



To what extent is there alignment between the intentions of Scotland's Curriculum for Excellence and National 5, Higher and Advanced Higher courses? An evidence-based approach

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Executive summary

This report provides a contribution to the current debate around the alignment of SQA's Senior Phase qualifications with the intentions of Scotland's Curriculum for Excellence (CfE). It builds on the findings of the OECD report *Implementing education policies, Scotland's Curriculum for Excellence into the future* (OECD, 2021) by examining the relationship between the intentions of CfE and the design approach taken to National 5, Higher and Advanced Higher Courses. The aim is to identify the degree of alignment between these courses and the intentions of CfE, and the extent and nature of, and reasons for, any misalignment.

Research

The research uses a mixed methods research design in order to move beyond perceptions of alignment. This approach provides a detailed and analytical model to investigate the extent to which Senior Phase courses provide realistic opportunities for, and evidence of, enactment of the intentions of CfE. Independent, subject specialist knowledge was harnessed at each stage of this research to provide a robust consideration of the evidence. This subject specialist knowledge was gathered using curriculum and assessment experts and subject specialists from within and outwith Scotland to minimise potential bias and enhance the neutrality of the research.

CfE policy into practice: Independent curriculum and assessment experts examined Scottish Government key CfE policy documentation to determine how the intentions of CfE could be practically realised within qualifications and assessment. The principles for curriculum design, which underpin the purposes of CfE, were considered to be a useful framework that could be used, as high-level criteria, to identify the extent to which the intentions of CfE were realised within a sample of National 5, Higher and Advanced Higher Courses. The principles for curriculum design were delineated, by the curriculum and assessment experts, to create a set of underpinning 'CfE features' that could be used in the next stages of the research, to rate the degree of alignment between the sample of National Courses and the intentions of CfE.

Realistic opportunity for realisation of the principles for curriculum design: Subject specialists in English, Geography and Mathematics were asked to holistically consider sets of course materials and assessments in their subject areas from National 5, Higher, and Advanced Higher. These included specifications, coursework tasks and question papers. They were then asked to rate the extent to which the CfE features identified in the first stage of the research could be realistically developed within each course, as a reflection of the principles for curriculum design. The experts were then asked to discuss why they had made these judgements.

Candidate evidence of the principles for curriculum design: The same subject specialists were then asked to consider sets of candidate evidence from these courses, including exam answers and coursework submissions where appropriate. They were asked to rate the extent to which this evidence showed learners' development of the identified CfE features within each course, as a reflection of the principles for curriculum design. The experts were asked, again to discuss why they had made these judgements.

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Synthesis of research: Findings from all stages were analysed and brought together to assess the extent to which the courses are aligned with the principles for curriculum design and therefore the intentions of CfE, and to consider reasons for any areas of misalignment.

Key findings

Is the National 5, Higher and Advanced Higher English, Geography and Mathematics course design aligned with the intentions of CfE?

Findings indicate that, within the sample of National Courses, there are opportunities to realise all of the appropriate principles for curriculum design at all SCQF levels, to varying degrees. Therefore, the research suggests that the intentions of CfE have been translated into National 5, Higher and Advanced Higher English, Geography and Mathematics.

To what extent are the principles for curriculum design present in National Courses across SCQF levels?

As learners advance through the SCQF levels from National 5 to Advanced Higher, opportunities to realise the principles for curriculum design, become more realistic in practice for a number of reasons, most of which are not directly related to the design of the courses themselves.

Why is there a difference between results from this study and perceptions of alignment of National Courses with the intentions of CfE?

The report concludes that there are opportunities available within all National Courses to realise the principles for curriculum design (as evidenced at Advanced Higher). This contrasts with wider public perceptions that the qualifications are not aligned and/or do not provide opportunities to develop learners in line with the vision of the CfE. This raises an important question around the reasons behind this discrepancy between the results from this study and wider public perceptions. The research suggests that this discrepancy could be the result of a number of factors including choices around pedagogy and the relatively abrupt shift from Broad General Education to Senior Phase. It would be important to carry out some structured research in order to understand this more fully ahead of the reform of Senior Phase qualifications.

What does this mean for the future reform of Senior Phase qualifications?

The research highlights areas for consideration during reform of the Senior Phase qualifications. These include a need to make clearer the parts to be played by learning and teaching, and by formative and summative assessment, in developing the CfE vision. A balance should be struck between appropriate levels of prescription and teacher agency. At the same time, this should not compromise efforts to address classroom pressures that may result in unequal learner experience across schools. The report also highlights a need for further consideration of the relationship between the 4th level curriculum benchmarks at the end of CfE's Broad General Education (BGE) and Senior Phase qualifications at SCQF level 5.

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Overall, the report highlights a need for future reform of the Senior Phase to go beyond qualification design alone and include cultural, structural and systematic challenges facing the wider education system as a whole.

Section 1: Background

1.1 Introduction

This report provides a contribution to the current high-profile debate around the alignment of the Senior Phase qualifications with the intentions of Scotland's Curriculum for Excellence (CfE). It builds on the findings of the OECD report *Implementing education policies, Scotland's Curriculum for Excellence into the future* (OECD, 2021) by examining the relationship between the intentions of CfE and the design approach taken to National 5, Higher and Advanced Higher Courses. The aim is to identify the degree of alignment between these courses and the intentions of CfE, and the extent and nature of, and reasons for, any misalignment. This research is intended to contribute to the wider discussion around the reform of Scotland's Senior Phase qualifications by determining the extent to which the vision of CfE has translated into current National Courses and assessments, highlighting areas for future consideration.

1.2 Why have we carried out this research?

In May 2019, the Scottish Government commissioned the Organisation for Economic Co-operation and Development (OECD) to carry out a review of the Senior Phase of CfE (Scottish Government, 2020). In January 2020, the Scottish Government extended this review to cover all of CfE including the Broad General Education (BGE), the Senior Phase, and the articulation between them.

The scope of the review was to explore key issues including:

- ◆ centre level curriculum design
 - ◆ depth and breadth of learning in the Senior Phase
 - ◆ local flexibility versus increased prescription
 - ◆ the transition from the BGE into Senior Phase
 - ◆ vocational and academic learning and awards
 - ◆ roles and responsibilities in relation to the curriculum
- (Scottish Government, 2020)

In June 2021, the OECD published its final report *Implementing education policies, Scotland's Curriculum for Excellence into the future* (OECD, 2021). One of the report's key findings highlighted that, with the exception of Advanced Higher, there was a perceived gap between the intended curriculum and the implemented curriculum where the 'visionary' ideals of CfE have not successfully translated fully into qualifications. The report outlines that the Senior Phase qualifications, in particular Higher courses, 'do not appear to be fully aligned with CfE intentions in aims, content, pedagogy and assessment' (ibid, p63).

The OECD (ibid, p11) reported that:

CfE's complex framework works well in BGE and for learners taking Advanced Highers, where the concepts, pedagogical and learning approaches are coherent, and the implemented school curricula seem consistent with policy intentions. However, there is some ambiguity about the

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role of knowledge and ways of knowing in a 21st century curriculum framework. Adjustments might therefore be needed in the concepts of CfE and the tools to put them in practice in both BGE and the Senior Phase.

The OECD report's scope was to cover the depth and breadth of learning in the Senior Phase, including vocational and academic learning awards. However, the final report principally focused on National 5, Higher and Advanced Higher courses and appears to rely heavily on gathering stakeholders' perceptions as the basis for its findings. It did not fully consider other evidence such as National Course specifications, assessments, candidate scripts and coursework submissions.

Consequently, SQA believe there is a need to build on the OECD's perception-based findings by analysing the relationship between the intentions of CfE and the approach taken to the design of National 5, Higher and Advanced Higher Courses. The aim is to identify the degree of alignment of these courses with the intentions of CfE, and the extent and nature of, and reasons for, any misalignment.

1.3 The purpose of this report

The purpose of this report is to contribute to the wider discussion around the reform of Scotland's Senior Phase by determining the extent to which the vision of CfE has translated into current National Course qualification and assessment design.

This report aims to address the following question:

- ◆ Are SQA's Senior Phase qualifications aligned with the intentions of CfE?

There are several research questions underlying this central aim, which helped to focus the final research methodology:

- ◆ What were the intentions of CfE with respect to National Courses and their assessment?
- ◆ To what extent are the intentions of CfE visible in National Courses across SCQF levels?
- ◆ To what extent are the intentions of CfE present in National Courses across subjects?
- ◆ What is the extent and nature of, and reasons for, any misalignment of the courses with the intentions of CfE?
- ◆ What does this mean for the future reform of Senior Phase qualifications?

1.4 Scope

The report focuses on National 5, Higher and Advanced Higher course design, assessments, candidate scripts and coursework submissions. These are used to analyse the relationship between the intentions of CfE and the approach taken to the design of National 5, Higher and Advanced Higher Courses.

Exclusions

The report does not investigate:

- ◆ Wider Senior Phase provision. For example, Skills for Work and vocationally-related qualification provision.

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- ◆ Pedagogical approaches, unless directly related to the design of National 5, Higher and Advanced Higher course and assessment design.
- ◆ The curriculum as delivered, unless directly related to justifying the results of the research.
- ◆ Stakeholder perceptions, unless directly related to justifying the results of the research.

1.5 Resources

The evidence base for this report included:

- ◆ *A Curriculum for Excellence* (2004)
- ◆ *Building the Curriculum* series (2005)
- ◆ A range of academic literature
- ◆ Level 4 curriculum benchmarks in literacy and English, numeracy and Mathematics and Social Studies (2016)
- ◆ National 5, Higher and Advanced Higher course specifications and support notes
- ◆ 2019 National 5, Higher and Advanced Higher question papers and marking instructions
- ◆ 2019 National 5, Higher and Advanced Higher coursework tasks and marking instructions for English and Geography (Mathematics N5/H/AH has no coursework component)
- ◆ A sample of National 5, Higher and Advanced Higher grade A and grade C boundary candidate scripts, candidate answers, and coursework submissions

1.6 Methodology

The research followed a four-stage methodology, using a mixed methods research design, gathering primary data. The mixed methods approach sought to go beyond perceptions of alignment. It aimed to generate data which could provide a more concrete basis for determining the extent to which National 5, Higher and Advanced Higher courses provide realistic opportunities for, and evidence of, enactment of the intentions of CfE.

The methodology was inherently qualitative in nature, as it entailed expert judgement at each stage rather than large-scale data collection. This was necessary due to the complex nature of the task, which involved both unpicking the intentions of CfE in relation to qualification and assessment design, and analysing and discussing course materials, candidate scripts and coursework submissions. Specific stages of the methodology also used ratings to capture the judgement of the subject specialists, providing categorical data that could be further analysed to visually illustrate patterns across the courses (Appendix 2 provides a graphic outline of the research methodology).

These four stages correspond to the following activities:

1. Analysis of the Scottish Government CfE policy documentation to establish high-level criteria that could be used to represent the intentions of CfE, as could be practically applied to qualification and assessment design. These high-level criteria were then delineated to produce a set of 'CfE features' that could be used to rate the extent to which National 5, Higher and Advanced Higher courses provide realistic opportunities for, and evidence of, enactment of the intentions of CfE. This is with a view to identifying alignment and the nature and extent of, and reasons for, any misalignment.

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2. Using the CfE features established in stage 1, rate the extent to which National 5, Higher and Advanced Higher course materials and assessments offer realistic opportunities to realise the intentions of CfE in a sample of National 5, Higher and Advanced Higher high-uptake courses (Mathematics, English and Geography).
3. Using the CfE features, rate the extent to which National 5, Higher and Advanced Higher candidate scripts and coursework submissions provide evidence of the realisation of the intentions of CfE.
4. Critical analysis of the findings to determine the extent to which these courses align with the intentions of CfE, the reasons for any misalignment, and how this might be improved, as a contribution to the future reform of National Courses.

1.6.1 Stage 1 methodology: establishing high-level criteria that represents the intentions of CfE

Stage 1 was designed to establish high-level criteria that represents the intentions of CfE, as could be applied to qualification and assessment design. This high-level criteria was then delineated to a set of observable CfE features that could be used to rate the extent to which they, and by extension the intentions of CfE, were present in a sample of high-uptake National 5, Higher and Advanced Higher course materials and candidate evidence in Stages 2 and 3.

Stage 1a involved an analysis of key CfE policy documents to identify high-level criteria that could represent the 'intentions of CfE'. This work was carried out with input from an external curriculum and assessment expert, and sought to identify areas of CfE policy that might be expected to underpin qualification and assessment design. This involved considering the purpose and principles of CfE. This is discussed in detail in Section 2.

Stage 1b involved four curriculum and assessment experts who were recruited to review the key CfE policy documents to delineate these high-level criteria and, using their experience, turn them into observable CfE features. To provide as broad and unbiased a view as possible, the experts recruited were independent of SQA: two have extensive experience of CfE and Scottish education, alongside work in other systems, while two have wide-ranging expertise in curriculum and assessment design but had limited familiarity with CfE and the Scottish system.

The four experts were provided with, but not limited to, the following resource materials:

- ◆ *A Curriculum for Excellence* (Scottish Executive, 2004)
- ◆ *Building the Curriculum* series (Scottish Government, 2005–2011)
- ◆ Level 4 curriculum benchmarks in literacy and English, numeracy and Mathematics, and Social Studies (Scottish Government, 2016)

The experts were asked to share any additional resources that they used with the other members of the group to ensure consistency.

The group were asked to work collectively to consider the definitions and guidance provided in the resource materials. Using the language in the resource materials and their own expertise in curriculum and assessment design, they were to agree a composite set of CfE

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features, as they could be practically applied to qualification and assessment design, and be broad enough to apply across all subjects. SQA researchers supported this work.

These CfE features were then further refined into questions that would allow subject specialists, in Stage 2 and 3 of the research, to identify whether they could find evidence for the CfE features within course materials and assessments. These questions were compiled into questionnaires that included a ratings scale, allowing the subject specialist to indicate the extent to which they believed a CfE feature was present, rather than simply whether it was present or not (Appendix 3 and 4).

This methodological approach was adapted from a construct elicitation and analysis technique outlined in Pollitt, Ahmed and Crisp (2007). Their framework specifically relates to producing a research tool to rate the level of demand of examination syllabuses and question papers. The Complexity Resources Abstractness Strategy (CRAS) framework they adapt provides a way of looking at the effect of item structure on how demanding an examination question is (Johnson *and* Mehta, 2011). Skilled examiners are good at recognising the demands of a question, and have high levels of agreement on this, but can have difficulty articulating what it is specifically that makes questions more or less difficult (Hughes *et al*, 1998). Using this framework helps in rating individual factors, once they have been delineated (Pollitt *et al*, 1998).

For the purpose of this research, the CRAS framework needed to be adapted to be suitable for rating factors across entire qualifications, rather than the demand of individual items. This adaptation was influenced by Greatorix *et al*'s (2011) research, which devised a research instrument to compare the features of cognate units from diverse qualifications and subjects. For our research, an instrument was designed that would measure (in a qualitative way) the observable features underlying the intentions of CfE, which were agreed as discussed above, with a view to rating National 5, Higher and Advanced Higher qualifications against these CfE features. The aim was to determine the extent to which the National Courses within the sample provide realistic opportunities for the development of the CfE features, and to analyse the extent to which this has translated into learners' practice as seen in their assessment evidence. Results for each level could then be mapped against each other (Greatorix *et al*, 2019).

The questionnaires resulting from our adaptation and development of these approaches formed the basis for the next two stages of the project.

1.6.2 Stage 2 and 3 methodology: review of course materials, candidate scripts and coursework submissions

Three high-uptake subjects (Mathematics, English and Geography) were chosen to allow for alignment to be investigated at National 5, Higher and Advanced Higher. These subjects were chosen based on a number of factors including:

- ◆ the availability of a range of grade A and grade C boundary scripts and coursework submissions at all levels
- ◆ the volume of certifications for these courses
- ◆ to represent a range (albeit small) of different kinds of subjects

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Three subject specialists were involved in each panel. Two of the subject specialists in each panel deliver National 5, Higher and Advanced Higher courses but are not involved in the subject course design. The third subject specialist was from outwith Scotland and is not directly involved in the teaching of, and assessment approaches within, National 5, Higher and Advanced Higher courses. It was intended that the inclusion of subject specialists from outwith Scotland would provide balance to the discussions and rating exercises, allowing judgements both from practitioners experienced in CfE teaching and assessment, and from a subject specialist who would be analysing these materials for the first time and bringing a different perspective.

1.6.2.1 Data collection

As discussed in Stage 1, above, SQA researchers devised questionnaires to collect meaningful data from subject specialists that captured their professional judgement and allowed that to be compared. This stage of the research followed this process:

- ◆ each of the CfE features was clarified, refined, and formulated as a question
- ◆ each question was then associated with a scale for the Stage 2 and 3 rating activities
- ◆ to reduce the number of questions and to support analysis, CfE features were tagged to indicate which of the principles for curriculum design they corresponded to
- ◆ CfE features could underlie more than one principle, following the experts' view that individual CfE features were often important in the development of more than one of the principles for curriculum design

The CfE features were used in two stages:

- ◆ **Stage 2** asked subject specialists to look for and rate realistic opportunities for the development of the CfE features, within their subject course materials. We consider that there are realistic opportunities for development when CfE features are present in the course design and can also feasibly be implemented in classroom practice. It was important that the opportunities for development were considered realistic by the subject specialists, as this allowed rating based on what could reasonably be achieved, rather than what might ideally be achieved given infinite resources. Stage 2 also included an online group discussion session after the exercise had been completed to explore any differences in rating across the subject specialists.
- ◆ **Stage 3** asked the same subject specialists to look for evidence of the CfE features in candidate scripts and coursework submissions, where it was likely that these CfE features could be found. Again, an online group discussion followed this exercise.

The rating activity was piloted in National 5, Higher and Advanced Higher courses in Physical Education and refined prior to use.

1.6.2.2 Stage 2 methodology: rating realistic opportunities in course materials

The subject specialists looked at the overall course design for their subject and rated whether it offered realistic opportunities to develop specified CfE features within National 5, Higher and Advanced Higher course materials (Figure 1).

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Subject specialists were then asked to review the following materials and rate, on a four-point scale, the extent to which there are realistic opportunities to develop the CfE features at each SCQF level:

- ◆ National 5, Higher and Advanced Higher course specifications and support notes
- ◆ 2019 question papers and marking instructions
- ◆ 2019 coursework tasks and marking instructions (where applicable — there is no coursework component in Mathematics National 5, Higher and Advanced Higher)

Figure 1. Example of question in Stage 2 rating activity

1. To what extent does the course provide realistic opportunities to develop and assess an appropriate balance between knowledge and skills acquisition?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Free-text boxes were provided after each scale to allow subject specialists to identify the reasons for their decision. Each subject specialist decided the ratings individually.

Subject specialists then attended a group online discussion, scheduled for two hours and facilitated by SQA researchers. Each subject group was asked to reflect on their decisions and explain why they had given the ratings they had chosen. Differences in rating between subject specialists had been identified beforehand, and this provided a structure for group members to discuss their answers and for researchers to examine why any CfE features had been rated differently.

1.6.2.3 Stage 3 methodology: rating learner responses

Subject specialists were then asked to fill out a similar questionnaire and rate the extent to which evidence of these CfE features is present in question papers and coursework tasks, marking instructions, candidate scripts and coursework submissions.

Candidate scripts or candidate answers and coursework submissions (at grade A and grade C boundaries) for each level were selected from the script archive maintained by SQA. These were taken from 2019 assessments where possible, ie where SQA had appropriate materials available, and from other assessment where such materials were unavailable. Although some of the candidate evidence used in the sample was gathered before the revision of National Courses in 2017, the course content in these subjects remains the same. In this respect the evidence gathered expresses the same standards as the 2019 papers.

- ◆ English: National 5, Higher, Advanced Higher
- ◆ Mathematics: National 5, Higher, Advanced Higher

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♦ Geography: National 5, Higher, Advanced Higher

Subject specialists attended a further group online discussion, again scheduled for two hours and facilitated by SQA researchers. As at Stage 2, the discussion focused on instances where the subject specialists had provided substantially different ratings and sought to understand why that was the case.

1.6.2.4 Analysis

For every subject, and every SCQF level within that subject, the same analytical procedure was applied.

- ♦ each CfE feature was rated separately by three subject specialists on a four-point scale (of categories that were assigned numerical values)
- ♦ the median was used to ascertain the most common rating for each CfE feature. This measure was used because of the categorical data involved, to obtain a result closest to consensus across the categories. In addition, if one specialist had given a different rating from the others due to either a markedly different opinion or different interpretation of a question, the use of the median upheld the majority view
- ♦ using these median ratings, the mean of all the CfE features that had been tagged as underlying a principle for curriculum design was then calculated to give a composite rating for that principle. This was carried out separately for each principle and level so that for every subject a composite rating was produced for Coherence, for example, at National 5, at Higher and at Advanced Higher.

Given that the ratings tasks generated ordinal data, based on relatively small numbers of expert judgements, and that there were varying numbers of potentially overlapping CfE features underlying each CfE principle, it should be emphasised that the results are indicative only. Confidence in the research outcomes derives from harnessing the specific expertise of the subject specialists involved, rather than in large-scale data collection.

Differences between the ratings for course and assessment design (Stage 2) and the ratings from candidate evidence (Stage 3) were also made apparent by the analysis. Such differences suggested the presence of gaps between the opportunities inherent in the course design and their effective translation into learning and teaching practice.

The indicative values derived above map where, and to what extent, the principles for curriculum design are present across National 5, Higher and Advanced Highers, and show how far they have translated into learners' evidence. Because this mapping involved analysis of ratings on a scale, rather than binary decisions, the results illuminate more subtle differences. These have been displayed in heat maps to provide a visual representation of the patterns found within and across the courses. These patterns illustrate the findings of the research to aid understanding and allow for more detailed, qualitative discussion.

1.6.2.5 Stage 4

A final stage of analysis brought together the quantitative information from the ratings exercise, the qualitative comments from the ratings exercise, and the discussion group data, to critically analyse evidence of alignment between the intentions of CfE and the

approach taken to the design of National 5, Higher and Advanced Higher courses. This helped in understanding more fully the nature and extent of alignment and the reasons for any misalignment.

