes such as the Cambridge International AS/A Levels, IB DP, and NSW HSC. General marking guidelines, which establish features such as a positive approach to marks, are combined with subject-level guidance linked to the question types used in each subject's assessment.

- Mathematics curricula examined in this report show some significant differences with regards to certain topics, but many topics are common to all programmes. Furthermore, there are substantial similarities at the level of assessment methods and intended learning outcomes, however NSC has less emphasis on use of technology than some comparison points and more emphasis on spatial skills.
- The NSC English First Additional Language (FAL) curriculum has much in common with other international curricula teaching English as a second or additional language. The curriculum framework uses different language modalities (speaking, listening, reading, and writing) as a structure, which is appropriate for an additional language subject.
- NSC Geography was found to be an effectively structured and designed curriculum. There were many identified similarities between this NSC subject and comparison points in terms of aims, intended learning outcomes, and assessment approaches. Differences, where found, often reflected varying national/regional focuses in terms of what content is prioritised in a Geography curriculum.
- NSC Life Sciences has many similarities with the learning outcomes and assessment objectives of Biology curricula in the comparison programmes. Some content priority differences were identified, including where certain comparison curricula offered a wider range of mathematical skills and had greater emphasis on mathematical skills in external examinations than NSC Life Sciences.
- NSC Physical Sciences combines the content of physics and chemistry, which are generally distinct subjects in other upper-secondary

awards. Similar assessment methods are used across the comparison points in these subjects, though some provide a slightly more rigorous test of higher order skills than the NSC curriculum.

5.2 International Comparability of the NSC

The analysis carried out by Ecctis at both the programme and subject level has enabled an understanding to be built of the NSC's comparability in the context of the international qualifications analysed in this report. Ecctis considered the following five reference points when developing its view of NSC comparability:

- The International Baccalaureate Diploma Programme,
- The Kenyan national education system (KCSE),
- The state education system of New South Wales, Australia (HSC),
- The Zimbabwean national education system (Forms 5-6 advanced level),
- The Cambridge Assessment International Education AS/A Levels.

The NSC has demonstrable lines of comparability with upper secondary qualifications in each of the benchmark systems, at both a programmatic and subject level, and should support progression to higher education and or workplaces in each system.

Important context for the comparison between the NSC and benchmark programmes is that each upper-secondary qualification analysed here has a different structural design. Some, like the NSC, are diploma-style in structure. These awards cover a wider breadth of subjects, may include compulsory subjects, and take a holistic view of a student's achievement in order to award a whole-programme diploma (as well as single-subject grades). The NSW HSC, KCSE, and IB DP have similarities to the NSC from this structural perspective. The two A-Level-style awards examined in this report (Cambridge International AS/A Levels and ZIMSEC Forms

5-6 advanced levels) instead follow a single-subject structure. These enable students to pursue a narrower range of subjects, avoiding compulsory subject-selection, and providing single-subject certification rather than a holistic diploma.

Further significant framing for comparability judgements is that different national and international qualifications will always have different subject-content priorities, due to being designed within different cultural and regional contexts. Different choices regarding what content is prioritised in a Geography curriculum or subject using literary texts, for example, would be expected in awards coming from different parts of the world. These dissimilarities, in and of themselves, do not represent differences of overall level.

In terms of high-level points of comparability, all of these qualifications (including the NSC) may offer progression to higher education in either a national or international context (depending on grades achieved and subjects studied). All are typically classroom-based, fulltime (though with flexible options), and all use a combination of external examinations and school-based assessment practices (to varying ratios). All awards target the development of higher-order thinking skills and aim to assess students on deep subject-related knowledge and understanding as well as wider competences in areas such as evaluation and synthesis.

In relation to the IB DP, the NSC generally aligns most closely with the subjects studied at Standard Level (SL). Some of the Higher Level (HL) subjects' detail and complexity – along with the additional capacity for HE-readiness-skills to be developed by the IB DP core components (Extended Essay, Theory of Knowledge, and Creativity, Activity, Service) – place the IB award at a slightly higher overall level. The IB DP is typically one year shorter in duration than the NSC but is likely to build on a similar number of years of previous schooling (with flexibility due to the many national contexts within which the IB operates). A similar number of subjects are

studied in both of these diploma-style awards, meaning that students have access to a comparable breadth of subject-areas.