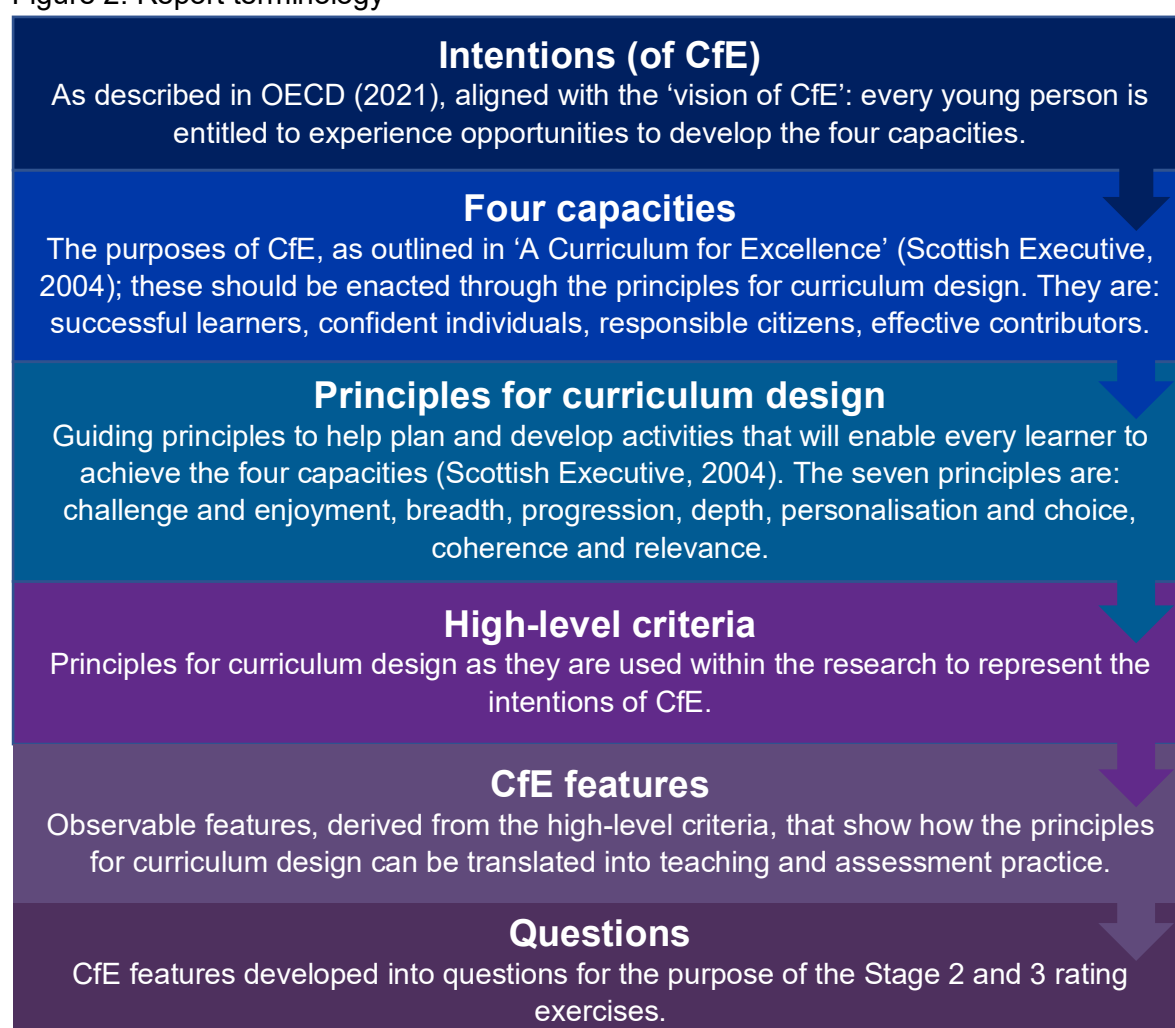
1.6.2.6 Methodological limitations

There are limitations to the research design. As discussed above in 1.6.2.4 Analysis, the results, particularly when extrapolating from the numerical analysis, must be treated as indicative only. Given the small sample size of subject specialists involved in the project, the small sample of candidate evidence, and the diverse nature of National Courses, the results are not generalisable and do not represent all practitioner views, subjects and all courses. However, the three subjects were selected to include courses in arts, social sciences and STEM. Therefore, results are likely to give a reasonable indication of issues of alignment more generally and give insight into some of the successes and challenges in translating the principles for curriculum design into qualifications.

1.7 Terminology

This report uses precise terminology to express concepts relevant to CfE and the research that has been undertaken, particularly in relation to the ‘translation’ of concepts from policy into research and practice. Please see Figure 2 below for an exposition of how these terms are used within this report.

Figure 2. Report terminology



Section 2: Stage 1 — Establishing high-level criteria that represent the intentions of CfE

2.1 Stage 1a: Findings — the intentions of CfE

Stage 1a involved an analysis of key CfE policy documents to identify the high-level criteria that represent the 'intentions of CfE', as articulated in the OECD's review. The intentions of CfE are outlined in both *A Curriculum for Excellence* (Scottish Executive, 2004) and the *Building the Curriculum* series (Scottish Government, 2009–2011) as the 'purpose and principles' of CfE.

2.1.1 The purpose of the curriculum: the four capacities

Education Scotland (n.d.) define the purpose of CfE as being:

encapsulated in the four capacities — to enable each child or young person to be a successful learner, a confident individual, a responsible citizen and an effective contributor.

The curriculum aims to ensure that all children and young people in Scotland develop the knowledge, skills and attributes they will need if they are to flourish in life, learning and work, now and in the future, and to appreciate their place in the world.

The attributes and capabilities of the four capacities are outlined below:

Successful learners

attributes:

- ◆ enthusiasm and motivation for learning
- ◆ determination to reach high standards of achievement
- ◆ openness to new thinking and ideas

capabilities:

- ◆ use literacy, communication and numeracy skills
- ◆ use technology for learning
- ◆ think creatively and independently
- ◆ learn independently and as part of a group
- ◆ make reasoned evaluations
- ◆ link and apply different kinds of learning in new situations

Confident individuals

attributes:

- ◆ self-respect

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- ◆ a sense of physical, mental and emotional wellbeing
- ◆ secure values and beliefs

capabilities:

- ◆ relate to others and manage themselves
- ◆ pursue a healthy and active lifestyle
- ◆ be self-aware
- ◆ develop and communicate their own beliefs and view of the world
- ◆ live as independently as they can
- ◆ assess risk and take informed decisions
- ◆ achieve success in different areas of activity

Responsible citizens

attributes:

- ◆ respect for others
- ◆ commitment to participate responsibly in political, economic, social and cultural life

capabilities:

- ◆ develop knowledge and understanding of the world and Scotland's place in it
- ◆ understand different beliefs and cultures
- ◆ make informed choices and decisions
- ◆ evaluate environmental, scientific and technological issues
- ◆ develop informed, ethical views of complex issues

Effective contributors

attributes:

- ◆ an enterprising attitude
- ◆ resilience
- ◆ self-reliance

capabilities:

- ◆ communicate in different ways and different settings
- ◆ work in partnership and in teams
- ◆ take the initiative and lead
- ◆ apply critical thinking in new concepts
- ◆ create and develop
- ◆ solve problems

2.1.2 The principles for curriculum design

The principles for curriculum design underpin the purposes of CfE and provide 'guiding principles' to help teachers to plan and develop activities that will enable every learner to achieve the four capacities. The principles for curriculum design cover the whole of the curriculum, including learning, teaching and assessment.

The principles for curriculum design, extracted from *A Curriculum for Excellence* (Scottish Executive, 2004) are:

Challenge and Enjoyment: Young people should find their learning challenging, engaging and motivating. The curriculum should encourage high aspirations and ambitions for all. At all stages, learners of all aptitudes and abilities should experience an appropriate level of challenge, to enable each individual to achieve his or her potential. They should be active in their learning and have opportunities to develop and demonstrate their creativity. There should be support to enable young people to sustain their effort.

Breadth: All young people should have opportunities for a broad, suitably weighted range of experiences. The curriculum should be organised so that they will learn and develop through a variety of contexts within both the classroom and other aspects of school life.

Progression: Young people should experience continuous progression in their learning from 3 to 18 within a single curriculum framework. Each stage should build upon earlier knowledge and achievements. Young people should be able to progress at a rate which meets their needs and aptitudes, and keep options open so that routes are not closed off too early.

Depth: There should be opportunities for young people to develop their full capacity for different types of thinking and learning. As they progress, they should develop and apply increasing intellectual rigour, drawing different strands of learning together and exploring and achieving more advanced levels of understanding.

Personalisation and choice: The curriculum should respond to individual needs and support particular aptitudes and talents. It should give each young person increasing opportunities for exercising responsible personal choice as they move through their school career. Once they have achieved suitable levels of attainment across a wide range of areas of learning the choice should become as open as possible. There should be safeguards to ensure that choices are soundly based and lead to successful outcomes.

Coherence: Taken as a whole, children's learning activities should combine to form a coherent experience. There should be clear links between the different aspects of young people's learning, including opportunities for extended activities which draw different strands of learning together.

Relevance: Young people should understand the purposes of their activities. They should see the value of what they are learning and its relevance to their lives, present and future.

2.1.3 Establishing high-level criteria using the purpose of CfE

Consideration was initially given to developing high-level criteria based on the 'purpose' of CfE — that is, the four capacities. The four capacities and the outcomes that represent them focus on the development of capabilities and attributes, are generic and abstract in nature and cover all aspects of learning, teaching and assessment (Scottish Executive, 2004). In this respect, young people develop and fulfil the four capacities holistically through a combination of subject choice, learning, teaching and assessment practice.

The conflation of the roles of learning, teaching and assessment in the fulfilment of the four capacities means that achievement of the capabilities and attributes within them cannot be definitively linked to qualification and assessment design alone. Research that seeks to explore alignment with the four capacities would have to extend beyond the role of qualifications and assessment design to analyse the effects of wider learning and teaching practice. As learning and teaching practice does not form part of SQA's remit it does not form part of the research design.

On this basis, it was deemed that the four capacities were too broad to meet the purpose and aims of this research in terms of developing high-level criteria that could represent the intentions of CfE as they relate solely to qualifications and assessments.

2.1.4 Establishing high-level criteria using the principles for curriculum design

The principles for curriculum design underpin the purpose of CfE and are designed to support teachers to 'develop each learner's potential in the four capacities' (Scottish Executive, 2004). What makes the principles different from the four capacities is that they provide an underpinning framework for professional practice.

National Courses were designed to realise the principles and fulfil the purpose of CfE, in line with *Building the Curriculum* 4 and 5. Consequently, the principles for curriculum design should be visible across National Courses, and offer a framework to analyse the extent to which National Courses meet these principles, as a proxy for the development of the wider four capacities. For this reason, it was agreed that the principles for curriculum design would form a credible set of high-level criteria for investigating whether courses meet the intentions of CfE.

The seven principles for curriculum design (Breadth, Depth, Relevance, Challenge and enjoyment, Coherence, Personalisation and choice, and Progression) are defined in both *A Curriculum for Excellence* (2004) and *Building the Curriculum* 5 (2011). However, the definitions in both these documents are broad in nature and represent how the principles should be applied across the curriculum as a whole, rather than solely through assessment.

To establish the extent to which the National Courses align with the principles for curriculum design, the research methodology required the principles to be delineated to identify the

main 'CfE features' of each principle that could be specifically related to qualification and assessment design. CfE features were to be generic so that they could be applied across all National Courses. The purpose of this exercise was to identify a shared consensus of what each principle means, in practice, for qualification and assessment design.

2.2 Stage 1b: Findings — developing 'CfE features' of the principles for curriculum design

In Stage 1b experts analysed the key CfE policy documents alongside a range of wider documentation to determine a set of composite CfE features of the principles for curriculum design that could be credibly used as to rate in Stage 2 and 3 of the research. CfE features were to be generic enough to be applied across all National Courses. This section outlines the findings from this work, alongside justification for the decisions made.

Following the review of the key CfE policy documents, the experts agreed that these were lacking in clarity and detailed terminology and were heavily focused on assessment **for** learning as opposed to assessment **of** learning (as summative assessment). They highlighted that the definitions of the principles for curriculum design within the CfE policy documents provided no single 'lens' to view them by. Each principle was described differently in relation to:

- ◆ the impact on the learner
- ◆ pedagogical approaches
- ◆ the wider system and curriculum as a whole
- ◆ a combination of all of these things

This led to a general agreement that the key CfE policy documents have a lack of precision in terminology that is likely to lead to variations in understanding of terms and concepts.

These 'variations in understanding of terms and concepts' were exemplified during Stage 1 where the experts initially interpreted some of the principles slightly differently. For example, the combination in the CfE policy documents of 'Challenge and enjoyment' as one principle, rather than two, led two of the experts to interpret them as being interlinked, with the assumption that where challenge existed within the context of CfE, enjoyment should follow automatically. The other two experts felt that enjoyment would not automatically follow from challenge, and when coupled with challenge, enjoyment would only truly be achieved where learners were motivated by positive marks for challenging work. This discussion led the experts to decouple the two concepts into separate principles, allowing them more freedom to consider how enjoyment could actually be understood within the context of qualifications and assessment. As a result, they dealt with 'enjoyment' as a combination of aspects of a number of different principles, with 'Personalisation and choice' and 'Relevance' most closely associated.

To compound this, experts found that *Building the Curriculum 5: A framework for assessment* (BTC5) (Scottish Government, 2011), which was a key driver of qualification and assessment design, further refined, but also complicated, their understanding of the principles for curriculum design. They highlighted that only some of the principles for curriculum design formed a key part of the BTC5 assessment framework, for example

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Breadth and Challenge. The concept of Application is introduced for the first time, alongside Breadth and Challenge, although it was not one of the principles for curriculum design. The definition of 'Application' in BTC5 indicates that application is based on 'challenging tasks in unfamiliar settings' indicating strong links with the principle of Challenge. 'Depth' is not included as a discrete principle within the assessment framework, despite being a principle of CfE, and is articulated within the definitions of Challenge and Application. The experts felt that this somewhat confused their understanding of principles for curriculum design and the relationship between them.

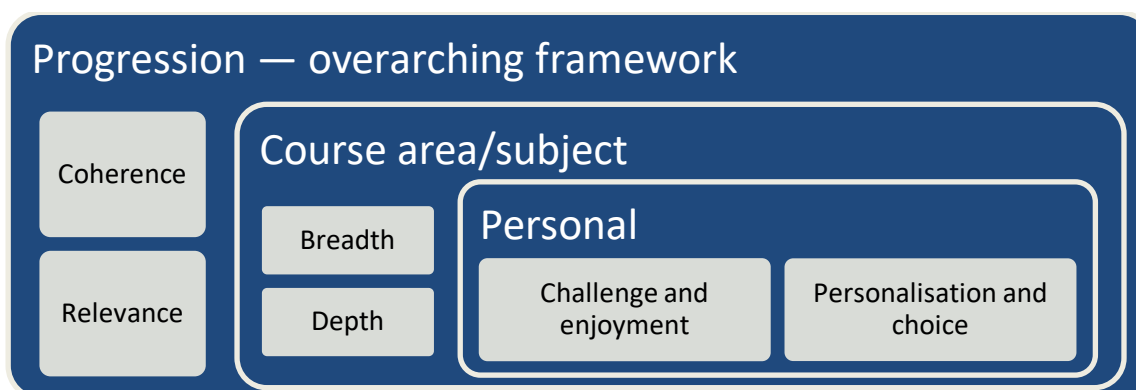
Consequently, it was difficult to separate these aspects from each other using the key CfE policy documents alone. The experts had to extend their literature search to fully understand how the principles for curriculum design related to each other, could be separated, and could be applied credibly to qualification and assessment design (see Stage 1a bibliography in Appendix 1).

Although the experts viewed the principles through a qualification and assessment lens, they agreed that the pedagogical approach to these principles remains important, particularly for principles such as Challenge and enjoyment. Similarly, they recognised that systemic and structural arrangements are critically important for certain principles. For example, there are elements to Breadth and Personalisation and choice which relate to the balance of subjects on offer in the curriculum as a whole, and to timetabling at a school level.

They agreed that assigning specific CfE features to each principle was difficult, particularly where the principles naturally combined or overlapped as part of a learner's holistic development — for example, social intelligence, leadership and teamwork may span all of the principles of curriculum design. They recommended that combinations of principles should be accommodated during the Stage 2 and 3 rating process.

The experts observed a natural hierarchy in the principles for curriculum design, and noted that they do not all have the same weighting across the policy documents (Figure 3). It was agreed that Progression provides the overarching framework, with Coherence and Relevance providing the connections between subjects/course; Breadth and Depth are course specific, and the learner experience is engaged through Challenge and enjoyment and Personalisation and choice.

Figure 3: Observed hierarchy of principles for curriculum design



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The experts came together in a final day-long discussion to consider their understanding of each principle and agree a final set of composite CfE features. Though some of their original interpretations had differed, there was enough commonality in their decisions, particularly after discussion, to decide on specific CfE features that should be present in qualifications and assessments in order to incorporate each principle for curriculum design. Unsurprisingly, there are interactions between the principles, and this entails an element of overlap in the CfE features demonstrating each principle.

The overlapping nature of the principles for curriculum design needed to be taken into account during the Stage 2 and 3 rating activities. Consequently, the CfE features selected for the rating tasks were tagged to show which principles they aligned to, with most relating to more than one. For example, having personal choice as an element of assessment was, unsurprisingly, considered to be a crucial feature of the principle of Personalisation and choice, but the experts also believed this to be important to a learners' Enjoyment and to the Relevance of an assessment to the learner.

Principles were also considered to be relative, rather than binary, as are the CfE features underlying them. This is why use of a ratings scale at Stages 2 and 3 is an appropriate and useful measure. For example, rather than indicating that a course does or does not contain any problem solving, the **extent** to which it contains problem solving can be judged. Along with other CfE features, this rating can then help to determine the extent of Challenge within a course.

A summary of Stage 1 results for each principle for curriculum design is presented below, alongside the experts' interpretation of the principle and the justification for their decision making.

2.2.1 Breadth

Breadth: All young people should have opportunities for a broad, suitably weighted range of experiences. The curriculum should be organised so that they will learn and develop through a variety of contexts within both the classroom and other aspects of school life. (Scottish Executive, 2004)

The experts agreed that 'Breadth' implies that learners should be able to access a sufficiently diverse set of areas of learning, in relation to both the range of areas and subjects that a learner experiences, and to the set of topics that are covered within an area of learning. This includes an appropriate balance between knowledge, skills and understanding.

For breadth to be beneficial to the learner, the curriculum needs to have sufficient coherence so that each sub-topic integrates with or builds upon a learner's existing schema of knowledge in that domain. Breadth also suggests that the curriculum offers opportunities for learners to acquire competences or obtain knowledge relating to **other aspects** of their development — such as collaborative working and other meta skills.

Breadth is a relative measure. A curriculum in a learning domain that provides knowledge of two sub-topics has some 'breadth'. A curriculum in the same learning domain that provides

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knowledge of ten sub-topics has greater 'breadth'. In line with this, learners should be able to demonstrate levels of confidence in their ability to manage and become proficient in an **appropriate** range of materials and experiences from differing sources.

Components of breadth

- ◆ The number of distinct sub-topics that are covered
- ◆ The extent to which the course offers appropriate differentiation
- ◆ A measure of how 'well connected' the sub-topics are in relation to the body of knowledge (BOK) in the domain
- ◆ The extent to which there is specific reference to one or both of these components:
 - Skills (practical competences)
 - Understanding (applied knowledge)
- ◆ The extent to which the curriculum provides opportunities to develop other aspects such as:
 - Self-management (focusing / integrity / adapting / initiative)
 - Social intelligence (communicating / feeling / collaborating / leading)
 - Innovation (curiosity / creativity / sense making / critical thinking)

2.2.2 Depth

Depth: There should be opportunities for young people to develop their full capacity for different types of thinking and learning. As they progress, they should develop and apply increasing intellectual rigour, drawing different strands of learning together and exploring and achieving more advanced levels of understanding. (Scottish Executive, 2004).

The experts agreed that 'Depth' in relation to qualification and assessment design suggests the degree to which learners **explore and understand** what they are learning and are achieving more advanced levels of understanding, knowledge and skills beyond the notion of progression.

Components of depth

- ◆ A deeper understanding of the skills and processes within a subject
- ◆ Opportunities to work on more complex tasks
- ◆ Opportunities to combine or apply concepts in less familiar contexts
- ◆ Learners set their own learning goals and choice of tasks
- ◆ Transition from the concrete to the abstract (generalisations)
- ◆ Higher order thinking skills (ability to analyse, synthesise, solve problems, apply critical thinking, and think meta-cognitively in order to establish long-term understanding)

2.2.3 Relevance

Relevance: Young people should understand the purposes of their activities. They should see the value of what they are learning and its relevance to their lives, present and future. (Scottish Executive, 2004).

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The experts agreed that in the curriculum documents the term 'Relevance' was almost always used when considering the 'curriculum as delivered' and its relevance to learners. The most prevalent use is in connection with 'learning and teaching', 'planned activities' and 'contexts for learning'.

There was general agreement that 'relevance' in curriculum terms relates to the connection between the curriculum content and the lived experience of the learner and his/her future learning pathways and career choices. However, they agreed that relevance is a comparative term and is a question of degree. Some topics / activities / approaches may be more relevant to some learners than others. It is highly likely then that a classroom activity planned to be 'relevant' for a group of learners may have little 'relevance' for some of them.

Personal and real-world relevance provides learners with an important opportunity to relate the course subject matter to the world around them, and to assimilate it in accordance with their previously held assumptions and beliefs. Relevance is a key factor in providing a learning context in which learners construct their own understanding of the course material.

As this research project does not examine the 'curriculum as delivered', the experts focused on CfE features of the 'curriculum as envisaged'. They added the proviso that this might underestimate the degree of relevance that will be experienced by individuals, and that rating in Stage 2 will be a matter of judgement.

Components of relevance

- ◆ Application of theory to practice
- ◆ Connection to real-world current issues
- ◆ Connection to contexts beyond school
- ◆ Extent to which curriculum refers to contexts and experiences which are familiar to young people
- ◆ This includes reflecting the realities, lived experiences and interests of young people from diverse backgrounds, including those who may experience barriers to their learning
- ◆ Opportunity to engage with the world of work and life beyond school, helping them to connect their learning at school with future need and aspiration
- ◆ Opportunities to reflect on global issues of importance and connect how this might relate to their learning and their current and future aspirations
- ◆ The degree to which contemporary, topical, of-the-moment issues are addressed

2.2.4 Coherence

Coherence: Taken as a whole, children's learning activities should combine to form a coherent experience. There should be clear links between the different aspects of young people's learning, including opportunities for extended activities which draw different strands of learning together. (Scottish Executive, 2004).

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The experts agreed that 'Coherence' could be divided into two aspects: internal and external coherence. Internal coherence in a curriculum might occur when:

- ◆ there are systematic connections between the content studied in each subject within a year and as learners advance through the years
- ◆ the content is organised and sequenced to reflect the structure of the domain of knowledge
- ◆ learners engage deeply with some or all content

Experts agreed that internal curriculum coherence is important as it supports in-depth learning of core subject knowledge essential to performance and participation in society.

External coherence refers to the extent of alignment between parts of an education system, such as curriculum content and standards, textbooks, learning resources, pedagogy, assessments, staff professional development and accountability. External coherence suggests central control of these elements.

As the research excludes aspects of pedagogy, the experts agreed that Coherence, for the purposes of this research, should be viewed as an internal measure of how well the content, aims, learning resources and assessment of a course are aligned and reinforce one another. They added the proviso that aspects of external coherence that should be present in course design should be included in the stage 2 and 3 rating process.

Components of coherence

- ◆ Content is purposefully structured and logically sequenced to facilitate progression within and across levels
- ◆ A course's content is aligned with its guidance documents, exemplars and assessments
- ◆ Course content provides a continuum of learning that **enables** a consistent and integrated learning experience

2.2.5 Progression

Progression: Young people should experience continuous progression in their learning from 3 to 18 within a single curriculum framework. Each stage should build upon earlier knowledge and achievements. Young people should be able to progress at a rate which meets their needs and aptitudes and keep options open so that routes are not closed off too early. (Scottish Executive, 2004).

The experts agreed that the term 'learning progression' is often used to refer to the purposeful sequencing of teaching and learning expectations across multiple developmental stages, ages, or grade levels. However, an individual learner's learning progression cannot be assumed to be linear or sequenced in a particular way because learners actively construct knowledge rather than passively receiving it (Anderson *et al*, 2001, Biggs, 1982, Marzano and Kendall, 2001). Thus, an individual's knowledge is a product of their previous experiences, mental structures, and beliefs that are used to interpret objects and events.

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A curriculum that enables progression is one that builds upon previous learning while preparing learners for more challenging concepts and more sophisticated coursework at the next level. What counts as academic progress within a domain of knowledge depends on how that domain is conceptualised by its practitioners, teachers and analysts. For example, in vocational courses the progression might be mainly in skill levels rather than conceptual understanding.

With this in mind, the experts examined progression only from the perspective of whether a subject curriculum as envisaged demonstrates the required characteristics. They agreed that sequence, continuity and coherence are necessary aspects of progression, but that learning for the individual is not necessarily linear, and an incoherent curriculum cannot be said to support progression, even if it may offer more breadth or depth.

Components of progression

- ◆ Topics studied at greater depth than in the preceding level curriculum (greater cognitive complexity)
- ◆ Evidence of growth from lower to higher levels of complexity, with increasingly comprehensive and integrated logical operations, and abstraction from the concrete
- ◆ High level of coherence between corresponding courses at different levels to allow coherent steps from the preceding level to this level, to the next higher level.

2.2.6 Personalisation and choice

Personalisation and choice: The curriculum should respond to individual needs and support particular aptitudes and talents. It should give each young person increasing opportunities for exercising responsible personal choice as they move through their school career. Once they have achieved suitable levels of attainment across a wide range of areas of learning the choice should become as open as possible. There should be safeguards to ensure that choices are soundly based and lead to successful outcomes. (Scottish Executive, 2004).

The experts noted that 'Personalisation' refers to individuals having as much choice and control as possible in the way the curriculum is designed, delivered and assessed. Therefore, the term 'Choice' is a weaker and more limited form of personalisation, rather than a distinct concept — so only personalisation needs to be considered.

Personalisation is defined with the CfE policy documents at two levels:

- ◆ Learning and teaching in the classroom that engages with learners at a personal level
- ◆ Choice of qualifications to study in Senior Phase to suit interests and abilities

The experts noted that all descriptions of personalisation, within the core CfE policy documents, relate to approaches to teaching, learning and assessment in combination. The overarching consideration is the extent to which course specifications, assessment specifications and assessment instruments can facilitate personalisation on their own. To this end, opportunities for Personalisation and choice at a course level may be built into the qualifications and assessments, but not able to be enacted in the curriculum as delivered.

Components of personalisation (incorporating choice)

- ◆ Opportunity for learner to progress through curriculum at own pace
- ◆ Learners enabled to build on the foundation of their prior learning
- ◆ Assessment allows for varied forms to suit individual preferences
- ◆ Assessment takes place at a time that suits the individual
- ◆ Assessment arrangements are flexible
- ◆ Scope for learner to choose own pathway through the curriculum (personal learning planning)
- ◆ Scope for personal projects as an element of learning

2.2.7 Challenge and Enjoyment

Challenge and enjoyment: Young people should find their learning challenging, engaging and motivating. The curriculum should encourage high aspirations and ambitions for all. At all stages, learners of all aptitudes and abilities should experience an appropriate level of challenge, to enable each individual to achieve his or her potential. They should be active in their learning and have opportunities to develop and demonstrate their creativity. There should be support to enable young people to sustain their effort. (Scottish Executive, 2004).

2.2.7.1 Challenge

The experts agreed that cognitively challenging experiences optimise the engagement, learning and achievement of learners. They provide learners with opportunities to demonstrate their abilities using analysis, synthesis, and evaluation. They can also show how they use their existing knowledge in new, creative, or complex ways.

Assessment might include opportunities to distinguish between fact and opinion, to compare, or describe differences, make decisions, explain solutions, justify their methods, and obtain meaningful answers. Problems may have multiple solutions or alternative methodologies and take learners beyond classroom routines and previously observed problems.

Evidence suggests that learners are particularly stimulated and challenged when they are given opportunities to engage in independent learning, for example following their own research projects and investigations with teacher support and feedback.

A challenge literally means an invitation or a call to action, and challenges vary in scope and complexity. Challenge will occur when there is extension beyond the prescribed curriculum. The extent of challenge will be an artefact of the chosen learning and teaching approaches and resources for learning.

Components of challenge

- ◆ Opportunities for collaborative inquiry
- ◆ Opportunities for independent learning
- ◆ Opportunities for class discussion
- ◆ Opportunities for development of metacognition

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- ◆ Opportunities to be creative
- ◆ Assessment that promotes problem solving where various approaches might be relevant
- ◆ Value attached to various aspects of achievement
- ◆ Opportunities to engage with 'beyond classroom' problems such as those in their community

2.2.7.2 Enjoyment

The experts agreed that despite Challenge and enjoyment being combined in the CfE policy documents, they had stronger links with some of the other principles. For example, Personalisation and choice, Coherence and Relevance will share some of the same characteristics.

They agreed that the experience of enjoyment or pleasure is intensely individual. For some, pleasure may involve feeling excited and enthusiastic, whereas for others, or at other times, it may involve feeling relaxed and at ease. An outcome above and beyond the curriculum is not necessary for pleasure to be experienced: an activity can be perceived as worth doing for its own sake, even if no further goal is reached.

They agreed that enjoyment is easy to identify in practical or performance-based subjects, or where learners have choice in their own learning — for example, through optionality or a choice of coursework topics. However, the experts recognised that enjoyment can be difficult to identify and analyse because it is subjective.

Components of enjoyment

- ◆ Opportunities for collaborative learning — sharing ideas
- ◆ Access to peer-to-peer support
- ◆ Activities and tasks that are challenging but achievable
- ◆ Learning that connects with learners' lived experiences

2.2.8 Summary of Stage 1 findings

The experts involved in Stage 1 of the research found it difficult to identify clear definitions of the principles for curriculum design in the key CfE policy documents, in a form that could be applied to qualification and assessment design. This was principally because the definitions provided in *A Curriculum for Excellence* and the earlier *Building the Curriculum* series (BTC1 to BTC4) were focused on assessment for learning, and provided very little detail on how the principles for curriculum design should be applied to Senior Phase summative assessments. *Building the Curriculum 5: A framework for assessment* (BTC5) was expected to provide clear practical guidance in this area, but experts felt that the principles became somewhat confused. Depth of knowledge was subsumed (and almost lost) under aspects of Challenge and Application, which made it difficult to separate it out for the purpose of delineating distinct criteria. The experts believed that the lack of clarity in BTC5 about where Depth lies may have resulted in the concepts of Breadth, Challenge and Application being interpreted and applied inconsistently within the wider system.

Definitions of the principles for curriculum design in the core CfE policy documents also conflate the roles of learners, teachers and the wider education system. The experts were

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concerned that responsibility for the realisation of the principles may be being viewed through different 'lenses' by multiple actors within the education system, resulting in a lack of clarity.

A key finding from Stage 1 was the interrelation between principles that was not explicitly communicated within the CfE policy documents. Findings indicated that although Challenge and enjoyment were linked with the CfE policy documents, Depth and Challenge were the most closely linked principles in terms of qualification and assessment design.

This led to agreement that the CfE features that were developed for Stage 2 and 3 should be applicable across a number of principles, rather than being specific to a single principle. This was reflected in the final questionnaire, which was tested and refined at the pilot stage prior to wider use in Stage 2 and 3. Figure 4, below, contains short forms of the CfE features agreed to underlie each principle for curriculum design in practice.

Figure 4: CfE features underlying the principles for curriculum design as they relate to qualification and assessment design

Breadth	Challenge
<ul style="list-style-type: none">◆ Progression of range of knowledge, skills, understanding (KSU)◆ Range of KSU in relation to wider subject discipline◆ Range of knowledge in line with course purpose, aims and rationale◆ Range of skills in line with course purpose, aims and rationale◆ Appropriate balance between knowledge and skills	<ul style="list-style-type: none">◆ Complexity of KSU in relation to wider subject discipline◆ Range of skills in line with course purpose, aims and rationale◆ Progression of demand and complexity of KSU◆ Innovation◆ Social intelligence◆ Practical application of theories and concepts◆ Problem solving◆ Make links between different elements of subject◆ Transfer KSU to new, challenging, unfamiliar contexts◆ Abstract thinking◆ Higher order cognitive skills◆ Challenging and complex knowledge and understanding◆ Appropriate balance between knowledge and skills

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Coherence	Depth
<ul style="list-style-type: none"> ◆ Range of knowledge in line with course purpose, aims and rationale ◆ Range of skills in line with course purpose, aims and rationale ◆ Appropriate balance between knowledge and skills ◆ Structured, logically sequenced learning, teaching and assessment ◆ Consistent, integrated learning experience ◆ Alignment between the purpose and aims of course and the outlined KSU ◆ Alignment between KSU and question paper ◆ Alignment between KSU and coursework 	<ul style="list-style-type: none"> ◆ Complexity of KSU in relation to wider subject discipline ◆ Appropriate balance between knowledge and skills ◆ Range of knowledge in line with course purpose, aims and rationale ◆ Progression of demand and complexity of KSU ◆ Innovation ◆ Self-management of learning ◆ Make links between different elements of subject ◆ Transfer KSU to new, challenging, unfamiliar contexts ◆ Abstract thinking ◆ Higher order cognitive skills ◆ Challenging and complex knowledge and understanding
Enjoyment	Personalisation and choice
<ul style="list-style-type: none"> ◆ Learner personal choice in assessment ◆ Learning in different ways ◆ Flexible assessment ◆ Innovation ◆ Social intelligence ◆ Self-management of learning ◆ Practical application of theories and concepts ◆ Make links between different elements of subject ◆ Transfer KSU to new, challenging, unfamiliar contexts ◆ Realities, lived experiences and interests of young people from diverse backgrounds, including those with barriers to learning 	<ul style="list-style-type: none"> ◆ Learner personal choice in assessment ◆ Learning in different ways ◆ Flexible assessment ◆ Realities, lived experiences and interests of young people from diverse backgrounds, including those with barriers to learning ◆ Innovation ◆ Social intelligence ◆ Self-management of learning

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Progression	Relevance
<ul style="list-style-type: none">♦ Progression of range of KSU♦ Progression of demand and complexity of KSU	<ul style="list-style-type: none">♦ Real-world issues♦ Learner personal choice in assessment♦ Realities, lived experiences and interests of young people from diverse backgrounds, including those with barriers to learning♦ Range of KSU in relation to wider subject discipline♦ Complexity of KSU in relation to wider subject discipline

Section 3: Stage 2 and 3 — realistic opportunities for and evidence of, the realisation of the principles for curriculum design

This section provides an overview of the structure of the courses within the sample and the findings from rating activities which aimed to investigate whether National 5, Higher and Advanced Higher courses provide learners with realistic opportunities to develop the CfE features and if their assessments show evidence of this development. To provide context for these findings, Appendix 5 outlines the SQA design principles for National 5, Higher and Advanced Higher courses in general.

3.1 Course assessment in National 5, Higher and Advanced Higher English, Geography and Mathematics

The following information provides detail on the structure of National 5, Higher and Advanced Higher courses in English, Geography and Mathematics to set the context for the Stage 2 and 3 findings.

Subject	Level	Component 1	Component 2	Component 3	Component 4
English	National 5	question paper: Reading for Understanding, Analysis and Evaluation	question paper: Critical Reading	portfolio: writing	performance: spoken language (not part of the final grade)
English	Higher	question paper: Reading for Understanding, Analysis and Evaluation	question paper: Critical Reading	portfolio: writing	performance: spoken language (not part of the final grade)
English	Advanced Higher	question paper: Literary Study	question paper: Textual Analysis	portfolio: writing	project: dissertation
Geography	National 5	question paper	assignment	n/a	n/a
Geography	Higher	question paper 1: physical and human environments	question paper 2: global issues and geographical skills	assignment	n/a
Geography	Advanced Higher	question paper	project–folio: geographical study	project–folio: geographical issue	n/a
Mathematics	National 5	question paper: (non-calculator)	question paper	n/a	n/a

Subject	Level	Component 1	Component 2	Component 3	Component 4
Mathematics	Higher	question paper: (non-calculator)	question paper	n/a	n/a
Mathematics	Advanced Higher	question paper: (non-calculator)	question paper	n/a	n/a

3.2 Stage 2 and 3 key findings: opportunities for, and evidence of, the realisation of the principles for curriculum design

The Stage 2 and 3 key findings are provided together to allow for comparisons to be made. The following information provides a short recap of the methodology, along with more detailed information about the rating scales.

As discussed in the methodology section, Stage 2 asked subject specialists to look for realistic opportunities for the development of specified CfE features within their subject course materials (English, Geography and Mathematics). Stage 3 asked subject specialists to look for evidence of the development of these CfE features within candidate scripts, candidate exam answers and coursework submissions.

Subject specialists were asked to rate the extent to which these CfE features were present in the materials, on a four-point scale. Both Stage 2 and 3 included a short online group discussion session for each subject group after the rating exercise was completed to probe anomalous results. This section outlines the findings from this work.

Findings are presented on a subject-by-subject basis and by CfE principle. Heat maps have been provided that indicate the extent to which realistic opportunities, and evidence of the realisation of the principles for curriculum design occur within the sample of National Courses. Ratings were coded as:

Ratings were coded as:

Stage 2	Rating	Stage 3	Rating
Extensive realistic opportunity	3	Extensive evidence	3
Some realistic opportunity	2	Some evidence	2
Little realistic opportunity	1	Little evidence	1
No realistic opportunity	0	No evidence	0

Within the tables in this section, each numerical rating represents an overall score for each principle for curriculum design. Multiple CfE features were explored individually, with scores for each feature, at each SCQF level. The scores were made up of median ratings from the subject specialists' ratings within each subject. These ratings underly the composite score for each principle and represent the combined expert judgement of the subject specialists. The score for each principle for curriculum design at each level is the rating from all the underlying CfE features derived from that principle for curriculum design by curriculum

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experts and researchers in Stage 1, combined as a mean rating. See section 1.6.2.4 Analysis for further detail.

Though this is qualitative research, based on categorical data, these numerical ratings help to indicate the extent (from 0 to 3) to which the principles for curriculum are present in National 5, Higher and Advanced Higher courses within English, Geography and Mathematics. To emphasise the patterns present, the following shaded colours have been used to create heat maps:

- ◆ Bright green = 2.5 or greater
- ◆ Pale green = 2 to 2.49
- ◆ Bright yellow = 1.5 to 1.99
- ◆ Dark yellow = 1 to 1.49
- ◆ Pale red = 0.5 to 0.99
- ◆ Red = Less than 0.5

Delineation of the CfE features, underlying principles for curriculum design, was carried out by a group of independent curriculum experts in conjunction with SQA researchers. However, individual CfE features can be interpreted in different ways by different subject specialists. This limitation is mitigated in part by using the median of the subject specialists' ratings to determine the category which most closely provided a consensus for their views on individual CfE features, and then by combining these median ratings for several CfE features by using the mean to form overall composite ratings for principles for curriculum design. However, it should be emphasised that the numerical ratings are given as indicative results only. They provide a way of consolidating expert, subject specialist views and helping to illustrate any patterns that arise across courses and principles for curriculum design. It is also important to note that the findings should be read in the context of the overall stated limitations of the methodology.

3.3 Key findings: National 5, Higher and Advanced Higher English

3.3.1 Overview of rating activity: English

The rating activity for English indicates that there are realistic opportunities for, and evidence of, the realisation of all the principles for curriculum design across National 5, Higher and Advanced Higher English courses. Those opportunities become more realistic as learners advance through the SCQF levels. There are a number of reasons for this, some of which may not directly relate to the design of the courses themselves.

Within the rating exercise, the subject specialist previously unfamiliar with CfE (non-CfE subject specialist) tended to provide higher ratings than those who taught within the Scottish system (CfE subject specialists) on the grounds that the non-CfE subject specialist could only base their ratings on the opportunities that they believed were visible within the course materials and assessments themselves, as a paper-based exercise. The CfE subject specialists tended to provide lower ratings as they believed that many of the opportunities provided in the course materials could not be realistically translated into classroom practice. The following information provides an illustration of the findings from

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the Stage 2 and 3 rating activity, followed by a summary of key findings. Detailed justification for each of the ratings can be found in Appendix 6.

3.3.2 Illustration of findings

Colour/ratings key

2.5 or greater	2 to 2.49	1.5 to 1.99	1 to 1.49	0.5 to 0.99	Less than 0.5
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Table 1: Stage 2 rating results English: realistic opportunities for the realisation of the principles for curriculum design

Stage 2: Realistic opportunities	Relevance	Breadth	Depth	Challenge	Coherence	Personalisation and choice	Enjoyment	Progression
National 5	2.00	2.20	1.80	1.67	2.25	1.57	1.50	1.50
Higher	2.00	2.20	2.00	1.67	2.13	1.71	1.60	2.50
Advanced Higher	2.40	2.20	2.70	2.17	2.25	2.29	2.10	2.50
Overall	2.13	2.20	2.17	1.83	2.21	1.86	1.73	2.17

Table 2: Stage 3 rating results English: evidence of the realisation of the principles for curriculum design

Stage 3: Evidence of development	Relevance	Breadth	Depth	Challenge	Coherence	Personalisation and choice	Enjoyment	Progression
National 5	2.00	2.00	1.78	1.50	2.00	1.75	1.63	1.50
Higher	2.33	2.25	2.22	1.92	2.00	2.00	1.88	3.00
Advanced Higher	3.00	2.50	2.78	2.42	2.75	2.75	2.38	2.50
Overall	2.44	2.25	2.26	1.94	2.25	2.17	1.96	2.33

3.3.3 Summary of key findings: National 5, Higher and Advanced Higher English

The information below provides a summary of the key findings for National 5, Higher and Advanced Higher English. Detailed justification for each of the ratings can be found in Appendix 6.

Advanced Higher

The Stage 2 rating activity indicated that Advanced Higher English offered between 'some' and 'extensive' realistic opportunity to realise all eight of the principles for curriculum design and was therefore well aligned with the intentions of CfE. Findings indicate that this was predominantly through greater complexity and demand in skills, knowledge and

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understanding at this level, extensive personal choice, and an emphasis on self-managed learning as an intrinsic part of the course. Subject specialists indicated that this was facilitated in classroom practice through a combination of smaller class sizes, a more 'tutorial' approach to learning and teaching, and greater learner ability at this level. Stage 3 evidence reinforced and extended this position, showing that candidate evidence, in both the question paper component and the coursework components, indicated even greater alignment with the principles for curriculum design than anticipated at Stage 2, with all eight principles being realised.

Higher

The Stage 2 rating activity at Higher indicated that the course provided between 'some' and 'extensive' realistic opportunity to realise five of the eight principles for curriculum design. Where principles were rated as 'little' to 'some' realistic opportunity this was related to their being no requirement to problem solve or apply concepts in practice within Higher English as an aspect of Challenge. However, the subject specialists agreed that these CfE features were not applicable to the subject. Aspects of Personalisation and choice and Enjoyment were also rated between 'little' and 'some' as a reflection of the pressures of classroom practice, where time and resources may inhibit learner personal choice as an aspect of enjoyment, although it is accepted that enjoyment is largely a subjective concept. It is possible then that alignment with the principles for curriculum design may be affected by factors relating to classroom practice rather than the design of the course itself.

The Stage 3 rating activity for Higher indicated that there was between 'some' to 'extensive' evidence of six out of the eight principles for curriculum design, which represents an increase on the Stage 2 rating for the principle of Personalisation and choice. Candidate evidence at Stage 3 indicated that in contrast to the ratings provided at Stage 2, learners did appear to have a wider range of personal choice than was initially seen as realistic by subject specialists and depth of learning was also clearly visible in the evidence provided.

Where principles were rated between 'little' and 'some', again this related to there being no requirement to problem solve or apply concepts in practice within Higher English as an aspect of Challenge, and the subject specialists agreed that this was appropriate to the subject. Despite the evidence of increased Personalisation and choice at Higher, ratings for Enjoyment remained between 'little' and 'some' due to lack of evidence of the Talking and Listening component, which subject specialists believed was more likely to provide evidence of learner enjoyment.

National 5

At National 5, the rating activity highlighted that the course provided between 'some' to 'extensive' realistic opportunity to realise three out of the eight principles for curriculum design. Where principles were rated between 'little' and 'some' this was principally due to a limited requirement for learners to develop higher order skills, work with complex knowledge and understanding or apply abstract thought in order to achieve a grade C pass. Subject specialists also noted that learners at this level struggled to self-manage their own learning, which means that there may be less opportunity for those learners to gain the depth of knowledge, skills and understanding that can be achieved through self-management. In addition, lack of time and resources were seen as restricting realistic

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opportunities for Personalisation and choice at this level, which may reduce opportunities for relevant learning and enjoyment.

Subject specialists indicated that there was coherence in the range of skills, knowledge and understanding between the 4th level curriculum benchmarks and National 5 but that there may be a misalignment relating to level of demand between these two levels. This included a lack of balance between the four components, with Talking and Listening having a less prominent place in the National 5 course assessment than in the 4th level curriculum benchmarks, which some specialists perceived as being problematic.

The Stage 3 rating activity reinforced the Stage 2 findings indicating that there was between 'some' to 'extensive' evidence of three out of the eight principles for curriculum design. Where principles were rated between 'limited' to 'some', again this related to there being a lack of complexity in the candidate evidence, particularly at grade C, with limited evidence of the development of challenging complex knowledge and skills, including abstract thought. As at Stage 2, there was some evidence of personal choice across both components, although subject specialists could not definitively determine whether learners had chosen their own topic or not. Subject specialists indicated that some of the evidence of attainment at National 5 could be reasonably attributed to coaching in examination technique as opposed to a full grasp of the subject matter.