In relation to the KCSE the NSC is generally at a higher overall level. Both awards involve study of a comparable number of individual subjects, have some element of compulsory subject-selection in relation to languages and mathematics, and build on a similar number of years of prior learning. The learning outcomes and assessment objectives of the NSC were generally found to enable more rigorous development of higher-order skills and some subject content in the NSC will draw students into further depth or complexity than the KCSE comparison points.

In relation to the NSW HSC, the NSC involves a comparable number of subjects and a similar number of years of schooling (though the Australian award is typically two years in duration compared to the NSC's three-year FET preparation phase). There are substantial similarities in the assessment practices of these two qualifications, with both making use of school-based assessment in all subjects. Differences were noted at subject level between the NSC and the HSC – which is the NSW regional award at Senior Secondary Certificate of Education standard. However, the overall level of both qualifications is comparable.

In relation to the ZIMSEC Forms 5-6 (advanced level) qualification, the NSC has comparable entry requirements but many structural dissimilarities. The Zimbabwean award is a single-subject-style qualification involving two years of study as opposed to the NSC's three-year diploma-style award. Review of the ZIMSEC assessment and curriculum, particularly in the second year of study, found that, at an individual subject level, a full ZIMSEC advanced level is pitched at a higher level than individual NSC subjects, though students taking the NSC will experience a broader range of subjects.

In relation to the Cambridge International AS/A Levels, the NSC has the same structural dissimilarities highlighted by comparison with the Zimbabwean Forms 5-6. The single-subject style of the AS/A Levels leads students to a typically narrower subject range, which is counter-balanced by further depth/complexity or extra content breadth within each subject studied. The Cambridge International A Levels are typically studied over two years (for A Level, or AS Level leading to A Level) or one year for the standalone AS level. The NSC qualification is generally comparable to International AS Level; the full International A Level subjects include further opportunity for higher level skills development.

6. Recommendations

The following recommendations stem from both subject-level and programme-level review and comparisons undertaken by Ecctis. They are intended to indicate where amendments to, or further consideration of, existing practice could lead to improved clarity, consistency, or quality in the NSC. Although these recommendations are presented to Umalusi as part of the commissioned report into the NSC, the ability to directly implement these recommendations does not necessarily rest with Umalusi itself. However, Umalusi may be in the position to cascade these recommendations, if judged appropriate, to the bodies with responsibility for aspects of NSC curriculum or documentation development.

Further Standardisation in Subject-Level Presentation of Aims, Outcomes, Skills, and Assessment Objectives

There is scope for the structuring of the subject aims and intended learning outcomes / skills development to be further standardised in order to support stakeholder understanding of each curriculum.

Each NSC CAPS subject guide details the aims of the individual subject. These are generally articulated as “specific aims”, though the format is not the same across all subjects. Some provide a bullet point list of subject aims (e.g. Additional Languages), some develop a multiple-paragraph description (e.g. Physical Sciences), some provide subsections with considerable additional detail (e.g. Life Sciences), while others immediately describe subject-specific skills in a subsection after the aims (e.g. Mathematics). In some subjects, the specific aims of the curriculum also provide an overview of the intended learning outcomes, however, some subjects also incorporate further sections of information covering, for example, “specific skills” or an overview of “skills and content”. There is scope to develop a more standardised approach to the articulation of

aims, learning outcomes, and the relationship between these and the key skills that students should develop. This would allow stakeholders (from students, parents, and teachers, to higher education organisations and employers both in South Africa and abroad) to better appreciate the top-level aims and outcomes of NSC subjects.