3.4 Key findings: National 5, Higher and Advanced Higher Geography

3.4.1 Overview of rating activity: Geography

The rating activities for Geography indicated that there were realistic opportunities for, and evidence of the realisation of, all of the principles for curriculum design across National 5, Higher and Advanced Higher Courses. In a similar way to English, the opportunities tended to become more realistic as learners advanced through the levels. Within the rating exercise, the non-CfE subject specialist tended to rate at a lower level than the CfE subject specialists, on the grounds that they could only base their ratings on the opportunities that were visible within the course design itself, rather than considering how these opportunities translated into classroom practice.

During the Stage 2 group discussion, the CfE subject specialists explained that the Geography courses were designed to create space for teacher agency, allowing teachers to extend learning through flexible approaches to learning and teaching. As a result of this, there was much debate about the relationship between lack of prescription in course materials and teacher agency. The CfE subject specialists ultimately acknowledged that at Advanced Higher, opportunities for the realisation of the principles for curriculum design were high due to self-management of learning, whereas at National 5 and Higher, class sizes, resources and timetabling tended to limit teacher agency in practice. The following information provides an illustration of the findings from the Stage 2 and 3 rating activity, followed by a summary of key findings. Detailed justification for each of the ratings can be found in Appendix 7.

3.4.2 Illustration of findings

Colour/ratings key

2.5 or greater	2 to 2.49	1.5 to 1.99	1 to 1.49	0.5 to 0.99	Less than 0.5
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Table 3: Stage 2 rating results Geography: realistic opportunities for the realisation of the principles for curriculum design

Stage 2: Realistic opportunities	Relevance	Breadth	Depth	Challenge	Coherence	Personalisation and choice	Enjoyment	Progression
National 5	2.00	2.00	1.70	1.67	2.13	1.43	1.60	2.00
Higher	1.60	2.20	2.00	1.75	2.25	1.29	1.60	3.00
Advanced Higher	2.60	2.40	2.50	2.50	2.00	2.29	2.40	2.50
Overall	2.07	2.20	2.07	1.97	2.13	1.67	1.80	2.50

Table 4: Stage 3 rating results Geography: evidence of the realisation of the principles for curriculum design

Stage 3: Evidence of development	Relevance	Breadth	Depth	Challenge	Coherence	Personalisation and choice	Enjoyment	Progression
National 5	2.00	2.50	1.78	1.67	2.25	1.50	1.63	2.00
Higher	1.67	2.00	1.89	1.67	2.00	1.50	1.50	2.50
Advanced Higher	2.33	2.25	2.11	2.17	2.25	2.00	2.13	2.00
Overall	2.00	2.25	1.93	1.83	2.17	1.67	1.75	2.17

3.4.3 Summary of key findings: National 5, Higher and Advanced Higher Geography

The information below provides a summary of the key findings for National 5, Higher and Advanced Higher Geography. Detailed justification for each of the ratings can be found in Appendix 7.

Advanced Higher

Stage 2 findings indicated that Advanced Higher Geography offered between ‘some’ and ‘extensive’ realistic opportunity to realise all eight and was fully aligned with the principles for curriculum design. Findings indicate that this was predominantly through extensive development of complex geographical knowledge and skills, the development of higher order thinking, and personal choice and opportunities for learners to self-manage their

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learning as an intrinsic part of the course. Subject specialists indicated that this was facilitated through a combination of smaller class sizes and learner ability at this level. Stage 3 findings fully supported the findings at Stage 2.

National 5 and Higher

Stage 2 findings indicated that at both National 5 and Higher, the courses provided between 'some' and 'extensive' realistic opportunity to realise four of the eight principles for curriculum design.

Four principles were rated as 'little' to 'some' realistic opportunity. This resulted from conflicting views during the rating activity on the prescribed requirements of the course, with the non-CfE subject specialist indicating that the course content was too open to allow for consistent delivery at centre level. The CfE subject specialists noted that the lack of prescription was a key feature of these courses, to allow teachers the freedom to extend learning through flexible teaching and assessment practice. Nevertheless, the CfE subject specialists recognised that the factors relating to classroom practice may inhibit the ability to extend and deepen learning at these levels. Personalisation and choice was rated 'limited' to 'some' opportunity as subject specialists believed that large class sizes and limited resources may restrict Personalisation and choice in coursework, thus potentially reducing the overall relevance of learning topics and overall enjoyment, though it is recognised that enjoyment is largely a subjective concept.

Stage 3 findings broadly supported the findings at Stage 2. However, in a similar manner to the English ratings there was greater evidence of Personalisation and choice within the candidate evidence.

3.5 Key findings: National 5, Higher and Advanced Higher Mathematics

3.5.1 Overview of the rating activity: Mathematics

The rating activity for Mathematics outlined that there were realistic opportunities for and evidence of the realisation of five out of the eight principles for curriculum design across National 5, Higher and Advanced Higher Courses. Unlike English and Geography, there was no great difference between the ratings for each principle at the different SCQF levels.

The CfE features underlying Progression, Coherence and Breadth were rated particularly strongly across all of the Mathematics courses, both for realistic opportunity for the realisation of the principles for curriculum design and evidence of this in candidates work. Opportunity and evidence for progression between levels was seen as 'extensive' from the 4th level curriculum benchmarks for numeracy and mathematics all the way up to Advanced Higher Mathematics.

Where ratings were 'none' to 'limited' across National 5, Higher and Advanced Higher, this was due to aspects of the CfE features identified by the curriculum experts not being required in these Mathematics courses. For example, Personalisation and choice is limited within the courses as they are all examination based, which specialists believed was appropriate. Real-life application of skills should be developed and contextualised through learning, teaching and assessment, but real-world issues and contexts are deliberately

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avoided in assessment to avoid distraction, leading to question papers that are deliberately neutral. Many mathematical skills and processes also need to be developed sequentially, and this limits the possibility of providing choice. In addition, social intelligence and innovation are not a requirement within these Mathematics courses, but these aspects are covered by the SQA Applications of Mathematics courses, which is an alternative National Course route.

There was no clear divide in ratings between those familiar and unfamiliar with CfE. Where there were clear differences in ratings between specialists these tended to be due to differing views on what concepts such as 'problem solving' meant within the context of Mathematics. However, the median was used to calculate ratings for individual CfE features, which mitigated this to some degree (see sections 1.6.1.4 and 3.2).

The following information provides an illustration of the findings from the Stage 2 and 3 rating activity, followed by a summary of key findings. Detailed information around justification for each of the ratings can be found in Appendix 8.

3.5.2 Illustration of findings

Colour/ratings key

2.5 or greater	2 to 2.49	1.5 to 1.99	1 to 1.49	0.5 to 0.99	Less than 0.5
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Table 5: Stage 2 rating results Mathematics: realistic opportunities for the realisation of the principles for curriculum design

Stage 2: Realistic opportunities	Relevance	Breadth	Depth	Challenge	Coherence	Personalisation and choice	Enjoyment	Progression
National 5	1.00	2.80	2.30	2.17	3.00	0.57	0.80	3.00
Higher	1.00	2.80	2.30	2.25	3.00	0.57	0.90	3.00
Advanced Higher	1.00	2.80	2.30	2.25	3.00	0.57	0.90	3.00
Overall	1.00	2.80	2.30	2.22	3.00	0.57	0.87	3.00

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Table 6: Stage 3 rating results Mathematics: evidence of the realisation of the principles for curriculum design

Stage 3: Evidence of development	Relevance	Breadth	Depth	Challenge	Coherence	Personalisation and choice	Enjoyment	Progression
National 5	0.33	3.00	1.89	1.67	2.75	0.00	0.63	3.00
Higher	0.33	3.00	1.89	1.67	2.75	0.00	0.50	3.00
Advanced Higher	0.33	3.00	2.11	1.75	2.75	0.25	0.75	3.00
Overall	0.33	3.00	1.96	1.69	2.75	0.08	0.63	3.00

3.5.3 Summary of key findings: National 5, Higher and Advanced Higher Mathematics

The information below provides a summary of the key findings for National 5, Higher and Advanced Higher Mathematics. Detailed information around justification for each of the ratings can be found in Appendix 8.

Advanced Higher

The rating activity indicated that Advanced Higher Mathematics offered between ‘some’ and ‘extensive’ realistic opportunity to realise five out of eight of the principles, with Stage 3 candidate evidence indicating four of these principles. Findings highlighted, where ratings were particularly low, that this was predominantly due to a deliberate lack of real-world contexts within Mathematics assessments, it was felt that contextualisation within the question papers could be seen as distracting for candidates and therefore unhelpful, although there was an expectation that this would be delivered as an aspect of learning and teaching. In addition, personal choice is limited as part of the design of the course, being examination based. This means that elements of individual interest cannot be selected and so the course may not feel as directly relevant to learners. Although the rating for enjoyment was low, this is largely a subjective concept which, within the context of this research, is tied closely to real-world relevance and individual learner choice. These CfE features were less applicable to Mathematics courses due to the nature of the subject.

National 5 and Higher

At both National 5 and Higher, the rating activity indicated that the courses provided between ‘some’ and ‘extensive’ realistic opportunity to realise five of the eight principles, with candidate assessments showing evidence of three principles at these levels. In a similar way to Advanced Higher, findings indicated that where ratings were particularly low this was predominantly due to the deliberate exclusion of real-world contexts within Mathematics assessments. Indeed, contextualisation within the question papers could be seen as distracting for candidates and therefore unhelpful. Though there was an expectation in the course materials that relevance to learners and the wider world would be delivered as an aspect of learning and teaching, practical pressures on teachers meant that this was unlikely to be realised consistently across classes and schools. In addition,

personal choice is limited as part of the design of the course (being examination based) meaning that the material studied may not feel directly relevant to learners. Findings suggested that this lack of choice could relate to a necessity in Mathematics to cover skills sequentially, building upon one another. The area of challenge was rated as 'limited' to 'some' due to a lack of reasoning skills and problem solving at National 5 and Higher: the specialists believed an increase in these would support greater challenge.

Overall, the research findings indicated that the Mathematics courses were appropriate in their design. The specialists felt that the Application of Mathematics courses at National 5 and Higher would fit more closely with the broader CfE features within the Stage 2 and 3 questionnaires, for example with Relevance to individual learners' lives which could add to principle of Enjoyment.

The following section provides a discussion of the key findings from the research as a whole.

Section 4: Discussion of key findings

This section discusses some of the key findings from the Stage 1, 2 and 3 of the research. Within the stated limitations of the methodology, the following key discussion points have been drawn from the research findings.

4.1 CfE policy in practice

Evidence indicates that the core CfE policy documents are lacking in clarity and detailed terminology and are heavily focused on assessment **for** learning, as formative assessment, as opposed to assessment **of** learning, as summative assessment. This means that there is no clear distinction within these documents between the contribution to the four capacities played by learning, teaching and assessment within classroom practice, and the role that should be played by qualifications and summative assessment.

The purpose of the curriculum, as the four capacities, is broad in nature and can be viewed through multiple lenses, so judgements about achievement of the capacities are likely to be highly subjective. This makes measurement using the four capacities extremely difficult, resulting in success meaning different things to different actors within the wider system.

The principles for curriculum design underpin the curriculum and provide a framework for professional practice. However, the definitions of the principles conflate learning and teaching, and formative and summative assessment. They are open to interpretation and can be combined in different ways to achieve different outcomes (depending on who is interpreting them), and they do not all carry the same weight in practice. To compound this, *Building the Curriculum 5: A framework for assessment* (BTC5) (Scottish Government, 2011), a key driver of qualification and assessment design, further complicates the relationship between the principles by introducing 'Application', while reinforcing the conflation of formative and summative assessment in the realisation of these principles.

What is clear from the evidence is that qualifications and summative assessment play a role in contributing to the realisation of the principles for curriculum design, but that pedagogy is key to achievement of them. This is particularly true of the principles of Depth, Personalisation and choice, and Challenge and enjoyment. What is not made clear are the

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different roles that learning, teaching and assessment each play in realising these principles, and which of these principles can, and should, be realised through qualifications and summative assessment.

The challenge facing the wider system is creating a uniform understanding of how different aspects of learning, teaching, formative and summative assessment can, and should, contribute to the realisation and measurement of the principles as a proxy for the intentions of CfE.

4.2 Breadth of provision

The principles for curriculum design, like the four capacities, are broad in nature and are designed to develop 'the whole learner'. Scrutiny of these principles for the purpose of this research suggests that it is not necessary for every principle for curriculum design to be present within every course in order for the course to contribute to the wider curriculum. What is important is that the course is fit for purpose and relevant to the wider subject discipline so that learners can attain the appropriate knowledge, skills and understanding that will allow them to progress to the next stage of their education, training and/or employment. This is an important aspect of validity, where 'end users' such as employers or admissions staff can correctly judge from a learner's grades what they know, understand and can do.

It is the curriculum's breadth of provision that provides a learner with the opportunity to achieve a wider variety of attributes and capabilities that are present within a combination of subject experiences. As was observed in Stage 1, structural and system issues are therefore important to the success of the curriculum, as the balance of subjects on offer as a whole plays a critical role in fulfilling the intentions of the curriculum.

This was evidenced within the research, where in some National Courses certain principles for curriculum design were rated particularly low because there was little need for that particular principle to be present in that particular National Course: for example, problem solving in English. Even at Advanced Higher, where there was more realistic opportunity for, and evidence of the principles for curriculum design, there were some aspects that simply did not fit with the subject area. For example, Personalisation and choice was not seen by subject specialists as a key requirement for Mathematics courses, including at Advanced Higher.

In this respect, the principle of 'Breadth', actually means two things in relation to the curriculum and assessment design:

- 1) Breadth of knowledge, skills and understanding within a course that should be appropriate to the wider subject discipline
- 2) Breadth of provision (eg the number of subject experiences a learner is exposed to within their school career)

Both of these, in combination, are key to ensuring a learner develops a variety of the attributes and skills that reflect the four capacities as a 'whole' experience. In many respects, this works well in the BGE because of the variety of experiences it offers — Breadth is a key aspect of this stage in learning. It becomes more difficult in many respects when Breadth meets Depth in the Senior Phase.

Breadth is less likely to be achieved if subject choice is narrowed too quickly, because learners will only be strengthening the principles that are present within those particular subjects, at the expense of being exposed to a wider variety of experiences. In this respect, while Senior Phase qualifications can support the realisation of the principles for curriculum design through the provision of a variety of subject experiences, the extent to which the four capacities will be fulfilled through qualifications will be limited by the range and combination of subject experiences that learners are exposed to.

4.3 SCQF levels

The results indicate that at Advanced Higher learners have extensive realistic opportunity to realise the principles for curriculum design. To this extent, it may be considered that Advanced Higher courses are better 'aligned' with the intentions of CfE than courses at National 5 and Higher. This would seem to support the findings of the OECD review: that with the exception of Advanced Higher, the Senior Phase qualifications, in particular Higher courses, 'do not appear to be fully aligned with intentions of CfE in aims, content, pedagogy and assessment' (OECD, 2021).

However, the research suggests that, within the sample of National Courses, there are opportunities to realise all of the appropriate principles for curriculum design at all SCQF levels, to varying degrees. Although it is clear that these opportunities become more realistic as learners advance through the SCQF levels for a number of reasons, most of which may not be directly related to the design of the courses themselves.

Evidence indicates that by the time learners embark on an Advanced Higher course, they have already undertaken a range of subject experiences at National 5 and Higher that provide them with a broad schema of knowledge that supports increasing intellectual rigour at this level. Consequently, they are more able to make connections between new information and existing information to construct new learning. To further support this, learners are more mature at this level, and class sizes are generally smaller and take on a more tutorial approach, allowing learners to explore the subject at their own pace with more opportunities for personal choice as a key aspect of their learning. Learners are also undertaking fewer courses at this level, allowing them the opportunity to think more deeply about what they are learning. As a result of this, learners undertaking Advanced Higher courses have more realistic opportunities to realise the appropriate principles for curriculum design and are more likely to provide clear evidence of realisation of these, as appropriate to their subject discipline.

Advanced Highers are notionally based on 160 hours of directed learning and 160 hours of self-directed learning, which means there is an expectation that learners at this level will undertake significant self-management of their learning — this self-management of learning is subsequently rewarded by a greater number of SCQF credit points at this level. Despite this, the number of notional hours of directed learning, as teacher contact time, is the same as at National 5 and Higher. Consequently, at Advanced Higher learners should, in theory, be receiving the same amount of contact time as learners at the lower levels. In addition, the format for course assessments at these levels is similar to the format at National 5 and Higher, usually with a combination of question paper and coursework component, although this is not the case in Mathematics where assessment is examination based.

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What seems to differentiate Advanced Higher from National 5 and Higher is a combination of academic experience and maturity that can support self-managed learning. Self-management of learning can in turn reduce the need for teacher contact time. This provides learners with more space to explore their subject on their own, and more time for teachers to expand learners' knowledge, skills and understanding through different approaches to learning, teaching and formative assessment.

Conversely, evidence indicates that learners at National 5 and Higher do not always have the maturity to self-manage their learning, which was regarded as a key aspect of depth of learning by the experts in Stage 1. The results suggest that classes at National 5 (and to some extent Higher) are tightly controlled by the teacher. For example, subject specialists indicated that easier texts are supplied to read at home in English to make the course more manageable. Class sizes at National 5 and Higher also tend to be greater in size than at Advanced Higher, which means that resources are often stretched. National 5 and Higher learners tend also to be studying more subjects, resulting in restrictions on the amount of time that a single subject might be offered within a given timetable. The combination of lower learner maturity, greater class sizes, and reduced time and resources may result in much of the Personalisation and choice that is present within the courses being abandoned in favour of prescription, as a 'safeguard' to lead to successful outcomes, as outlined in BTC5.

The research findings indicate that learners may not be able to explore areas of personal interest at these levels and may be less engaged or motivated by what they are learning than at Advanced Higher because of this lack of personal choice. This reflects the Stage 1 findings where experts believed that Personalisation and choice could only be achieved through a combination of learning, teaching and assessment, and that all three were essential for it to be realised in practice.

4.4 Practicability

One of the key aspects of the design of National Courses was to create 'space' for teacher agency to extend knowledge, skills and understanding and make links beyond what is prescribed in the course, as an aspect of Challenge. National Course specifications were never designed to be a teaching syllabus. This manifests itself in course specifications that are non-prescriptive by design to allow for professional practice. However, learner ability, restrictions on timetabling, class sizes and resources mean that that this extension of knowledge, skills and understanding is not always possible at National 5 and Higher, resulting in learning and teaching often being narrowed to the requirements of the course specification. None of the subject specialists who participated in the research regarded this as desirable, but indicated that pressures of learning and teaching often required them to do what was required to get as many learners 'across the line' as possible, suggesting that the high stakes nature of these courses applies additional pressure to classroom practice.

The candidate evidence demonstrated that inevitably there are differences for different candidates and, likely, in delivery and practice across different schools. However, it is apparent that there may be a disconnect at National 5 and Higher between the courses as envisaged and as delivered. There are multiple factors affecting how courses are delivered including available time, class sizes, timetabling and other resources. As noted above, not all of the principles for curriculum design for curriculum design can, or should, be realised within every National Course, and breadth of subject experience is crucial to the fulfilment

of the four capacities as a whole. If learners are not being provided with the opportunity to realise the principles for curriculum design that are offered within a particular National Course, then it may mean that breadth of the principles across other courses may need to be augmented otherwise the curriculum risks being narrowed. Future work on the qualifications could constructively focus upon the interrelationship between qualification design, choices in qualification delivery and the actualisation of the full curriculum.

4.5 Progression

Within Geography and Mathematics there was clear evidence of coherence within the curriculum framework from the 4th level curriculum benchmarks through to the end of the Senior Phase. However, the English subject specialists considered that, in their experience, although there was coherence in the range of knowledge and understanding between the 4th level curriculum benchmarks and National 5, that there may be a misalignment relating to level of demand between these two levels. Although it is recognised that these findings are based on a small sample of subject specialists, it may indicate a need to further explore the transition from the 4th level curriculum benchmarks and SCQF 5 in other National Courses to ensure transition from the BGE to the Senior Phase is coherent.

Section 5: Conclusions

The purpose of this research was to investigate whether National 5, Higher and Advanced Higher courses, within the sample, are aligned with the intentions of CfE, and to consider the nature, extent of, and reasons for any apparent misalignment. This was with a view to determining the extent to which the vision of CfE has translated into qualifications and assessment practice.

Within the stated limitations of the methodology, the following indicative conclusions can be drawn from the research findings:

1. National 5, Higher and Advanced Higher English, Mathematics and Geography course and assessment design is aligned with the principles for curriculum design, as a proxy for the intentions of CfE.
2. Opportunities for the realisation of the principles for curriculum design become more realistic as learners' progress through the SCQF levels for a number of reasons that may not be directly related to the design of the courses.
3. Teachers understand the opportunities available within National Courses to realise the principles for curriculum design (as evidenced at Advanced Higher) but practical considerations may be impinging on these opportunities at National 5 and Higher. Consequently, the extent to which the vision of CfE can be realised in practice is largely determined by approaches to learning and teaching and structural arrangements for delivery.
4. Lack of prescription in some of the course materials, along with other factors, may lead to differences in learning and teaching practice, which may result in inequality of opportunity for the realisation of the principles for curriculum design across different schools and colleges.
5. The 4th level curriculum benchmarks may not be aligned, in terms of level of demand, with SCQF level 5 in some subjects.

The following information is provided in support of these conclusions, in line with the underpinning research questions.

Advanced Higher

The research highlights that all three Advanced Higher courses are extensively aligned with the principles for curriculum design.

Advanced Higher, is designed to develop intellectual rigour by providing learners with the opportunity to deepen their knowledge and to develop higher order skills such as research and analysis. Much of this intellectual rigour is developed, in practice, through smaller class sizes which facilitate a more tutorial approach to learning and teaching, and learners' ability to self-manage their learning at this level. The ability of learners to self-manage their learning creates space for wider exploration of the subject matter while reducing the need for class contact time.

The intentions of CfE and the design of N5, Higher and Advanced Higher courses

Within the Advanced Higher English and Geography courses, learners are provided with opportunities to self-manage their learning, develop complex thinking and reasoning skills, to think critically, and to explore areas of personal interest and choice that have the potential to connect to their lived experiences. Advanced Higher Mathematics offers candidates the opportunity to use logical reasoning, analyse, problem solve, and to think in abstract ways. Although Advanced Higher Mathematics offers little opportunity for Personalisation and choice or development of real-world contexts, within this subject this is deemed to be appropriate. Progression from Higher to Advanced Higher was also considered to be appropriate across all subjects.

National 5 and Higher

The research highlights that there is a level of congruence between National 5 and Higher with the principles for curriculum design being rated almost identically at these levels, within subjects, albeit for different reasons. This is relatively unsurprising given that National 5 and Higher are designed hierarchically to support bi-level learning and teaching, and that different subjects present different challenges in relation to learning, teaching and assessment practice.

This research indicates that National 5 and Higher Mathematics illustrate almost an identical pattern of ratings for those at Advanced Higher Mathematics. In areas where ratings are low (across all levels) this is directly related to there being no requirement for that principle to present within the subject as part of its design: for example, real-world relevance or personal choice. This provides traction to the consideration that it is not a necessity for every principle for curriculum design to be present within every course in order for it to contribute to the wider curriculum.

Mathematics

National 5 and Higher Mathematics are seen as appropriately challenging qualifications that progress well from the 4th level curriculum benchmarks through to the end of the Senior Phase which means that there is good structural alignment with the delivered content of the BGE, although it is recognised that this has been narrowed in order to deepen knowledge, skills and understanding of mathematical operations and skills at these levels. The research indicates that the intended design of National 5 and Higher Mathematics is realised in practice and both these levels can be seen as aligning extensively with the appropriate principles for curriculum design as a proxy for the wider intentions of CfE.

Geography

National 5 and Higher Geography indicate similar patterns to each other. In this subject, at both levels, internal coherence (as alignment within and between subjects) and breadth of knowledge, skills and understanding were seen as appropriate. This means that the qualifications and assessments at these levels offer a suitably weighted range of experiences and have appropriate constructive alignment (eg the course assesses what it intends to assess) to enable learning, teaching and assessment practice. National 5 and Higher Geography are seen as appropriately challenging qualifications that progress well from the 4th level curriculum benchmarks through to the end of the Senior Phase which means that there is good structural alignment with the delivered content of the BGE

The intentions of CfE and the design of N5, Higher and Advanced Higher courses

Depth of knowledge within the courses was also considered to be appropriate but it is clear that self-management of learning, which is offered in the coursework components is not always possible at National 5 and Higher due to candidate maturity at these levels, although there is an acceptance that learners at Higher do this better.

In a similar manner to Depth, there was less extensive realistic opportunity than might be ideal to facilitate Personalisation and choice, which is a key aspect of the design of the coursework components, within National 5 and Higher Geography. This was because class sizes, timetabling and resources may reduce opportunities for personal choice as an aspect of relevant learning.

Overall, National 5 and Higher Geography were both seen as appropriately challenging by the CfE specialists. However, the non-CfE specialists noted that although aspects of challenge could be realised as part of learning and teaching, these aspects were not always rewarded in the marking instructions at these levels. They suggested that this may result in teachers not teaching beyond the confines of the course. The non-CfE specialist noted that the lack of prescription in the course materials made it difficult to know what to teach and expressed concern that this might result in inconsistency in practice. CfE specialists noted that these courses were deliberately designed to create 'space' for teacher agency to extend knowledge and skills but admitted with classroom pressures this may not always be possible, accepting that this may mean that the course may be delivered differently across schools, depending on class sizes, resources and timetabling.

To this end, the report highlights that National 5 and Higher Geography course design aligns with the intentions of CfE, but the combination of lack of prescription in the course materials and likely other factors impacting upon decisions around course delivery including class sizes, timetabling and resources may result in learning and teaching practice being narrowed in some schools. What is clear is that practitioners understand that the information provided within the National Course specifications should not be considered as a teaching syllabus and that there is a need to extend and deepen knowledge, skills and understanding through learning and teaching practice. However, for the reasons stated above this is not always possible.

English

This report highlights that National 5 and Higher English share similar patterns to each other. In this subject, at both levels, internal coherence (as alignment within and between subjects) and breadth of knowledge, skills and understanding were seen as appropriate. Higher English was also seen as having appropriate levels of depth and relevance to the wider subject discipline, although it is clear that the specialists believed that Talking and Listening component should play a greater role in the final grade. Higher English was seen as offering appropriate progression to Advanced Higher.

In a similar way to Geography, Personalisation and choice and Enjoyment were both seen as difficult to achieve as candidates do not always have the levels of maturity required to self-manage their learning at these levels requiring a significant amount of teacher contact time. This is made more difficult in some contexts such as larger class sizes, restrictions on resources and timetabling which often means that any Personalisation and choice provided within the course is not realistically achieved in practice.

The intentions of CfE and the design of N5, Higher and Advanced Higher courses

However, evidence from candidate scripts and coursework submissions indicates that in some schools Personalisation and choice is possible, indicating that there may be different patterns of delivery at school level, making Personalisation and choice variable and uneven in practice. This has the potential to either realise the curriculum principles or reduce aspects of Depth of learning, Relevance, Challenge, and Enjoyment, where learners are not given the opportunity to explore aspects of the subject that are relevant to them, thereby reducing possibilities for learners to be engaged and motivated in their learning.

National 5 English was the only course within the sample that the subject specialists considered had a coherence in the range of skills, knowledge and understanding between the 4th level curriculum benchmarks and National 5 but that there may be a misalignment relating to level of demand between these two levels. This included a lack of balance between the four components, with Talking and Listening having a less prominent place in the National 5 course assessment than in the 4th level curriculum benchmarks.

Therefore, this report highlights that National 5 and Higher English course design aligns with the intentions of CfE, but that this alignment could be strengthened at National 5 if the transition from the 4th level curriculum benchmarks to National 5 was improved.

Section 6: Future considerations

The purpose of this report is to contribute to the wider discussion around the reform of Scotland's Senior Phase by considering the extent to which the vision of CfE has translated into current National Course qualification and assessment design. The aim was to identify alignment with the intentions of CfE and to explore the nature and extent of, and reasons for, any misalignment.

The evidence provided in this report highlights a number of areas that may require further consideration when reforming the Senior Phase qualifications and assessments.

1. All the National Courses within the sample provided opportunity for the realisation of the appropriate principles for curriculum design. By this measure, the intentions of CfE have been translated into the qualifications and assessments. Despite this, there is a perception within the wider system that this is not the case. The future reform of the Senior Phase qualifications is required to clearly indicate how these qualifications meet the intentions of CfE so that end users can be clear about the contribution that the qualifications make to achievement of the four capacities.
2. The terminology within CfE policy documents may require further clarification so that all of the actors within the system are clear about their responsibilities and so that there is no room for misinterpretation (as in point 1 above). Consideration should be given to clearly delineating formative and summative assessment within these documents to make a clear distinction between the process of learning and teaching, and formative and summative assessment practice.
3. Not all of the principles for curriculum design need to be present within each and every National Course. It is the overall breadth of subject experiences that provides the basis for the realisation of the full range of principles. Narrowing of subject choice too soon automatically narrows the realisation of the principles for curriculum design. In this respect consideration should be given to how subject experiences can be narrowed gradually, while still achieving depth of knowledge.
4. National 5, Higher and Advanced Higher SCQF notional directed learning times are the same. However, at Advanced Higher, class sizes are smaller, learners have more academic experience, and learners are better able to self-manage their own learning. This in turn offers opportunities for teachers to use alternative learning and teaching approaches, thereby more closely aligning with the intentions of CfE. At National 5 and Higher, a range of factors might impact upon the potential for realising the aims of the curriculum which means opportunities for the fulfilment of the four capacities may reflect the range of subjects taken. Consideration should be given to finding ways to address the practicalities of delivery at SCQF level 5 and 6 to ensure that learners are provided with equal opportunity to show what they know, understand and can do, as a matter of fairness.
5. National Course specifications are not designed to be prescriptive, in order to allow for teacher agency and autonomy. However, this lack of prescription also has the potential to create inequality in provision, with some learners having more opportunities to meet the intentions of CfE than others. Consideration may need be given to finding a balance between course prescription and teacher agency to better support equality of provision. This may include ensuring that there is a distinction

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drawn between teaching syllabuses or schemes of work and assessment specifications.

6. The relationship between the 4th level curriculum benchmarks and SCQF level 5 should be investigated to ensure a smooth transition from the BGE to the SP.

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Appendix 2: Outline of research methodology to explore CfE alignment in SQA qualifications



Exploring the alignment between CfE intentions and the design of National 5, Higher and Advanced Higher courses

SQA is carrying out research with senior subject teachers and curriculum experts to explore the evidence for Curriculum for Excellence (CfE) features in senior school courses and assessment at National 5, Higher, and Advanced Higher.

Curriculum experts



Senior subject teachers



English



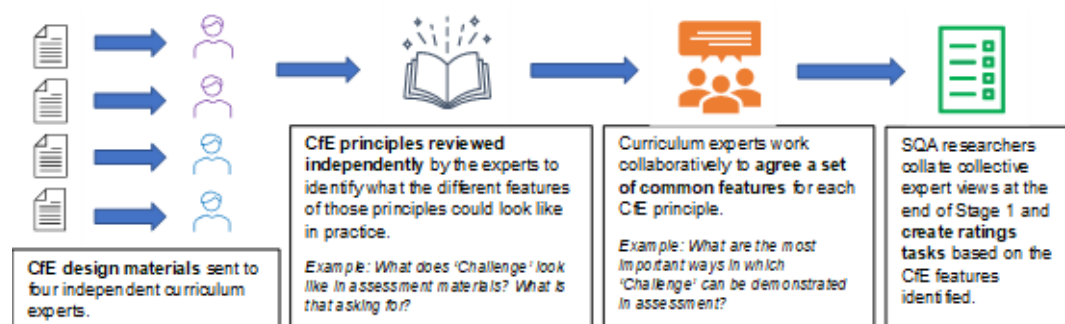
Geography



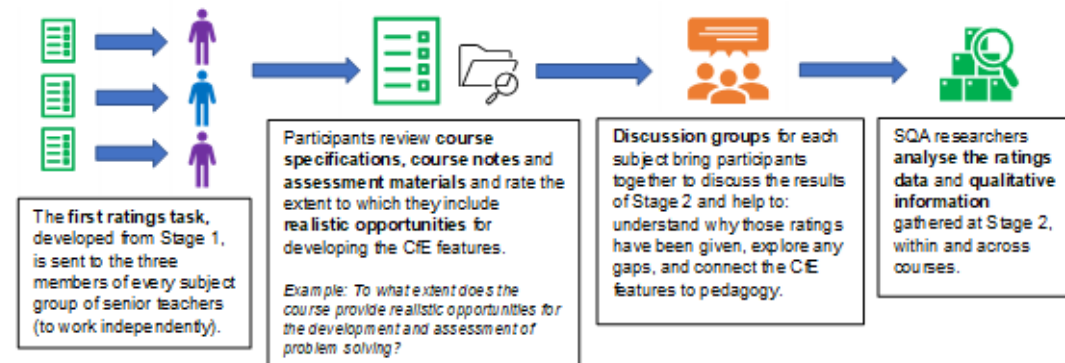
Mathematics

Each group = participants from **outwith** the Scottish education system, and from **within** the Scottish education system.

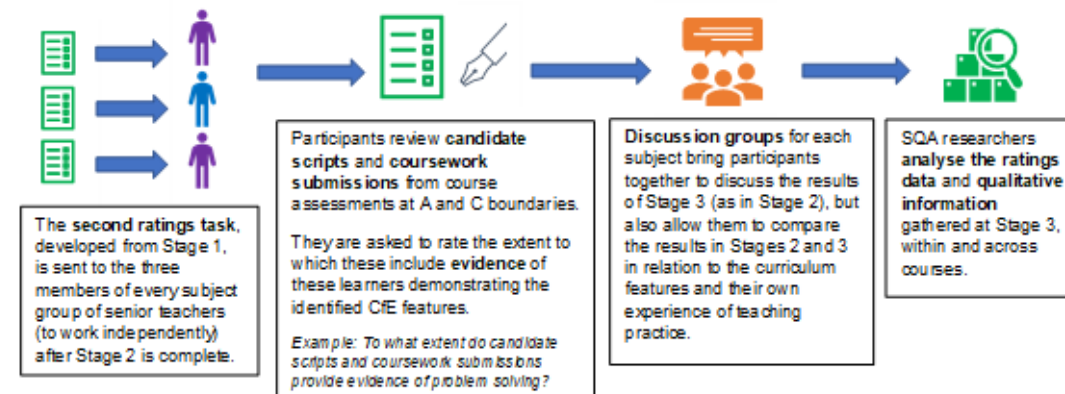
Stage 1: Delineating CfE principles



Stage 2: Realistic opportunities for CfE features in course materials and assessments



Stage 3: Candidate evidence for CfE features in course materials and assessments



Stage 4: Synthesis, analysis and reporting of research

Appendix 3: Stage 2: Questionnaire 1

I

In stage 2 you will rate the extent to which SQA National 5, Higher and Advanced Higher courses provide **realistic opportunities** for the development and assessment of curriculum CfE features. We consider that there are **realistic opportunities** where the curriculum sub-CfE features can be feasibly developed and assessed as part of learning, teaching and assessment practice.

Your ratings should be based on evidence supported by the accompanying SQA materials:

- ◆ National 5 to Advanced Higher course specifications and course support notes
- ◆ National 5 to Advanced Higher 2019 question papers and marking instructions
- ◆ National 5 to Advanced Higher 2019 coursework tasks and marking instructions (where applicable)

For questions 25 and 26, your ratings for National 5 should be based on evidence supported by the following additional non-SQA materials:

- ◆ Level 4 curriculum benchmarks for your subject area

There will be time to reflect on more general observations, beyond the materials, during the group discussion.

Rating of realistic opportunities for curriculum CfE features in assessment

Instructions

You will rate, on a four-point scale, the extent to which there are realistic opportunities for the development and assessment of curriculum CfE features within National 5, Higher and Advanced Higher course materials.

You should familiarise yourself with the resource materials provided, together with the questionnaire **before** you start the rating process. Familiarising yourself with the resource materials alongside the questionnaire before you start to rate will save you time later.

While rating you will be required to consider the question carefully and look for realistic opportunities for the development of that curriculum feature across **all** of the SQA resource materials provided. The non-SQA level 4 curriculum benchmarks are only relevant for the final two questions.

Your final rating should be **holistic**, based on a combination of

- 1) the extent to which that curriculum feature is present across the resource materials.
- 2) the extent to which that curriculum feature can be feasibly developed and assessed as part of learning, teaching and assessment practice.

You will have the opportunity to explain why you have rated the way that you have. For example, there may be extensive opportunity within the resource materials to develop a particular curriculum feature, but in practice this may not be feasible. Your comments should explain this. Explaining why you have chosen specific ratings will be helpful during analysis and for when you take part in the group discussion.

Completing the survey

- ◆ Type 'X' into the boxes that correspond to your ratings for realistic opportunities for the development of curriculum CfE features at National 5, at Higher, and at Advanced Higher, based on the materials supplied.
- ◆ Please also provide a short justification for your choices in the text box below each ratings table.

1. Using your subject knowledge, to what extent does the course provide realistic opportunities to develop and assess an appropriate range of knowledge, skills and understanding in relation to the wider subject discipline?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

2. Using your subject knowledge, to what extent does the course provide realistic opportunities to develop and assess an appropriate complexity of knowledge, skills and understanding in relation to the wider subject discipline?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

3. To what extent does the course provide realistic opportunities to develop and assess an appropriately broad range of knowledge in line with the purpose and aims of the course and the course rationale?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

4. To what extent does the course provide realistic opportunities to develop and assess an appropriate range of skills in line with the purpose and aims of the course and the course rationale?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

5. To what extent does the course provide realistic opportunities to develop and assess an appropriate balance between knowledge and skills acquisition?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

6. To what extent does the course provide realistic opportunities for a structured and logically sequenced learning, teaching and assessment experience?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

7. To what extent does the course provide realistic opportunities for a joined-up learning experience?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

8. To what extent does the course provide clear alignment between the purpose and aims of the course and the skills, knowledge and understanding as outlined in the course specification?

	No alignment	Little alignment	Some alignment	Extensive alignment
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

9. To what extent does the course provide clear **alignment** between the skills, knowledge and understanding (as outlined in the course specification) and the question paper(s) and marking instructions?

	No alignment	Little alignment	Some alignment	Extensive alignment
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

10. To what extent does the course provide clear **alignment** between the skills, knowledge and understanding (as outlined in the course specification) and the coursework task and marking instructions?

	No alignment	Little alignment	Some alignment	Extensive alignment
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

11. To what extent does the course allow for realistic opportunities for the development and assessment of challenging and complex knowledge and understanding?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

12. To what extent does the course provide realistic opportunities for the development and assessment of higher order cognitive skills?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

13. To what extent does the course allow for realistic opportunities for the development and assessment of concrete to abstract thinking?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

14. To what extent does the course allow for realistic opportunities for learners to be developed and assessed on their ability to make links between the different elements of a subject and transfer that knowledge into new, challenging and unfamiliar contexts?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

15. To what extent does the course provide realistic opportunities for the development and assessment of problem solving?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

16. To what extent does the course provide realistic opportunities for learners to develop and be assessed on the practical application of theories and concepts?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

17. To what extent does the course provide realistic opportunities for learners to develop self-management of learning (focusing / integrity / adapting / initiative)?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

18. To what extent does the course provide realistic opportunities for learners to develop and be assessed on their social intelligence (communicating / feeling / collaborating / leading)?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

19. To what extent does the course provide realistic opportunities for learners to develop and be assessed on their ability to innovate (curiosity / creativity / sense making / critical thinking)?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

20. To what extent does the course provide realistic opportunities for the development and assessment of real-life issues?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

21. To what extent does the course provide realistic opportunities for the development and assessment of content which reflects the realities, lived experiences and interests of young people from diverse backgrounds, including those who may experience barriers to their learning?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

22. To what extent does the course provide realistic opportunities for assessment to be flexible?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

23. To what extent does the course provide realistic opportunities for the development and assessment of learning in different ways?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

24. To what extent does the course provide realistic opportunities for learner personal choice as an element of assessment?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

25. To what extent does the course provide realistic opportunities to build on the range of knowledge, skills and understanding acquired at the SCQF level below?

For National 5, the level 4 curriculum benchmarks provide information on knowledge, skills and understanding at SCQF level 4.

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5 (SCQF Level 5)				
Higher (SCQF Level 6)				
Advanced Higher (SCQF Level 7)				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

26. To what extent does the course provide realistic opportunities to build on the level of demand and complexity of knowledge, skills and understanding acquired at the SCQF level below?

For National 5, the level 4 curriculum benchmarks provide information on knowledge, skills and understanding at SCQF level 4.

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5 (SCQF Level 5)				
Higher (SCQF Level 6)				
Advanced Higher (SCQF Level 7)				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

Appendix 4: Stage 3: Questionnaire 2

In stage 3 you will rate the extent to which a selection of National 5, Higher and Advanced Higher candidate scripts and coursework submissions provide **evidence** of curriculum CfE features being demonstrated by learners in assessment. The candidate scripts supplied were graded at A and C boundaries, so the materials provide a range of responses and academic ability.

This is a holistic exercise. Candidate evidence for each curriculum feature at National 5 should be considered and rated as a whole, as should candidate evidence at Higher, and at Advanced Higher.

Your ratings should be based on evidence supported by the accompanying materials:

- ◆ National 5, Higher and Advanced Higher question papers and marking instructions
- ◆ National 5, Higher and Advanced Higher coursework tasks in English and Geography
- ◆ National 5, Higher and Advanced Higher candidate scripts
- ◆ National 5, Higher and Advanced Higher coursework submissions in English and Geography

Certain questions will also ask you to draw on some of the materials you used during the Stage 2 rating exercise. There will be time to reflect on more general observations, beyond the materials, during the group discussion.

Rating of evidence for curriculum CfE features in assessment

Instructions

You will rate, on a four-point scale, the extent to which the supplied candidate scripts and coursework submissions (where applicable) show evidence of learners demonstrating curriculum CfE features within National 5, Higher and Advanced Higher course assessments.

You should familiarise yourself with all of the materials provided, together with the questionnaire, **before** you start the rating process. This is a holistic process, so it is important that you have an overview of the full range of evidence before you begin the task.

While rating you will be required to consider the question carefully and look for evidence for that curriculum feature across **all** of the candidate scripts and coursework submissions provided. There is no expectation that every learner script or coursework submission for National 5, Higher or Advanced Higher must show evidence of a curriculum feature in order to rate it as being present at that level. Your rating of the extent to which there is evidence for the feature should be drawn from an overall view of the candidate scripts and coursework submissions at each level. Some of the questions may require you to reflect on the materials you used within Stage 2.

You will have the opportunity to explain why you have rated the way that you have. For example, there may be extensive evidence of a feature within the candidate scripts at A grade boundary but little at C boundary. In this case you might indicate that there is some, but not extensive, evidence for this feature and your comments should explain why. This will be helpful when you take part in the group discussion.

Completing the survey

- ◆ Type 'X' into the boxes that correspond to your ratings for evidence of the curriculum CfE features at National 5, at Higher, and at Advanced Higher, based on the candidate scripts and coursework submissions supplied.
- ◆ Please also provide a short justification for your choices in the text box below each ratings table. The justification can include quotations from the candidate scripts or coursework submissions to capture the evidence used, if you find this easier.

1. To what extent does the question paper, coursework task and marking instructions provide evidence of an appropriately broad sample of knowledge in line with the purpose and aims of the course and the course rationale?

Please use the course specifications provided at Stage 2, in conjunction with the supplied question paper and coursework task, to answer this question.

	No evidence	Little evidence	Some evidence	Extensive evidence
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

2. To what extent does the question paper and coursework task provide evidence of an appropriate range of skills in line with the purpose and aims of the course and the course rationale?

Please use the course specifications provided at Stage 2, in conjunction with the supplied candidate scripts, to answer this question.

	No evidence	Little evidence	Some evidence	Extensive evidence
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

3. To what extent does the question paper and coursework task provide evidence of the assessment of an appropriate balance between knowledge and skills acquisition?

	No evidence	Little evidence	Some evidence	Extensive evidence
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

4. To what extent do the candidate scripts and coursework submissions provide evidence of learners demonstrating challenging, and complex knowledge and understanding?

	No evidence	Little evidence	Some evidence	Extensive evidence
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

5. To what extent do the candidate scripts and coursework submissions provide evidence of learners demonstrating higher order cognitive skills?

	No evidence	Little evidence	Some evidence	Extensive evidence
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

6. To what extent do the candidate scripts and coursework submissions provide evidence of learners demonstrating abstract thinking?

	No evidence	Little evidence	Some evidence	Extensive evidence
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

7. To what extent do the candidate scripts and coursework submissions provide evidence of learners demonstrating their ability to make links between the different elements of a subject?

	No evidence	Little evidence	Some evidence	Extensive evidence
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

8. To what extent do the candidate scripts and coursework submissions provide evidence of learners demonstrating their ability to transfer their knowledge, understanding and skills into new, challenging and unfamiliar contexts?

	No evidence	Little evidence	Some evidence	Extensive evidence
National 5				
Higher				
Advanced Higher				

9. To what extent do the candidate scripts and coursework submissions provide evidence of learners demonstrating problem solving?

	No realistic opportunity	Little realistic opportunity	Some realistic opportunity	Extensive realistic opportunity
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

10. To what extent do the candidate scripts and coursework submissions provide evidence of learners demonstrating the practical application of theories and concepts?