There is general consistency in the use of the language of “cognitive levels” or areas of “cognitive demand” to structure the weighted assessment objectives of each subject. There is, however, variety in the way these are presented within subject documentation. For example, in NSC Mathematics the cognitive levels are presented alongside bullet-point lists of “skills to be demonstrated”; in NSC Geography the cognitive levels are split into lower, middle, and higher order; in NSC Life Sciences the areas of cognitive demand are attached to lists of “useful verbs” which indicate the types of action associated with each type of cognition. The clear use of percentages to indicate weightings of cognitive areas in the assessment programme is a strong aspect of these subject guides and helps develop a broad understanding of what students must achieve in the subject. However, further standardisation in the structure of how these areas of cognitive demand are presented may be helpful to certain stakeholders who teach or learn more than one subject and therefore use multiple subject guides to understand the NSC curriculum. This does not mean that each subject should use the same cognitive levels or the same areas of cognitive demand to structure the assessment objectives; rather, this is a matter of how the information is presented. Using similar sub-headings within documentation for different subjects, and providing a similar level of detail in all subjects, would make it easier for stakeholders to immediately recognise the familiar structure of the documents and therefore understand them with accuracy. Moreover, this recommendation does not suggest that all documents should be identical in structure – but

that standardisation of presentation should be pursued wherever possible in order to support ease of understanding.

Further Explore the Content and Articulation of Programme-Level Aims and Outcomes

As part of Ecctis' reviews, the guiding principles, aims, and top-level outcomes of each qualification were considered in detail. The sources of this information included (but were not limited to) aspirational student development profiles, statements of educational philosophies, qualification framework level descriptors, and lists of cross-curriculum learning outcomes. From this analysis Ecctis identified 13 themes that frequently emerge in many of the comparison programmes analysed in this report. The NSC was found to explicitly articulate a large proportion of these in the current programme-level statements of aims and outcomes. However, there are some which could be either stated more clearly or further analysed to see if they do indeed feature as priority outcomes across the curriculum as a whole.

To be articulated more clearly in top-level statements of purpose:

- interdisciplinary competence: evidence for this intended outcome at the programme-level was already found within the statement of curriculum principles and the statement of the nature of learners produced by the curriculum. However, there is a missed opportunity to describe interdisciplinarity itself, by name, rather than merely articulating some of its related outcomes.

To be further reviewed and considered, as not currently explicitly articulated in NSC programme-level aims and outcomes:

- Literacy and numeracy of a stated level
- Student commitment to lifelong learning
- ICT skills of a stated level
- Flexibility and adaptability as key competences

- Research and project skills which prepare students for higher/further education and workplaces.

This recommendation from Ecctis does not claim that these are not features of the NSC, merely that the top-level aims and outcomes articulated in CAPS documents do not explicitly link to these themes. Some aspects of these are included within the South African NQF's level 4 descriptors (where the NSC is aligned). There is thus scope to further ensure that these principles are embedded into the NSC as a whole, and then to provide clarity in programme-level statements about the development of these qualities in NSC students. This would help to provide higher education institutions and employers (both inside and outside South Africa) with the confidence that NSC students are equipped with these important cognitive tools.

Further Extend, Across CAPS Documents, the Promising Practice Approaches to Displaying Subject Content

Some CAPS documents display particularly useful methods for showing readers the content of subject curricula. There is the potential to make NSC documents even more clear and stakeholder-friendly by deploying each of these promising practices across more of the subject documentation (in a uniform way where appropriate).

- Geography: The CAPS document provides a specific subsection detailing "continuity and progression in the Geography curriculum" from Grades 4 to 12. This identifies the key topics covered in each grade and provides an effective synthesised presentation of how students will be expected to add incremental depth and breadth.
- Geography: The CAPS document provides separate content breakdowns in terms of "content" and "skills and techniques" for Grades 10, 11, and 12. This clearly shows the cyclical nature of the curriculum which allows students to revise topics as well as

learn new topics and skills each year.

- Mathematics: The CAPS document provides a simple summary of how many weeks are to be spent learning each relevant content topic within all four terms of Grades 10, 11, and 12 respectively. This provides a helpful at-a-glance overview of the full subject content.
- Life Sciences: The CAPS document provides three specific subject aims (Specific Aim 1: Knowing Life Sciences; Specific Aim 2: Investigating Phenomena in Life Sciences; Specific Aim 3: Appreciating and Understanding the History, Importance and Applications of Life Sciences in Society) and then details a list of 16 tasks that “learners must be able to do”, categorised according to each specific aim. Each item on this list is a verb-based skill, for example, “recognise patterns and trends” and “critically evaluate scientific information”. This provides an effective link between the subject aims and a specific list of skills outcomes which can be linked to subject content.
- English (FAL): The CAPS document provides a lengthy explanation of how teachers should plan to deliver the content – including details on sequencing and teaching techniques. The level of advisory detail here is likely to be very useful for less experienced teachers in particular.
- Physical Sciences: The CAPS document provides a breakdown of content into six “main knowledge areas”. The content in each year is then clearly and effectively split into these six content areas. The effective signposting of this enables immediate understanding of curriculum structure for all stakeholders.

To Give Further Consideration to the Development of Certain Skill Areas at the Subject Level

In the process of carrying out subject-level comparisons, Ecctis identified some differences between the NSC and some comparison

curricula. Many of these differences stem from varying content priorities which are a result of the different cultural/national priorities that one would expect to find when comparing across educational systems. Other differences could be considered as gaps when compared to other curricula. These latter areas are worth further close consideration on behalf of NSC curricula designers.

- Mathematics: some, though not all, alternative programmes demonstrated a greater emphasis than the NSC on the development of ICT skills as a learning outcome specifically linked to the study of mathematics. It is worth considering if this important future-focussed competence should be further included within the specifications of NSC Mathematics.
- Geography: rather than a specific skill area, analysis of NSC Geography identified a small number of topics which should be considered for updating, in relation to their references to scholarship or models of geographic thinking. Some of the urban models, such as Harris and Ullman, have been a little overtaken by modern urbanisation trends and globalisation has also changed the dynamics of trade with regard to terms such as “break of bulk” points. It is worth considering whether topics such as these could be updated.
- Life Sciences: some, though not all, comparison programmes demonstrate a wider range of mathematical skills than the NSC Life Sciences curriculum. Also, Cambridge International and IB DP have a greater emphasis on mathematical skills in external assessments. There are many aspects of modern biology which require students to be confident in implementing mathematical solutions as part of the scientific method. Hence, there is scope to consider if further mathematical skills could be included and reflected within external assessment of NSC Life Sciences.

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Kenya Certificate of Secondary Education (KCSE), English (Comprehension, Literary Appreciation and Grammar): Paper II Marking Scheme

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The Kenya National Examinations Council 2021:
Kenya Certificate of Secondary Education (KCSE), Biology Paper I Marking Scheme

The Kenya National Examinations Council 2021:
Kenya Certificate of Secondary Education (KCSE), Biology (Theory): Paper II Marking Scheme

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Kenya Certificate of Secondary Education (KCSE), Biology (Practical): Paper III Marking Scheme

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Kenya Certificate of Secondary Education (KCSE), Geography: Paper I Marking Scheme

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Kenya Certificate of Secondary Education (KCSE), Geography: Paper II Marking Scheme

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Kenya Certificate of Secondary Education (KCSE), Mathematics ALT A: Paper II Marking Scheme

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Kenya Certificate of Secondary Education (KCSE), Physics (Theory): Paper I Marking Scheme

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The Kenya National Examinations Council 2021:
Kenya Certificate of Secondary Education (KCSE), Physics (Practical): Paper III Marking Scheme

Appendix 1. Programme-Level Aims, Philosophies, and Statements of Purpose

The following table summarises the programme-level statements in each of the comparison programmes which summarise the aims,

educational philosophies, and statements of top-level purpose for each programme.