	No evidence	Little evidence	Some evidence	Extensive evidence
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

11. To what extent do the candidate scripts and coursework submissions provide evidence of learners demonstrating their social intelligence (communicating/feeling/collaborating/ leading)?

	No evidence	Little evidence	Some evidence	Extensive evidence
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

12. To what extent do the candidate scripts and coursework submissions provide evidence of learners demonstrating their ability to innovate (curiosity / creativity / sense making / critical thinking)?

	No evidence	Little evidence	Some evidence	Extensive evidence
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

13. To what extent do the candidate scripts and coursework submissions provide evidence of learners demonstrating understanding of real-world issues?

	No evidence	Little evidence	Some evidence	Extensive evidence
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:

Advanced Higher:

14. To what extent do the candidate scripts provide evidence of learners demonstrating content that reflects their own realities, lived experiences and interests?

	No evidence	Little evidence	Some evidence	Extensive evidence
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:

Higher:

Advanced Higher:

15. To what extent do the candidate scripts and coursework submissions provide evidence of learner personal choice as an element of assessment?

	No evidence	Little evidence	Some evidence	Extensive evidence
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:

Higher:

Advanced Higher:

16. To what extent do the candidate scripts and coursework submissions provide evidence of a consistent and integrated learning experience?

	No evidence	Little evidence	Some evidence	Extensive evidence
National 5				
Higher				
Advanced Higher				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

17. To what extent do the candidate scripts provide evidence of learners building on the **range** of knowledge, skills and understanding acquired at the SCQF level below?

Please use the course specifications, at the SCQF level below, provided at Stage 2. For National 5, the level 4 curriculum benchmarks provide information on knowledge, skills and understanding at SCQF level 4.

	No evidence	Little evidence	Some evidence	Extensive evidence
National 5 (SCQF Level 5)				
Higher (SCQF Level 6)				
Advanced Higher (SCQF Level 7)				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

18. To what extent do the candidate scripts provide evidence of learners building on the **level of demand and complexity** of knowledge and skills acquired at the SCQF level below?

Please use the course specifications, at the SCQF level below, provided at Stage 2.
For National 5, the level 4 curriculum benchmarks provide information on knowledge, skills and understanding at SCQF level 4.

	No evidence	Little evidence	Some evidence	Extensive evidence
National 5 (SCQF Level 5)				
Higher (SCQF Level 6)				
Advanced Higher (SCQF Level 7)				

Please provide details as to why you chose these ratings:

The text box will expand as you write.

National 5:
Higher:
Advanced Higher:

Appendix 5: Overview of design of National 5, Higher and Advanced Higher

Course design

All National 5, Higher and Advanced Higher courses must comply with the design principles for National Courses. Design principles provide the blueprint for the development of all National Courses, ensuring that they meet the principles of assessment and are valid, reliable, practicable and fair. The design principles for National Courses can be found [here](#).

National Courses are available from National 1 (SCQF level 1) to Advanced Higher (SCQF level 7). For this report, only the key aspects of the design of National 5, Higher and Advanced Higher courses are provided below.

- ◆ National 5 courses are typically taken at the beginning of the Senior Phase in S4, which is also marks the end of compulsory schooling in Scotland (age 16). They are set at SCQF level 5 and are notionally based on 160 hours of directed learning and 80 hours of self-directed learning and equate to 24 SCQF credit points. National 5 courses are designed to support progression to Higher or as exit qualifications for further education, employment and/or training.
- ◆ Higher courses are the main entry requirements for progression to university. They are set at SCQF level 6. As with National 5, they are notionally based on 160 hours of directed learning and 80 hours of self-directed learning and equate to 24 SCQF credit points. Higher courses are designed to support progression to Advanced Higher or as exit qualifications for higher education, employment and/or training.
- ◆ Advanced Higher courses are typically taken in the final year of the Senior Phase. They are set at SCQF level 7 and are notionally based on 160 hours of directed learning and 160 hours of self-directed learning. They equate to 32 SCQF credit points. Advanced Higher courses are exit qualifications designed to support progression to higher education, employment and/or training. Advanced Higher courses share the same notional directed learning time as National 5 and Advanced Higher but have a higher SCQF credit value, derived from higher levels of self-directed learning which is a key aspect of the course design.

Assessment design

All course assessments at National 5, Higher and Advanced Higher sample the skills, knowledge and understanding from the mandatory course content as well as breadth, depth, challenge, application and integration of these, as appropriate. Course assessments may involve a question paper, assignment, performance, project, practical activity, case study, portfolio or a combination of these, as appropriate to the study area. National 5, Higher and Advanced Higher Courses are graded A to D.

To ensure that the qualifications that learners attain are fit for purpose, all SQA assessments must be valid, reliable, practicable, equitable and fair (SQA, 2017). SQA defines the four different aspects of its principles of assessment as follows:

Validity

SQA (2017b) defines validity as a ‘measure of the accuracy of an assessment’.

An assessment is valid when it:

- ◆ is appropriate for its purpose.
- ◆ has been designed to allow learners to show that they have the required knowledge, understanding and skills to meet the standards of the qualification.
- ◆ allows all assessors to make reliable assessment decisions.
- ◆ allows the interpretation and inferences which can be drawn from the assessment outcomes to be meaningful and justifiable’.

There are two key aspects of validity used by SQA — content and construct. SQA (2017) states that content validity is: ‘the measure of how closely the content of an assessment matches the content of the specification published by SQA. It is concerned with the level of knowledge, understanding and skills that is required to meet the standard of the qualification’.

Construct validity concerns ‘the extent to which an assessment actually measures what the specification states it is intended to measure’ (ie the attributes or traits required to be effective within that subject area). Consequently, assessments must clearly assess what the course intends them to assess (construct validity) — across the skills, knowledge and understanding clearly outlined in the specification (content validity).

Reliability

SQA defines reliability as a measure of the degree of consistency with which learner assessment evidence is judged.

Reliability is achieved by:

- ◆ assessments with high content and construct validity
- ◆ the use of consistent conditions of assessment
- ◆ standardisation exercises by assessors

SQA considers validity and reliability as interdependent, as an examination which produces inconsistent results cannot, therefore, provide valid evidence of a learner’s achievement (SQA, 2017). This is reinforced by SQA’s assertion that reliability is achieved by assessments with both high content and construct validity.

Equitable and fair

SQA defines equity and fairness as ‘ensuring that there are no unnecessary barriers to assessment in the specification of skills, knowledge and understanding or the development of the assessment’ (SQA, 2017). The principle of equity and fairness links closely with SQA’s responsibilities under the 2010 Equality Act. However, it also deals with providing ‘equal opportunity for a learner to demonstrate their attainment’ (2017). This links directly with SQA’s definition of validity, which seeks to ensure that assessments are ‘designed to allow learners to show that they have the required knowledge, understanding and skills to meet the standards of the qualification’ (SQA, 2017). Therefore, equity and fairness can be regarded as an integral part of ensuring the validity of SQA assessments.

Practicability

SQA defines practicable assessments as those which can be carried out efficiently and effectively. Practicability issues generally relate to resource and time. Consequently, SQA's assessment system is designed not to place unreasonable demands on the time of learners and centre staff, or on available resources (SQA 2017). If an assessment is impractical then it may not offer equal opportunity for all learners, may introduce bias, and therefore may not yield reliable results.

Reliability, equity, fairness and practicability can be regarded as underpinning aspects of validity, as an assessment that is unreliable, unfair or impractical cannot truly be valid.

Appendix 6: National 5, Higher and Advanced Higher English: Detailed justification of ratings by principle

Relevance

Relevance in relation to the wider subject discipline...

Stage 2 findings indicated that specialists agreed that National 5, Higher and Advanced Higher English courses were appropriately relevant to the wider subject discipline and offered opportunities to explore a wide, diverse range of skills, knowledge and understanding in the subject discipline of English. Specialists felt that there are few limits in the courses which would restrict teachers from exploring English in the widest sense, if time and resources allow. Notwithstanding this lack of restriction, the CfE specialists emphasised that talking and listening does not have a strong enough presence as part of the course assessment at National 5 and Higher as it does not formally contribute to the final grade. This prevented them from rating 'extensive' in this area. They concluded that the balance of components across National 5 and Higher would better align with the wider subject discipline if talking and listening had a stronger presence. Comments from the subject specialists which were given alongside their ratings illustrate their considerations.

At both National 5 and Higher there are extensive realistic opportunities to develop an excellent range of skills across the subject discipline and skills for learning, life and work. It is clear there is a lot of thought in ensuring the range of skills in the course documents.

While the element of Reading for UAE [Understanding, Analysis and Evaluation] is dropped, the Dissertation is introduced at AH. This means there is potentially more of a focus on fiction in reality but still maintains an excellent range of skills and knowledge to be taught and assessed in different ways. AH tends to be timetabled in state schools with fewer periods of actual class contact with a teacher. It also tends to have classes smaller in number than N5 or Higher. This, along with the aim of preparing pupils for university, often means that a more 'tutorial' style approach is common. Furthermore, pupils are often required to work independently or with the support of peers. This lends itself to the development of discussion and presentation.

While listening and talking [at National 5 and Higher] is absolutely central to how the English course is delivered and, in my experience, is one of the key learning and teaching approaches, the assessment of these elements as it stands feels like an additional administrative burden that has no impact on the final grade. In this way, it is a 'hoop' to jump through and does not have the status that other elements have

There was extensive Stage 3 candidate evidence of Relevance through reading and writing at National 5, Higher and Advanced Higher English, supporting the Stage 2 findings in relation to realistic opportunity around relevance to the wider subject discipline. However, there was no candidate evidence available that covered the Talking and Listening components, because there is no requirement to assess these in the course assessment, and so the lack of evidence of Talking and Listening within the course assessments reduced the level of relevance in line with the findings from Stage 2.

Relevance to the learner...

CfE specialists who had experience of Scottish classroom practice, indicated that opportunities to offer relevant content that reflects individual learners' preferences was not always feasible. At Advanced Higher, due to smaller class sizes, less contact time and more independent learning, young people were provided with more opportunity to choose texts and topics of interest that were relevant to them. Specialists considered that there was less realistic opportunity at National 5 and Higher courses because of lack of time or resources.

There is some opportunity for learners to develop and assess content that reflects interests and lived realities — through choice of topic for their portfolio or through choice of literature. However, we are often limited by what's in the book cupboard or by the fact that limited time and Set Text have put the squeeze on how much genuine choice we have. Some lower ability classes may choose from a couple of topics for essays to avoid weeks of indecision.

Despite this, Stage 3 findings showed that candidates did provide evidence in their scripts and coursework submissions of relevant learning through the exploration of real-life issues. It was recognised that this was more prevalent at Higher and Advanced Higher through evidence of reflection on personal experiences in the writing tasks and choice of topics in both the portfolio and the dissertation.

At Advanced Higher choice of topics for Portfolio and choice of texts for Dissertation provide extensive opportunity to engage with real-world issues. Further, essay topics such as natural world or identity in Literary Study force attention more towards texts that are specific to the kind of issues that are asked about in this paper

At Higher real-world issues are explored through the literature — conflict, poverty. Questions for essays remain fairly broad, which offers the opportunity to choose texts and to allow for teaching to link to real-world issues, but it is not a requirement. The topic for the RUAE [Reading for Understanding, Analysis and Evaluation] paper is often, as here, relevant for candidates and deals with familiar, real-world issues. This is an opportunity to explore those values and issues seen as important. Not only because the exam paper features articles dealing with real-world issues but because to prepare, candidates are encouraged to read and are exposed to a number of similar texts on a variety of issues. Portfolio essays allow candidates to choose to write about experiences and issues that matter to them, and we see perhaps greater independence (and success) in choosing interesting and relevant topics.

Specialists agreed there was evidence of relevant learning at National 5, through texts studied and topics chosen to write about: for example, war, gangs, conflict, and work experience in the Reading for Understanding, Analysis and Evaluation (RUAE) paper, which they felt was topical and relevant. However, it was felt that understanding of these issues was simplistic and underdeveloped, with no real depth in their exploration and that this could be driven by a lack of personal choice.

Comments on the issues in the essay on 'On the Sidewalk Bleeding' are very superficial and the essay on work experience shows limited awareness beyond feeling personally under-utilised, with a rather depressing view of the role of work in our lives beyond school. Critical Essay questions are broad and allow personalisation and choice in text. Choices, therefore, may be driven by a desire to explore real-world issues in the teaching and learning, but could also be driven by what is accessible or is simply practical

Breadth

Stage 2 findings indicated that all the specialists agreed that the emphasis in the National 5, Higher and Advanced Higher English courses was on the development of skills, rather than on the acquisition of knowledge. They argued that this was important to mitigate rote learning. The specialists indicated that National 5, Higher and Advanced Higher English courses had realistic opportunities to develop an appropriate breadth of knowledge and that the balance between skills and knowledge was appropriate in relation to the wider subject discipline.

Stage 3 findings indicated that at Advanced Higher the folio demands a high level of knowledge and skills across different types of writing. Specialists indicated that the dissertation provides evidence of a knowledge of literature and building a more developed understanding of and skill in presenting a structured line of argument, of knowledge of using secondary sources, all while working more independently. Again, evidence of breadth of knowledge is visible through the literary texts across the genres of poetry, prose fiction, prose non-fiction, and drama, which are the prime focus of the course.

At National 5 and Higher findings indicated that there was evidence of breadth of knowledge through writing across two genres in the coursework, and a further critical essay that evidences some skill in creating a line of argument and employing technical accuracy to be able to convey understanding, analysis and evaluation. However, the CfE specialists indicated that the requirement for Scottish Text and, in particular, for several Scottish texts by the same author in short stories or poetry, limits choice to explore literature more widely at National 5 and Higher.

Writing is demonstrated across two genres in the coursework, and a further essay — the critical essay — demands some skill in creating a line of argument and technical accuracy to be able to put across understanding, analysis and evaluation. Reading skills are assessed in a number of ways — through the critical essay, Scottish Text and through Reading for UAE paper skills are assessed across several pieces and in this way requires candidates to demonstrate a broad sample of knowledge.

Increasingly, centres appear to be limiting their selection of literature as so much time is taken up teaching how to pass this type of assessment rather than focusing on the literature itself. I'd love to spend more time reading and analysing texts and less time learning how to answer the 'eight marker'.

Depth and Challenge

Specialists agreed that there was an appropriate level of complexity and demand within the Higher and Advanced Higher English courses in relation to the wider subject discipline. They noted that although there was no requirement to problem solve or apply theories and concepts in practice, there was an increasing level of demand within and between the

courses. This increasing demand would encourage depth of learning through the use of complex and challenging materials and the development of higher order thinking. Learners were encouraged at both levels to develop social intelligence, to innovate and to develop an understanding of real-life issues which they could translate and apply in a range of contexts both familiar and unfamiliar.

Stage 2 findings indicated that National 5 provided plenty of opportunities to explore challenging and complex concepts, and certainly no obstacle to exploring them, with free choice of texts for the Critical Reading paper and a completely free hand with the two writing pieces for the portfolio. Specialists indicated that learners at National 5 are not required to develop higher order skills, work with complex knowledge and understanding, or apply abstract thought in order to achieve a grade C pass. As a reflection of this, specialists rated Depth and Challenge as 'some realistic opportunity'.

N5 is accessible to most pupils, therefore I would not rate it as challenging and complex. Rather more straightforward with some level of detail. There is complexity in the RUAE element, largely because it is 'unseen' and some of our weakest ability pupils really struggle with this — the demand of their reading for understanding, the demand on them understanding more complex language, and their ability to answer different types of questions clearly.

There is more opportunity to pass by learning 'set responses' for the assessments or being teacher led. Again, the higher grades require more higher order cognitive skills and independence.

There are little realistic opportunities for the development and assessment of higher order cognitive skills; basic understanding skills and recall would likely be enough to scrape a pass. This does not prevent staff members from looking for opportunities to develop higher order cognitive skills, but they are not a key part of the course.

The English course requires thinking around themes and abstract concepts in various forms. This is a strength of the course, I would say, and is built on from BGE right through to AH. Awareness and identification of themes with a straightforward comment is sufficient at N5. Candidates may be required to understand, describe or make a simple statement of analysis of imagery, for instance, commenting on the effect of this comparison.

Specialists agreed that much of the depth of learning found at Higher and Advanced Higher was supported by an element of self-management of learning. Although somewhat challenging to achieve at Higher, this was seen as a particular strength of Advanced Higher. This was not the case at National 5, where it was determined that, although self-management of learning was a 'goal', it was not possible for all learners because it was a skill that was lacking at this level, potentially due to maturity.

They agreed that an element of self-managed learning was encouraged through the National 5 portfolio, which was seen as a 'tremendously positive part of the course'. However, in practice this was not always possible due to candidate ability and/or time. To mitigate this, less demanding texts were provided to make self-managed learning more achievable.

The course is driven by the assessment at the end of the course and other than basic organisation skills around notetaking and revision the course is very much led by the teacher. Portfolio presents a chance for self-management of learning but even this is pretty tightly managed by staff with deadlines set and scaffolding and support put in place.

The pressure to make sure pupils achieve their National 5 means that teachers may choose 'easier', shorter, more accessible texts that require less independence in reading at home, for instance. Similarly, while the course offers the opportunity for personalisation and choice in the selection of essay topics, for instance, there is a practice of narrowing down choices or offering a choice of three pre-chosen topics. This means less is required by the learner in terms of applying their learning to a new context — something they can struggle with. This may result in more success at National 5 but does not develop self-management skills or independent learning and does not help to prepare for Higher.

At Stage 3, specialists found 'some' to 'extensive' evidence of Depth and Challenge in candidate scripts and coursework tasks at Higher and Advanced Higher that mirrored their views at Stage 2. This Depth and Challenge was gained through increasing complexity, analysis and abstract thinking.

RUAE texts at Higher are increasingly challenging and complex and marks are not easily given away. Similarly, even in Scottish Text with the extract in front of them, the focus on analysis provides challenge and complexity. The standard expected from folio pieces is reflective of the 'higher' standard to be reached.

There is greater demand for analysis. Even weaker scripts demonstrate some analysis of word-choice or use of character and key incident for instance. The nature of the Critical Essay tasks mean that, for candidates to be successful, they cannot rely on learned essays and must apply their knowledge and understanding to create a clear line of argument in response to an unseen question. Creativity across more than one genre is demonstrated through the Portfolio

At Advanced Higher there is evidence of challenging and complex knowledge and understanding of language and the creation of sophisticated responses to textual analysis, study of literature (both in class and independently) and in creating their own coursework texts.

Stage 3 findings indicated that National 5 candidates need to demonstrate an ability to both understand and analyse which the specialists believed, at Stage 2, candidates often struggle with. This was highlighted across the candidate scripts and coursework submissions reviewed, with 'A' candidates demonstrating challenging knowledge and understanding that was not present in the C candidate submissions. However, specialists noted that the writing portfolio does allow for some independence, which is 'truly welcome', encouraging candidates to transfer their knowledge and understanding of the craft of writers into their own work. The response to an unseen text in Paper 1 also provided evidence of candidates addressing unfamiliar contexts which was evidenced in the candidate scripts and coursework submissions.

Very best examples of assessment evidence in writing folio can certainly demonstrate abstract thinking. Much less so with the more simplistic, weaker examples of folio work. Exam elements offer limited opportunity for abstract thinking. Marking schemes give a range of answers and while these are 'possible answers', my experience at markers' meetings is that these are fairly extensive and there are limited opportunities to accept alternative responses.

RUAE offers the opportunity to assess candidates' ability to analyse, evaluate and to apply these skills in an unseen context. Reviewing the candidate scripts shows that marks can be gained through fairly simple analysis and evaluation, so the extent to which these higher order cognitive skills are actually demanded is more limited.

Good examples from the writing folio reveal impressive skills in creativity and in the ability to apply knowledge of structure and language to communicate with flair. Weaker examples of the folio do still require some level of creativity

Personalisation and choice

Stage 2 findings indicated that specialists agreed that there were extensive opportunities within the National 5, Higher and Advanced Higher courses to provide learners with personal choice through the coursework component at each level. This allows learners to explore areas that are of personal interest to them. Although specialists agreed that this works well in practice at Advanced Higher, they felt that there was less realistic opportunity at National 5 and Higher due to the constraints on time and resources within classroom practice.

Learners may choose to explore related topics through their own writing. However, in reality, there are several factors that limit this potential. The introduction of the Scottish Set Text and the broad range of course elements means that free choice in literature text has been more limited in recent years. Realistically, there will be one 'free choice' text in any session and this is further limited by time/resources. Ultimately, and rather unsatisfactorily, we are limited by resources and finance. We study what is available in the book cupboard.

Findings indicated that the National 5, Higher and Advanced Higher courses provide opportunities for learning, teaching and assessment to take many forms as a route to facilitating Personalisation and choice and relevant learning. However, in reality this was not always possible at National 5 and Higher due to restricted class resources and time.

Over the last two sessions, a great deal of progress has been made in incorporating more ICT and digital learning. This has the potential for more flipped learning approaches or through the use of videos/interactive sources.

Ultimately, though, we are limited by time and resources. Limited time for each qualification means teachers may focus on what they know works for achieving the best grades in the shortest time rather than exploring new ways of learning with those in the Senior Phase.

Because the assessments are in a fixed format at a fixed time, we do not learn to assess in different ways. A real frustration for my team has been the limitations of our broadband network and number of devices available for learners. In fact, our

network is so slow that it can take 40 minutes to log in and we are not able to play or make use of the video or interactive resources to enhance or vary classroom learning. It is particularly frustrating as we developed a range of different approaches and resources for learning using ICT/digital devices during our periods of remote learning. Being able to blend the best of these approaches with the best of face-to-face learning for developing knowledge, skills and understanding was something we were hopeful of doing as it would introduce more opportunities to learn in different ways. Professional learning and collaborative enquiries offer the opportunity to explore different pedagogies. Almost all teachers I know are active in engaging with learning about pedagogy.

Stage 3 findings indicated that candidate evidence from the Advanced Higher Dissertation, Portfolio and Textual Analysis all reflect Personalisation and choice and make up the majority of marks.

At National 5 and Higher the topics for the folio provide the potential to write about experiences and issues that affect candidates or that candidates are interested in. However, candidate evidence at these levels indicated that the topics chosen seemed to be '*something to write about*' in the absence of something that may be more meaningful for them. Specialists suggested that this may be the result of teachers limiting choice of topics at these levels, in line with the findings from Stage 2, but did not feel that they could state this conclusively based on candidate evidence alone. However, candidate evidence of discursive writing at these levels did indicate that topic choices were driven by interest. Specialists noted that there was no real evidence of choice in the exam elements at National 5 and Higher, and indicated that much of the literature choice would depend on classroom practice.

Enjoyment

Findings from Stage 2 indicated that all of these aspects of enjoyment are present, to a degree, in National 5, Higher and Advanced Higher courses in English as part of their design, particularly as a key aspect of the coursework component. However, as noted, learners at National 5 often do not have the capability to self-manage their learning and at both National 5 and Higher there may not be a wide range of free choice of texts to support elements of personal choice. Findings indicated that learners who achieve higher grades may enjoy their experience more.