Programme	High Level Aims / Philosophies / Statements of Purpose
<p>IB</p>	<p>The IB articulates its guiding educational philosophies and its whole-programme aims in four ways: the IB Mission Statement, the IB Learner Profile, the IB Approaches to Teaching, and the IB Approaches to Learning.</p> <p>IB Mission Statement: The International Baccalaureate aims to develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect. To this end the organization works with schools, governments and international organizations to develop challenging programmes of international education and rigorous assessment. These programmes encourage students across the world to become active, compassionate and lifelong learners who understand that other people, with their differences, can also be right.</p> <p>The IB Learner Profile articulates 10 attributes that the IB uses to reflect the holistic aspirations for student development (each has a further description in IB documentation):</p> <ul style="list-style-type: none"> Inquirers Knowledgeable Thinkers Communicators Principled Open-minded Caring Risk-takers Balanced Reflective. <p>The IB Approaches to Teaching articulates six broad approaches to teaching which underpin all IB programmes (each has a further description in IB documentation):</p> <ul style="list-style-type: none"> Based on Inquiry Focused on Conceptual Understanding Developed in Local and Global Contexts Focused on Effective Teamwork and Collaboration Deigned to Remove Barriers to Learning Informed by Assessment. <p>The IB Approaches to Learning provides five categories of interrelated skills that IB students should seek to develop (each has a further description in IB documentation):</p> <ul style="list-style-type: none"> Thinking Skills Research Skills Communication Skills Social Skills Self-management Skills.⁹⁴

⁹⁴ <https://www.ibo.org/globalassets/what-is-an-ib-education-en.pdf>

Programme	High Level Aims / Philosophies / Statements of Purpose
Cambridge Assessment International Education	<p>Cambridge Assessment International Education describes five qualities that all Cambridge learners are encouraged to develop towards:</p> <p>“Our mission is to provide educational benefit through provision of international programmes and qualifications for school education and to be the world leader in this field. Together with schools, we develop Cambridge learners who are:</p> <ul style="list-style-type: none"> • confident in working with information and ideas – their own and those of others • responsible for themselves, responsive to and respectful of others • reflective as learners, developing their ability to learn • innovative and equipped for new and future challenges • engaged intellectually and socially ready to make a difference.”
Kenya	<p>The KCSE sits at level 2 on the Kenyan National Qualifications Framework (KNQF). KNQF level 2 is described by the Kenya National Qualifications Authority (KNQA) with the following qualities:</p> <ul style="list-style-type: none"> • Purpose: The level qualifies individuals to undertake mainly routine work and as a pathway to further learning • Knowledge: Graduates at this level will have basic factual, technical and procedural knowledge in a defined area of work and learning • Skills: Graduates at this level will have: <ul style="list-style-type: none"> • Cognitive skills to access, record and act on a defined range of information from a range of sources • Cognitive and communication skills to apply and communicate known solutions to a limited range of predictable problems • Technical skills to use a limited range of equipment to complete tasks involving known routines and procedures with a limited range of options. • Competence: Graduates at this level will demonstrate the application of knowledge and skills: <ul style="list-style-type: none"> • With some accountability for the quality of own outcomes and some responsibility for own outputs in work and learning • With limited autonomy and judgment in the completion of own defined and routine tasks in known and stable contexts • With limited autonomy and judgments to complete routine but variable tasks in collaboration with others in a team environment.⁹⁵
Zimbabwe	<p>The Ministry of Primary and Secondary Education in Zimbabwe has articulated top-level goals, outcomes, and an aspirational student exit profile for Forms 5 and 6.</p> <p>Goals of the curriculum – Forms 5 and 6:</p> <ul style="list-style-type: none"> • “deepened theoretical and practical knowledge of selected disciplines in preparation for further education and workplace skills development • demonstration of deeper understanding of cross-cutting issues such as HIV and AIDS, sustainable resource utilization, climate change and disaster risk management • demonstration of acquisition of lifelong learning skills and competences in civic education. Learners show greater appreciation for lifelong learning and competence in civic, social and personal spheres and • demonstration of deeper understanding of national heritage and identity as well as an appreciation of other culture”

⁹⁵ KNQA, Level Descriptors. Accessed 26/08/2021. <https://www.knqa.go.ke/index.php/level-descriptors/>.