Findings indicated that the development of social intelligence is a key aspect of the National 5, Higher and Advanced Higher courses based on the high levels of communication and collaborative work required. At Advanced Higher, innovation was developed through self-managed learning. At National 5 and Higher, similar opportunities for innovation were provided within the course materials, but again, this was not regarded as realistic due to time limitations.

Communication is at the heart of this subject, not only in terms of the skills being developed but also in texts being studied. Pupils examine social issues, reflect on themes and explore characters. The course demands communication in writing and orally, and lends itself to class, group and paired discussion. Planned learning approaches often involve collaboration with other learners as this supports the aims and requirements of the course

A greater focus on independent coursework requires innovation. learners create a body of work for their folio — and are more likely to do so independently at home, exploring different styles and genres because they have selected to study AH English and enjoy the subject. The Dissertation requires curiosity in exploring texts independently and critically analysing those.

There are genuine opportunities and potential for innovation in English but, in reality, the extent to which this is realised often depends on the pupils in front of you. Creativity — in writing for the coursework folio or for Spoken Language. Innovation is sometimes limited by ability or time. There is a lot to cover in the course, so there is an urgency to choosing a topic and getting drafts in rather than exploring creatively. Critical Thinking — analysis of texts. Again, this may be limited by ability or time. Some pupils are led by teachers in their analysis so that they can pass assessments with the 'right' answers. In my experience, there is a lot more freedom to innovate in the manner intended for the course with a class of more able learners. However, the demand of the course in the sense of covering all the different elements in one year means that we often forgo the excitement and energy of engaging with longer, complex texts or writing lots of different essays at N5 and Higher

In candidate assessments, evidence of enjoyment was present in aspects of Personalisation and choice in the coursework topics, although it was deemed that this was greater at Advanced Higher than at National 5 and Higher. This was predominantly due to specialists being unable to determine whether the choice of topic in the coursework assessment evidence at National 5 and Higher had been limited by the teacher or whether it truly was candidate free choice. In addition, the lack of evidence of talking and listening was felt to reduce the evidence base for enjoyment (through the development of social intelligence) as specialists believed that the Talking and Listening components offer the opportunity to gauge enjoyment more than the Reading and Writing components.

At Advanced Higher 'demand for clear, high quality communication in essay form across all course components'. As above, sense of argument/line of thought in Dissertation and critical work. No evidence of collaboration or leading, such as in listening/talking/group work. Curiosity about different and more demanding literature in evidence through dissertation work — both primary and secondary texts. Creativity and critical thinking demonstrated. Creativity again shown in range of folio essays to a high standard and critical thinking required throughout the analysis for Dissertation, Literary Study and folio.

No submission of evidence required for talking/listening [at National 5], which is where candidates would most commonly demonstrate social intelligence. Similarly, through learning/class discussions, they would develop social intelligence but no requirement for evidence here.

Coursework pieces demonstrate an ability to communicate in different styles. This is more effective and successful in evidence from the more able candidate and the communication in the weaker coursework lacks clarity and accuracy. Some feeling shown in personal essay. Responses in Scottish Text and Critical Essay demonstrate some awareness of feelings/emotions/character'.

Folio requires creativity (though essay on work experience demonstrates limited creativity). Nevertheless, there is a sense of pulling together a range of points and evidence even in the weaker discursive folio. High levels of innovation demonstrated in the more successful folio. At 30% of the final grade, this carries some weight

Coherence

Stage 2 findings indicated that there was internal coherence within the National 5, Higher and Advanced Higher courses that allowed for a structured learning, teaching and assessment experience across levels, through hierarchical approaches to learning, teaching and assessment. Specialists agreed that the content of the courses built on each other and provided opportunities to support young people to make links between areas and build on their learning as part of a deeper experience.

At Stage 3, findings indicated there was some evidence of integration of learning, teaching and assessment but it was difficult to rate based on candidate evidence alone.

Hard to tell — the best teaching will involve encouraging students to employ skills, picked up in analysis and evaluation of great literature, in their own writing so that the whole course is coherent and integrated. It is hard to tell if that has happened by just looking at the final outcome but the course certainly allows for a joined-up approach where skills in analysis of reading feed directly into improvement of writing.

Progression

Stage 2 findings indicated that there is a clear progression in the complexity and demand between Higher and Advanced Higher.

There is a real and clear progression between Higher and Advanced Higher English. Success at AH is more likely for those who excel in the literature and writing elements at Higher as there is no RUAE in AH. There is more of a focus on literature (fiction), usually, and this often suits those who wish to study AH or who wish to go on and study English at university.

Findings indicated that there is a clear progression in the complexity and demand required from National 5 to Higher, but that this was more easily achieved by candidates who achieved higher grades at National 5.

It is most natural, but still challenging, for those learners who are working at a B or A grade at National 5. The majority of those with a C, in my experience, will struggle to achieve a Higher and may withdraw from the course or repeat over two years. Currently the progression pathway from National 5 English is to Higher English. This was not always the case in previous years with Intermediate 2, for instance. Except in truly exceptional and rare circumstances, I am not aware of learners with a D at National 5 achieving Higher in one year. It is an uncomfortable reality that there is not a satisfactory progression pathway for learners who are successful in achieving a C or D at National 5.

Higher English requires knowledge, skills and understanding across a range of course elements at a high level of complexity. Pupils often struggle with the increased demand from National 5 to Higher. As a Higher qualification, it is right

that this complexity is there — pupils who achieve Higher English really do ‘deserve’ it, but it is much more demanding in the quality of responses and marking than National 5.

Specialists indicated that there was coherence between the skills, knowledge and understanding developed within the 4th level curriculum benchmarks and National 5 but noted that there may be a misalignment in level of demand between the 4th level curriculum benchmarks and National 5.

Level 4 (and indeed levels 3, 2 etc) focus on Reading, Writing and Listening and Talking. These skills are the key communication and literacy skills continued through National 5 and Higher. There is a satisfying coherence throughout the English curriculum. The range of benchmarks is significant; not only do we assess the English benchmarks but we assess Literacy. Each level in CfE typically takes up to three years to achieve. At National 5, learners need to step up to the next level in one short session. By necessity, there is more focus to the range of knowledge, understanding and skills at National 5. As a result of this, secondary teachers will plan learning in S1–3 to reflect the benchmarks but with increasing focus on the skills and, in particular, assessment methods that learners will experience in National 5.

In my limited experience, it seems as if the continuation between the curriculum at level 4 and the National 5 course is clear and straightforward. The range of skills is very similar and appears to sequence effectively with the range of skills and knowledge at National 5.

Both courses are structured around reading, writing, talking and listening but many of the soft skills and focus on independent learning are not required in National 5 which arguably makes it easier to coach someone through National 5.

In my experience, the reality is that National 5 is a more natural follow-on to level 3. Learners do not have to have achieved level 4 CfE in order to progress to National 5. National 4 does not reflect level 4 benchmarks. All examples that I have seen of level 4 work from pupils from Education Scotland (limited as it is) is beyond what would secure a grade at National 5.

There is scope for development of skills, but there is a level of detail in the level 4 benchmark document which is very useful and not always matched by the detail in the National 5 course outline of specific procedural knowledge. The demands of the level 4 benchmarks are considerable and represent a secure foundation for building more challenging skills and understanding.

Stage 3 findings reinforced this indicating that there was evidence of clear progression in terms of the range of knowledge and skills across National 5, Higher and Advanced Higher. However, findings indicated that although there was some evidence in the candidate scripts of an increase in demand and complexity of skills from the level 4 curriculum benchmarks, how these skills are assessed in the Senior Phase takes a specific form that is not required in the BGE.

There is the explicit addition of the Scottish Text, which, while still requiring skills in reading, doesn't really feature in a similar form. Some requirements for clarity and accuracy in writing for folio and Critical Essay. While most teachers will teach Critical Essay from early in the BGE, it is not a required means of

demonstrating the skills, knowledge or understanding. Again, Listening and Talking is not evidenced.

In BGE, Tools for Writing and Literacy put more emphasis on the accuracy and quality of writing. Pupils at National 5 and Higher need to meet a minimum standard of accuracy for their folio and some for Critical Essay but there is no sense that technical accuracy is differentiated or is a focus. Many teachers feel that this gives a false sense of what may be required for further education or for work.

The 'A' candidate is able to demonstrate analysis and evaluation skills. The course has narrowed as it goes from level 4 to National 5 so there is no assessment evidence of the soft skills or of talking and listening.

Appendix 7: National 5, Higher and Advanced Higher Geography: Detailed justification of ratings by principle

Relevance

Relevance in relation to the wider subject discipline...

Stage 2 findings indicated that the course content at National 5, Higher and Advanced Higher was appropriately relevant to the wider subject discipline.

The Geography courses allow learners to increase their knowledge and understanding of the environment, sustainability and the impact of global issues in our current world. Most topics are up to date and relevant to young people today. It holds their interest and makes them more aware of environmental and social issues that are faced in today's world. The course covers an extensive number of skills which are vital in the development of the subject.

The non-CfE subject specialist judged that Advanced Higher was appropriately relevant to the wider subject discipline but that National 5 and Higher had some 'shortcomings' in relation to a lack of economic geography and no requirement for fieldwork or statistical skills to be taught as part of the course content. They felt that the lack of requirement for fieldwork skills to be taught as an intrinsic part of the course content led to a 'needs must' approach, with learners 'coming out with very different experiences'.

CfE subject specialists disagreed, indicating that the National 5 and Higher course content allowed 'space and flexibility' for skills to be taught in a variety of ways as part of learning and teaching and that this was a positive aspect of the course. However, they agreed that the variety of skills taught were often 'restricted by timetabling and funding'.

Relevance to the learner...

Subject specialists agreed that there were extensive opportunities within the National 5, Higher and Advanced Higher Geography course design to engage learners with Personalisation and choice through the coursework component. They agreed that this personal choice offered learners the opportunity to connect to real-life issues and explore learning that reflected the lived experiences of young people.

Geography is a relevant up-to-date subject which allows for the study of real-life issues on a local, national and global scale. Pupils investigate the changing world and a whole host of environmental and social issues which they can relate to.

However, CfE subject specialists who had experience of Scottish classroom practice, indicated that these opportunities were not always feasible. At Advanced Higher, due to smaller class sizes, less contact time and more independent learning, young people were provided with more opportunity to choose topics of interest that were relevant to them. Subject specialists considered that there was less realistic opportunity in National 5 and Higher courses due to lack of time or funding.

Stage 3 findings indicated that there was evidence at National 5, Higher and Advanced Higher of learners exploring real-world issues that are geographically relevant.

Findings indicated that at Advanced Higher there was less evidence of real-world issues but subject specialists noted that this was predominantly to do with a greater focus on skills and data handling at this level, which was deemed appropriate. The question paper was not really considered to reflect learners' own realities or personal experiences. However, there was extensive evidence in the 'Issues' essay, where learners chose up-to-date debatable or controversial topics that are current in the news, relatable and of personal interest.

Study and Issue suggest areas of interest to them, especially the local topics.
It's hoped the electric car one suggests a realisation that their future is involved with this topic, while the cruise one is pertinent to the environment

At Higher, subject specialists noted that they had no way of knowing if learners had had their own personal choice over topics or case studies in the question paper. They accepted that the question papers mostly assess knowledge and understanding (KU) and skills, therefore the content may not reflect learners' own realities and lived experiences. However, subject specialists felt that the assignment best reflected learners' own experiences and that there was evidence of real issues being investigated which may have increased interest in the topic, for example showing 'a clear passion and interest for the renewable energy topic'. Findings indicated evidence of complex global issues, which were geographically topical, being assessed within the question paper.

At National 5, evidence tended to be based on local issues, for example rate of erosion, traffic flow and land use zones. Subject specialists noted that there was no way of knowing whether a particular topic was chosen by the learner but considered that the choice of topic for the assignment was most likely chosen by the teachers and managed through a class outing.

Breadth

Stage 2 findings indicated that all the subject specialists considered that Advanced Higher was appropriately broad, but the non-CfE subject specialist considered the breadth of developed knowledge and skills at National 5 and Higher was 'weak', and that topics are fragmentary and:

rather atomistic so often are very selective giving no overview — especially landscapes — and hence reducing the chances of learners understanding interactions and spatial relationships... Complexity may be brought out in delivery but is not inherent in the topics and certainly not a feature of the assessment. Rather than building up a framework of K and U they are being offered bite-size chunks for most of the time

Findings indicated that the CfE subject specialists disagreed, highlighting that there was appropriate breadth of knowledge and skills across National 5 and Higher Geography courses predominantly due to the flexibility and space inherent in these courses. These allowed practitioners to extend learners knowledge and skills through learning and teaching practice, but the subject specialists also cautioned that this was often 'depending on the school resources and time'.

Candidate evidence at Stage 3 indicated that at Advanced Higher the focus is less on knowledge and understanding of geographical topics and greater emphasis is placed on skills. To this end, geographical knowledge is not really assessed in a final exam as such.

Instead, learners focus on scientific rigour in terms of data collection and interpretation. This was seen as appropriate at this level.

Stage 3 findings indicated that there was appropriate breadth of knowledge and skills evidenced at National 5 and Higher through the question paper and coursework component, though it was accepted that geographical skills were prioritised in the course as was appropriate to the subject.

At National 5 map skills are assessed in the paper in several ways, with numeracy and interpretation of this information in the Global section. In the assignment, there is a requirement for geographical skills to be used but learners can use a variety in line with their ability, to support differentiation. Higher further develops these skills and allows more choice of skills to be used for example, interviews and surveys.

The course develops a wide range of important and transferable skills, including using, interpreting, evaluating and analysing a wide range of geographical information. OS maps skills are further developed as well as research skills and fieldwork skills.

Depth and Challenge

Stage 2 findings indicated that subject specialists agreed that the principles of Depth and Challenge were the most closely linked. Subject specialists agreed that there was an appropriate level of complexity and demand within Advanced Higher Geography in relation to the wider subject discipline. They noted that there were 'some' to 'extensive' realistic opportunities to problem solve, apply theories and concepts in practice, and self-manage learning. These would encourage depth of learning through the use of complex and challenging materials and the development of higher order thinking. learners were encouraged at this level to develop an understanding of real-life issues which they could translate and apply in a range of contexts, both familiar and unfamiliar.

The portfolio tasks [at Advanced Higher] allow learners to work to their highest possible level of challenge and complexity and the structure of the mark scheme would allow these to be rewarded

Findings indicated that there were 'some' realistic opportunities for the development of Depth and Challenge at Higher through opportunities that deepen learning and support progression through the course, with a requirement for aspects of problem solving and the application of theories and concepts. The development of higher order skills was a key contributor to this, though the subject specialists agreed that innovation was not a key requirement of the course at this level. However, the non-CfE subject specialist indicated that much of this would depend on learning and teaching practice.

The Higher Geography course provides opportunities to reinforce and deepen learning by making joined-up links between aspects of knowledge and understanding across the sections, depending on the particular topics and issues studied. For example, the development of geographical knowledge and understanding within the physical environments and human environments sections can be joined together appropriately in order to provide a basis for the development of knowledge and understanding in the global issues section. Teachers may choose to organise learning and teaching so that these topics are taught consecutively in order for pupils to better understand the links

between them. The development of skills is part of learning and teaching from the outset to help learners progressively build up their skills throughout the course.

The course provides some opportunities for higher order cognitive skills to be developed. Pupils have the opportunity during the assignment to analyse and evaluate their findings as well as create their own piece of work.

The course allows for opportunities and abstract thinking to develop. learners can make connections to the wider world and have a detailed understanding of the changing world in a balanced, critical and sympathetic way.

The lack of evidence complexity in the content again makes this difficult to judge — many of the topics could need these but it will depend on delivery. The low-level expectations from the MI would not encourage these to be used, except in the occasional question relating to OS maps and perhaps some elements in the coursework.

Findings indicated that self-management of learning at Higher contributed to depth of learning but that much of this was controlled by the teacher.

The course is still very much teacher led and controlled. There is some opportunity for pupils to develop greater self-management of learning during the assignment preparation and write up, especially as they have experienced the assignment previously, however, as discussed in later question, this is still largely controlled by the teacher.

Findings indicated that there were realistic opportunities for the development of Depth and Challenge at National 5, to a certain extent, but this was reliant on learning and teaching practice and learner ability. There was disagreement about the position of higher order skills at National 5 — the non-CfE subject specialist indicated that there was limited need for the development or reward of higher order thinking and that any development of these skills fell outside the requirements of the National 5 course, while the CfE subject specialists disagreed. They noted that there were opportunities to develop higher order cognitive skills during the assignment, with the caveat that this was dependant on time and resources.

This will depend on time allocation, IT, and resources available to enable the complex/challenging topics and areas of study within the course guidelines.

There are some more challenging extended response questions in the final exam which are aimed at A grade learners. Depending on assignment topics selected, there is an opportunity for the development of more complex and deeper knowledge and understanding to be undertaken.

Some of the topics, such as weather, might use these in delivery, depending on how they were delivered but most component 1 questions require basic recall of knowledge and understanding which would need little in the way of these skills to achieve well given the nature of the mark schemes in the end assessment. Hence there would be little encouragement from that to develop these. It will very much depend on the delivery mechanism.

The course provides some opportunities for higher order cognitive skills to be developed. Pupils have the opportunity during the assignment to analyse and evaluate their findings as well as create their own piece of work.

Stage 3 findings reinforced the findings at Stage 2. At Advanced Higher there was extensive evidence of Depth and Challenge through use of higher order skills, problem solving, unfamiliar materials and sources, challenging contexts and self-managed learning.

At National 5 and Higher the question paper component had 'limited' to 'some' evidence of problem solving, the application of theories and concepts, higher order skills development, and depth of learning through the use of complex and challenging materials.

However, subject specialists agreed that the assignment provided more evidence of Depth and Challenge. This was particularly evident at Higher, through the choice of assignment topic, although they agreed that this would not necessarily be universal because it was dependant on the extent to which the learner was able to choose their topic.

There are some more challenging extended response questions in the final exam which are aimed at A grade learners. Depending on assignment topics selected, there is an opportunity for the development of more complex and deeper knowledge and understanding to be undertaken.

Personalisation and choice

Stage 2 findings indicated that there were extensive opportunities within the Geography courses to provide learners with personal choice through the coursework component at National 5, Higher and Advanced Higher. This allows learners to explore areas that are of personal interest to them. Findings indicated that this works well in practice at Advanced Higher, but that there was less realistic opportunity at National 5 and Higher due to the constraints on time and resources. This was particularly true of fieldwork study.

Personal choice [at National 5 and Higher] is limited. Schools will make the decision on which topics to study, for the Unit 1: Physical Environments topics, for example glaciation and coasts. Teachers will also decide which case studies will be used throughout the course and which two Global Issues they will teach to the class as it has to be manageable and consistent. Pupils may be given the opportunity for some personal choice. For example they may be given a choice in the hazards topic of which earthquake case study they want to investigate however the teacher will always have notes for a particular example to ensure that all pupils have the same information. Personal choice is also limited for the assignment. It is much easier to manage classes of over 30 pupils if everyone is doing the same theme for an assignment, therefore the class teacher is more likely to select the theme; this also makes organising fieldtrips much easier.

Dependent on time allocation, resources. Could happen in Physical landscapes case study, Human urban areas, and Global. Main area could be assignment topic.

Findings indicated that there were realistic opportunities at National 5, Higher and Advanced Higher for flexibility in teaching and learning approaches, although as noted, this was dependant on time and resources at National 5 and Higher. Again, due to the nature of the coursework assessment Advanced Higher was seen as having some flexibility in relation to assessment. This was not the case at National 5 and Higher where a

combination of the need for a timed write up and restrictions in relation to school timetables results in learners undertaking these on the same day for practical reasons.

[at Advanced Higher] Coursework is mostly independent which leads to learning in a different way for pupils. The course does not focus on set topics as in previous levels, and there is a much greater emphasis on numerical skills which is quite different from other levels. Pupils have a greater focus as well on independent extensive reading, sourcing their own academic articles thereby learning new skills. Assessment is constrained and restricted by timetables, school assessment calendars and coursework collection dates. However, pupils have the opportunity to re-draft their coursework as often as required in order to produce their best piece of work and they are not restricted to a timed write up under exam conditions

The inclusion of the assignment [at National 5 and Higher] allows for learning to take place in different ways. Pupils are given more independence over this piece of work. There are also opportunities for fieldwork which makes learning in different ways more exciting.

Assessment [at National 5 and Higher] is constrained and restricted by timetables, school assessment calendars and assignment collection dates. Unfortunately coursework does not allow for flexibility as the final write up for the assignment is timed and pupils are only allowed on two pieces of processed information. The assignments for Geography are very restrictive and complex when compared to other subjects like Biology for example. The timing of the write up also has to be completed in one sitting and it is not feasible to have pupils sitting this over multiple dates when they feel they are ready, as the write up timings are usually longer than a set timetabled class which results in alternative accommodation and staffing having to be provided by the school. This results in the set write-ups having to take place on the same day.

Stage 3 supported the findings at Stage 2. At Advanced Higher, subject specialists indicated that there was limited personal choice within the question paper but noted that the Issues essay indicated evidence of learner choice as the topics are not specifically taught as part of the curriculum. Evidence indicated that topics are specialised / focused and therefore personal to the pupil. Similarly, the geographical study provides learners with personal choice as there are no set geographical topics at this level, therefore learners have free rein to study what they wish. Evidence indicated that this was the case in practice, with one learner producing a study on factors affecting biodiversity.

Stage 3 findings for National 5 and Higher indicated that it was difficult to determine whether the case studies were chosen by the learner. Findings indicated little evidence of personal choice in the assignments at both National 5 and Higher, with the candidate evidence indicating a class outing with limited choice in the area of study.

For Q5 both learners forgot to name their case study area which resulted in them not being able to be allocated the full range of marks. This may have been as a result of pupils having not chosen their own case study area and getting mixed up between their various case studies across the course.

Again we can assume that pupils had personal choice over their assignment topic, question, data gathered etc. Although learner 1 does make reference to 'we' which suggests teacher led organised fieldwork.

Enjoyment

Stage 2 findings indicated that opportunities for Enjoyment are present, to a degree, in National 5, Higher and Advanced Higher geography courses as part of their design, particularly as a key aspect of the coursework component.

Findings indicated that at Advanced Higher there were realistic opportunities for learners to achieve real enjoyment through personalisation and choice, relevance, the development of social intelligence, innovation and self-management of learning. These opportunities were wide because class sizes tended to be smaller at this level and learners had a genuine interest in the subject matter at that stage 'with a view to progressing to university'.