Programme	High Level Aims / Philosophies / Statements of Purpose
	<p>Learning Outcomes at the end of Forms 5 and 6:</p> <ol style="list-style-type: none"> “1) Learners proficient and skilled in selected learning areas of specialization 2) Learners demonstrate readiness to transition to professional and occupational institutions and universities 3) Learners demonstrate effective communication and problem solving competences 4) Learners display ability to use multiple-literacies in handling ethical and moral issues 5) Learners show readiness to self-learning and teaching strategies 6) Learners demonstrate a consciousness of national identity and heritage 7) Learners possess competencies for creative and innovative actions and risk management.” <p>Summary of exit profile:</p> <p>“The Framework envisages learners who would be:</p> <ul style="list-style-type: none"> • patriotic, disciplined and rooted in Zimbabwean culture • prepared and oriented to life, work and leisure through competence-based education • able to live and work with others in peace and harmony • multi-literate and able to perform multi-tasks • creative, innovative, inventive and enterprising • able to engage in independent life-long learning • able to work independently • aware of their rights, duties and responsibilities • conscious of the need to preserve and protect the environment for the sustainable and productive use of present and future generation.”⁹⁶
<p>New South Wales (Australia)</p>	<p>Within Australia, each state or territory has responsibility for applying the Australian Qualifications Framework (AQF). The year 10 and year 12 school qualifications (the New South Wales HSC falls into the latter category) are not registered within the AQF. These are state and territory-regulated awards, but are accepted at the same level across Australia. Although the AQF does not ascribe each state or territory's senior secondary certificate to a particular level, it does provide broad descriptors of what those qualifications should adhere to. Some relevant extracts include:</p> <ul style="list-style-type: none"> • “Purpose: The Senior Secondary Certificate of Education qualifies individuals with knowledge, skills and values for diverse pathways to further learning, work and effective participation in civic life • Knowledge: Graduates of a Senior Secondary Certificate of Education will have foundational knowledge across a range of learning areas and some specialist discipline or technical knowledge • Skills: Graduates of a Senior Secondary Certificate of Education will have: <ul style="list-style-type: none"> • literacy, numeracy and communication skills and use information communication technologies skills to present knowledge and ideas to others • cognitive skills to access, record and act on information from varied sources appropriate to subject disciplines and to move across subject disciplines to develop new expertise • cognitive, technical, communication and creative skills for particular disciplines and to integrate disciplines to solve problems, to underpin flexible and analytical thinking and to work with others

⁹⁶ http://mopse.co.zw/sites/default/files/public/downloads/Zim_Curriculum_Framework.pdf

Programme	High Level Aims / Philosophies / Statements of Purpose
	<ul style="list-style-type: none"> • Application of Knowledge and Skills: Graduates of a Senior Secondary Certificate of Education will demonstrate the application of knowledge and skills: <ul style="list-style-type: none"> • with depth in some areas to tasks or functions in known or changing contexts • in particular contexts within civic life, work and lifelong learning as successful learners, confident individuals and team members and active and informed citizens • in contexts that include taking individual responsibility with some direction and some accountability for the quality of outcomes⁹⁷ <p>The NSW HSC also articulates top-level intentions at the start of subject documentation: “The purpose of the Higher School Certificate program of study is to:</p> <ul style="list-style-type: none"> • provide a curriculum structure which encourages students to complete secondary education; • foster the intellectual, social and moral development of students, in particular developing their: <ul style="list-style-type: none"> • knowledge, skills, understanding and attitudes in the fields of study they choose • capacity to manage their own learning • desire to continue learning in formal or informal settings after school • capacity to work together with others • respect for the cultural diversity of Australian society; • provide a flexible structure within which students can prepare for: <ul style="list-style-type: none"> • further education and training • employment • full and active participation as citizens; • provide formal assessment and certification of students' achievements; • provide a context within which schools also have the opportunity to foster students' physical and spiritual development.”

⁹⁷ Australian Qualifications Framework, second edition January 2013, p. 24. Accessed 26/08/2021. <https://www.aqf.edu.au/sites/aqf/files/aqf-2nd-edition-january-2013.pdf>.



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