At National 5 and Higher, findings indicated that the courses were highly relevant but noted fewer realistic opportunities to develop topics of personal interest, social intelligence, innovation and self-management of learning due to lack of time and resources. For example, opportunities for social intelligence are present through encouragement to develop answers with a learner's own opinions in certain aspects of the course and through group work. However, group work is not always possible due to restrictions on time and resources. That is not to say that learners do not enjoy the courses at these levels, but that they have 'less opportunity to choose topics that relate to their lived experiences'.

Findings indicated that the National 5 and Higher courses provided opportunities for learning, teaching and assessment to take many forms as a route to developing relevant learning (and therefore enjoyment), but again a caveat was given that this 'depended on resources and time'. CfE subject specialists noted a lack of resources that can often create tensions with fieldwork at these levels either through lack of staffing or the learner's ability to fund the fieldwork activity, creating inequality in learner access.

The inclusion of the assignment allows for learning to take place in different ways. Pupils are given more independence over this piece of work. There are also opportunities for fieldwork which makes learning in different ways more exciting. Pupils are also introduced to map work questions that involves more problem solving learning to take place which aids in them learning in different ways.

The demands of the methodological approach to both portfolio tasks means that learning will follow a similar path for learners in order to meet the demand of the assessment. However, there is room for learners to develop their own style in the geographical issue component particularly. There is also opportunity for this in dealing with the fieldwork skills, which invite practical approaches in discovering how they work and evaluation of their potential effectiveness.

Due to the nature of the Geography course and the fact that real-life issues like climate change are taught and discussed can have a positive impact on those young people from a variety of different backgrounds as they see the subject as important and relevant therefore this improves their interest in the subject. However, when it comes to the assignment component there can be discrepancies between those pupils from more diverse or challenging backgrounds. For example they may not be able to afford to take part in fieldtrips and therefore may have to complete a desk-based project which may not score as highly as pupils are limited

in their write up about processing techniques. Pupils may not have the same access to resources or support at home. Not all schools have access to Chromebook/laptops for assignment write up.

Stage 3 findings indicated that subject specialists believed that there was evidence of Enjoyment at Advanced Higher, where learners have free choice of topics, can self-manage their learning, and can engage more fully in their learning.

Findings indicated that at National 5 and Higher evidence of learner personal choice in coursework topics was weak, as previously indicated. Subject specialists believed that this lack of Personalisation and choice may have restricted learner's ability to innovate at these levels as they may not be 'invested' in their topic choice.

However, evidence did indicate aspects of group work that allow learners to gather and share information in the assignment, even though aspects of group work are not formally assessed in the course assessment. Despite this, findings indicated that this was an important aspect of Geography and could support the development of social intelligence.

No evidence in paper as restricted by time and mark allocation but in assignment 3 there is suggestion that they have worked in a group so social aspects will have been included during the gathering and sharing of information. This, however, will depend on the topic chosen.

Coherence

Stage 2 findings indicated that subject specialists agreed that there was internal coherence within the National 5, Higher and Advanced Higher courses that allowed for a structured learning, teaching and assessment experience across levels, through hierarchical approaches to learning, teaching and assessment. They agreed that the content of the courses built on each other and provided opportunities to support young people to make links between areas and build on their learning as part of a deeper experience.

Stage 3 fully supported the Stage 2 findings.

Progression

Stage 2 findings indicated that all subject specialists agreed that there is a clear progression in the complexity and demand between Higher and Advanced Higher. However, the non-CfE subject specialist noted that lack of prescription at Higher made it difficult to judge.

There is a comprehensive list of skills to be considered, some of them at a high level so ensuring that learners will be experiencing at least some of them for the first time. The lack of any definition of what might be taught at Higher level makes this a generic judgement as there is nothing on which to base progress, however.

The free choice of topics mean that learners might only extend the depth of K and U but there is the opportunity, in the issue in particular, to select a topic that they have not previously dealt with and add that to their geographical knowledge both in range and depth.

The nature of the two portfolio tasks will mean that the process of showing their understanding within the task is combined with developing their understanding still further, both in terms of depth and range.

The CfE subject specialists agreed that there is a clear progression in the complexity and demand required from National 5 to Higher:

The higher course builds on well from the National 5 course in terms of knowledge, skills and understanding

However, the non-CfE subject specialist indicated that they found the progression 'disappointing' between National 5 and Higher as many of the topics at Higher are identical to those at National 5 and the lack of clarification of the expected extent of learning (through lack of prescription) hinders any consideration of whether range is included.

There are two less optional topics but the physical section includes soils and a few more individual landscape CfE features compared to N5. Weather and human contain different elements of the topics but certainly overall no greater range — just different ones. The lack of clarification of what skills need to be delivered at either level means that a judgement on this is impossible — there may well be opportunities to extend the range of what was taught but without knowing what might have been taught I cannot make a judgement on this. This is a DIY element of both specs.

Findings indicated that the CfE subject specialists disagreed with this, noting that much of the depth of knowledge, skill and understanding was incumbent on learning and teaching approaches taken, and that the course provides 'space' to develop skills. The non-CfE subject specialist indicated that although this may be the case, the resultant quality of teaching would determine the extent to which progression between National 5 and Higher would be successful, leading to potential 'inconsistency'.

Findings indicated all subject specialists agreed that the National 5 course built on the complexity and demand of knowledge, skills and understanding from the 4th level curriculum benchmarks. However, they noted that this would depend on the breadth of coverage delivered from within the benchmarks and the length of time taken to deliver the course.

Overall the Nat 5 course does provide opportunities to build on from the knowledge, understanding and skills acquired from level 4. However the concern is that schools can complete any topic that covers the benchmarks/ E's and O's therefore there may be a discrepancy in terms of the content that some schools have covered before the Nat 5 course start. There is also the inconsistency between schools with some sitting National Courses over 2 years whereas others are trying to complete the course in just one year which may result in the course being rushed and skills not properly developed.

Stage 3 findings indicated evidence of appropriate progression from Higher to Advanced Higher in line with the Stage 2 findings. CfE subject specialists noted there was strong evidence of appropriate progression from National 5 to Higher with the question paper demanding greater depth of information in the answers. However, they noted concerns around the effect that optionality at National 5 has on progression to Higher, particularly around the acquisition of knowledge at the lower levels. The non-CfE subject specialist

considered there to be little evidence of progression from National 5 to Higher, suggesting that the only real advance was that learners know a little more about each topic, but the level of response shows no real difference in the question paper or coursework component.

Higher builds well on the complexity of the National 5 course and skills. Previous course provides pupils with a good experience to progress [at Higher].

Slight concern that by offering a choice at Nat 5 level with the physical environments section, some pupils learning may be impacted on as they progress onto Higher. For example, if they have never studied glaciation and coasts then they will find Lithosphere unit more difficult. Similarly, a learner who has never studied rivers will find basic elements of the hydrosphere course at higher level more demanding as that previous recall knowledge and understanding does not exist.

Questions are no more demanding overall and learners respond with basic one description plus one explanation answers — occasionally the explanation has a couple of separate points but nothing of complexity. Reading of graphs/maps shows an atomistic approach rather than an ability to see trends or the bigger picture.

Assignments actually show slightly less complexity than in the fieldwork methods used at N5. Although the Higher are longer, the assignment analysis and conclusions are similarly basic with a great deal of unsubstantiated linkage of ideas in both. There is a little more justification and background knowledge used in the Higher assignments, hence my rating of a little evidence, although this is a marginal decision.

Findings indicated that the CfE subject specialists found strong evidence of progression from the 4th level curriculum benchmarks to National 5 through more developed answers and more knowledge being required. In addition, skills at this level build from the 4th level with increasing challenge and more interpretation of information and numeracy skills. The non-CfE subject specialist did not agree and indicated that evidence of Progression was limited but added the proviso that they had not seen candidate evidence of the 4th level benchmarks. Despite this, the non-CfE subject specialist indicated that geographical skills do indicate advancement.

The script evidence seems to back up my judgements from looking at the materials, that the depth of knowledge and understanding shown does not show significant improvement. There is little complexity in understanding and no demonstration of any higher level complexity — explanations are simple in the QP scripts and basic in the assignment. However, I have not seen evidence from the Level 4 so this is a judgement with that proviso — it may be that at Level 4 explanation / evaluate / assess is at even lower levels. The level of geographical skills used does appear to show some advance with a wider range of them being used than it would appear at the lower level.

Appendix 8: National 5, Higher and Advanced Higher Mathematics: Detailed justification of ratings by principle

Relevance

Relevance in relation to the wider subject discipline...

The mathematics specialists considered that there was realistic opportunity to develop breadth and depth of knowledge and complexity of skills across all three levels within Mathematics in relation to the wider subject discipline.

Stage 2 findings at Advanced Higher indicated that there was opportunity to develop and demonstrate operational skills in a range of mathematical areas, including proof, which is appropriate at this level. However, the non-CfE specialist felt that there 'remained questions about range in terms of problem solving, modelling and statistics data' and that there 'is an overbalance on skills or procedural fluency', although the Advanced Higher assessment does have a little more reasoning and justification which they felt was appropriate at this level. The CfE specialists suggested areas of potential expansion, such as conics, but were clear that introducing more content would involve the removal of other topics.

At Higher, findings suggest opportunity to develop and demonstrate operational skills in a range of mathematical areas. However, whether there are realistic opportunities for the development of reasoning was less clear, with 'proof' being seen as an area that could further strengthen this.

The assessment has very few examples of items where mathematical reasoning is necessary of the 'explaining why a solution is appropriate in a given context' type, or 'to extract and interpret information and to use complex mathematical models'. Similarly there doesn't appear to be much need (and presumably, therefore, opportunity) to 'provide justification or proof'. In the other hand, the range of operational skills demanded is great. I also note that there is nothing here about statistics and data analysis.

In terms of demand and complexity, the specialists indicated that there was a high volume of skills-based topics which are 'complex and challenging in and of themselves' but do not lend themselves to complex questions, and that this may reduce the overall level of demand at this level. At Higher in particular, it was suggested that to increase complexity there could be more 'questions that link skills together' but the specialists felt that this applied to the courses at all three levels.

There is a high level of complexity within elements of the skills but more limited opportunity to connect, combine and apply mathematical concepts and understanding outside of operational skills.

Findings indicated at National 5 there may be room to increase reasoning skills and mathematical problem solving to increase depth and complexity. An increase in specific statistical skills was also seen as an area that could improve alignment with the wider subject discipline, although it was recognised that the addition of these skills may create a course that is too big to deliver within the notional timescales.

There is ample opportunity to demonstrate all of the traditional operational skills one would expect to see but the assessment (and presumably teaching) is very light on reasoning and meaningful problem solving. I note that 'operational and reasoning skills' should comprise 35% of the assessment. The spec talks a lot about real-world applications which is good though it is impossible to say whether that translates into student experience (I suspect not, in the main). So there seems to be a gap between what one might call aspirational opportunities and realistic opportunities.

Any time a question is 'non-standard' the performance of candidates significantly drops. This obviously leads to a significant number of routine questions. There is also a good selection of non-routine questions but I do personally feel like there could be wider scope for a 'really' non-routine question at the end

There are certain areas of statistics that are not covered in either National 5 Mathematics or National 5 Applications of Mathematics that were included in Intermediate 2 unit 4. For example, histograms, dot plots and mean from a grouped frequency table.

Relevance to the learner...

The results suggest that studying the Mathematics courses could provide opportunities to support real-life application of skills to some degree. However, there is no assessed requirement for learners to develop mathematical skills in relation to real-life issues during those courses, and this is clear from candidate evidence. Indeed, the subject specialists felt that Mathematics has a role in being 'socially neutral' to avoid distracting learners. Despite this, contextualised learning is a feature at all levels within the Mathematics courses and these courses can be made relevant through learning and teaching practice.

Some questions are in 'real-life contexts', but I wouldn't say real-life issues. My assumption is that controversial contexts are avoided so as to not distract learners from the mathematics of the question. In terms of development, it would be dependent on the teacher, and the reality is that if they are not in the assessment, many teachers may avoid real-life issues, as the assessment won't have any. To clarify what I mean by 'real-life contexts' and 'real-life issues'. A context question might reference fuel consumption of cars, but there is no discussion around the issues relating to fuel efficiency or how it impacts climate etc. If you would characterise the example context as an issue, then the judgement I would make would move to 'some realistic opportunity'.

Most mathematics curricula are socially neutral and largely ignorant of the ways in which highly valued quantitative skills will be used in real life.

Discussion with the subject specialists provided more context on why suggestions for contextualised learning and teaching in the course specifications did not necessarily translate into classroom practice. In fact, there could be inequity of provision across individual schools and classes:

Some teachers will be doing it. Some whole departments might be doing it if the head of department said let's all do this, but it will be very disparate because the assessment tool doesn't have it and there is a lot of content to get through. Ultimately, for example if you take National 5, doing it in one year, no

one's got any time for anything else. You'll finish that course within seconds of the end of the term just doing content, going 'right there's the next skill', 'now there's the next skill'.

Findings on Relevance in candidate evidence and assessment at Stage 3 mirrored those at Stage 2 on Relevance in course materials.

Breadth

The Mathematics specialists agreed that there were realistic opportunities to develop an appropriate breadth of knowledge and skills within the courses. The content of the courses was generally thought to be appropriately broad in relation to the wider subject area:

Although there is always more that could be included, the exam would have to be longer, or other topics removed, to add in more content.

There was some debate as to whether the courses are predominantly skills or knowledge focused, depending on the specialists' conceptualisation of knowledge and skills in the context of Mathematics. However, overall, the specialists agreed that the balance, however elements were conceptualised, was appropriate across the courses:

The distinction between knowledge and skills is unclear as much of the knowledge is procedural. Whereas N/H [National 5 and Higher] list reasoning under the skills, knowledge and understanding it is absent for AH. It is safe to say that as much of the knowledge is procedural, the question of balance is redundant as knowing (how to) and skills are largely overlapping.

In addition, the breadth of course content across the levels was felt to be assessed appropriately in line with the purpose and aims:

The exam covers almost all elements of the course.

I feel the range of skills is very much in line with aims and course rationale.

There is generally good alignment between the purpose and aims and the skills required for success in the assessment.

Findings on Breadth in candidate evidence and assessment at Stage 3 mirrored those on realistic opportunity for developing Breadth in course materials at Stage 2.

Depth and Challenge

Depth and Challenge were considered to be closely linked at Stage 1, and so are being taken together here. The specialists were in agreement that there was an appropriate level of complexity and demand within National 5, Higher and Advanced Higher Mathematics in relation to the wider subject discipline and that National 5, Higher and Advanced Higher Mathematics were highly challenging. Some specialists noted that abstract thinking was a key aspect of the Mathematics courses. However, they noted that problem solving in mathematical terms is not the same as problem solving in other areas and tighter definition in the rating questionnaire at a subject specific level would be helpful:

I have no doubt that this material would be challenging and complex for the vast majority of learners, and/or that opportunities for enrichment, stretch and challenge for the most able would be easy to do.

By its very nature the Higher course is highly abstract. However, there would be some merits in there being more opportunity to bridge 'concrete', real-world contexts and abstract ideas. There would be room for more problems solving and modelling.

As with N5, there is excellent focus on operational skills at Higher but far less on reasoning, extracting, interpreting, modelling, justifying and proving and problem solving (though as above 'solving problems' is perhaps not to be equated with 'problem solving').

The assessment [at Advanced Higher] encourages more reasoning and the inclusion of proof in the spec is reflected in the examination.

The specialists felt that the nature of Mathematics meant that the use of unfamiliar contexts was inappropriate at National 5 because it was difficult to do in practice and could be potentially distracting for learners. However, they did agree that increased use of real-world contexts in learning and teaching could encourage abstract thought through mathematical problem solving. They added the caveat that real-world contexts within an examination could also be potentially distracting and should be approached with caution. They felt that there were greater opportunities to develop and apply learning in unfamiliar contexts at Higher and Advanced Higher, though they considered this to be an aspirational aspect of the courses:

It is not clear what types of problem solving and modelling is envisaged in the SKU for the National 5 course but there is little realistic opportunity to apply mathematical skills in unfamiliar contexts. Similarly, although the spec encourages the making of connections between some areas (though not particularly enthusiastically) there is little evidence to suggest that this is valued in practice of assessment. That said, this is particularly difficult to do, both in terms of item design and in preparing students.

In one sense the learners are only ever solving problems, but in another sense they are not really problem solving (as in 'extract and interpret information' or 'use...models' etc). There seems to be very little that would be unfamiliar in the contexts used in the assessment materials.

Higher Mathematics has a level of maths which makes the context questions more realistic and therefore more practical applications can be explored. This can be incorporated in the integration, vectors and logs / exponential topics; at Advanced Higher these can be incorporated in differential equations, vectors, and aspect of differentiation and integration can be used.

As in N5 there is some 'aspirational opportunity' for real-world application but probably this does not happen for most learners. Given the claim in the purpose and aims section that 'mathematics enables us to model real-life situations' there is something of a misalignment here.

All specialists agreed that the development of social intelligence was low within Mathematics and that this was appropriate to the subject at all levels. They agreed that

innovation through the development of curiosity was possible within Mathematics but these should be 'mathematically valid':

In the assessment, I believe there is little opportunities for curiosity, creativity, but there is definitely scope for critical thinking.

Specialists felt that there were appropriate opportunities to develop and assess higher cognitive skills at all levels, in particular the areas of application and analyses:

My feeling is that there are not really questions that test creativity (unlike the kind of questions you might see in maths challenges). It is likely because they would prove very challenging to almost all candidates. Although there is occasionally scope for evaluating, I feel that it is rare. The more challenging questions tend to focus on applying and analysing.

Findings around candidate evidence at Stage 3 reinforced the Stage 2 findings by providing evidence, rather than simply realistic opportunity, for the development of these features. However, there could also be areas where specialists reconsidered how they understood concepts between the stages. One specialist at Stage 3 increased their ratings from Stage 2 in the area of practical application of theories and concepts as they refined their thinking:

Almost all questions are using a skill or applying a theory to solve a problem, assuming that you don't mean 'practical' in the sense that it is a non-abstract problem. I have adjusted my thinking from when I was asked this question in the previous task, as opposed to thinking the candidate evidence shows something the course doesn't.

Personalisation and choice

Stage 2 findings indicated that specialists agreed that there was little Personalisation and choice within National to Advanced Higher courses due to the course assessment being examination based:

While the course might be taught with different balances of skills and (real-world) application there is no flexibility in the assessment and this has a heavy emphasis of mathematical techniques. So, in practice, the learning experience is likely to be very homogenised.

The specialists suggested that while there might theoretically be opportunities for personalisation in the Mathematics courses across levels, these are limited and may not be realistically present in classroom practice, as features that underly Personalisation and choice are not assessed.

During learning, the course specifications give suggestions for curiosity but if teachers focus on assessment preparation they may not use those suggestions.

Learning, teaching and assessment approaches in Mathematics tended to be fixed. In addition, self-management of learning within any of the Mathematics courses were not often possible due to the controlled and sequential nature of delivery. This is due to the nature of the subject, where knowledge of one process or skill often builds on another, but has an effect on whether learners and teachers can work more flexibly:

Mathematics courses are very sequential. Certain topics must be completed before others can be introduced. This reduces the opportunities for candidates to adapt their learning.

Stage 3 findings indicated that candidate evidence reinforced the Stage 2 findings that there was very little realistic opportunity to develop the features underlying Personalisation and choice.

Enjoyment

Features of Enjoyment are closely bound to opportunities for individual choice by, and personal relevance to, the learner. Stage 2 findings indicated there were virtually no opportunities for Personalisation and choice within the Mathematics courses, as discussed above, and therefore no opportunity for young people to explore personal interests.

In addition, as discussed under Relevance, the specialists emphasised that it was important not to provide extraneous context in Mathematics assessments as this can disadvantage learners. Therefore, maintaining fairness within the subject greatly reduces the opportunity for learners to connect their learning with their own real-world contexts. The group discussion emphasised the difficulty of bringing this into teaching practice where there is pressure to cover course content that is going to be assessed, particularly as there are external pressures on results:

It does come down to the fact that we've got so much to do, we don't have the time to explore all these extra bits that would be great to explore with the kids [...]

A lack of opportunity for self-management of learning is also a barrier to the principle of enjoyment. As discussed above, this is partly a result of the nature of the subject. All the specialists rated this feature the same across SCQF levels, suggesting that they considered that learner agency did not increase as learners progressed:

While it would be reasonable to expect students to have greater agency at Advanced Higher with the way they develop their skills at this level, there is very little in the qualification design that supports this. The Approaches to Learning does list such opportunities ('project-based tasks', 'independent tasks') it seems highly unlikely that this happens in practice

Specialists also indicated that there was little requirement for social intelligence to be developed at any of the levels within the Mathematics courses. They agreed that innovation through the development of curiosity was possible within Mathematics but the 'different strategies that can be used, should be mathematically valid':

In the assessment [National 5, Higher and Advanced Higher], I believe there is little opportunities for curiosity, creativity, but there is definitely scope for critical thinking. During learning, the course specifications give suggestions for curiosity but if teachers focus on assessment preparation they may not use those suggestions.

Although some questions [at National 5, Higher and Advanced Higher] require communication in their answer, it is usually reasonably trivial (such as including units, stating whether something meets a condition or not by

comparing two numbers). I wouldn't say there is opportunities for collaborating, leading or feeling at all during assessment. During teaching it would be dependent on individual pedagogical approaches, the level of collaboration and leading experienced. Although the levels of mathematical communication are higher in Advanced Higher than at Higher.

All of these factors taken together lead to a relatively low rating for Enjoyment across the Mathematics courses. However, it should be noted that this is a subjective concept and that it is being measured in the context of this research as relating particularly to Relevance and Personalisation and choice.

Coherence

Specialists agreed that there was internal coherence within the National 5, Higher and Advanced Higher courses that allowed for a structured learning, teaching and assessment experience across levels, through hierarchical approaches to learning, teaching and assessment:

All Mathematics courses follow a logical progression and have a fairly rigid structure. Certain topics need to be taught before others can be tackled as the knowledge gained previously is used.

There is generally good alignment between the purpose and aims and the skills required for success in the assessment.

There is strong alignment between the procedural skills in the spec and those demanded for success in the assessment.

The specialists agreed that the content of the courses built on each other and provided opportunities to support young people to make links between areas and build on their learning as part of a deeper experience.

The nature of the content allows for a consistent and integrated learning experience.

The way the content is structured allows for a range of approaches for teachers, that are all logically sequenced.

Assessment evidence at Stage 3 reinforced the strong coherence of the courses found at Stage 2.

Progression

Progression was seen as a particularly strong point of the Mathematics courses, with extensive opportunity for, and evidence of Progression, all the way up to Advanced Higher.

Stage 2 findings indicated that specialists agreed that there is a clear progression in the range, complexity and demand of knowledge and skills from Higher to Advanced Higher:

Given the nature of Mathematics and the focus on operational skills (rather than the less well-defined notions of reasoning, problem solving, etc) it is easy to demonstrate a substantial step from N5 to H.

A lot of the National 5 skills are used within the Higher course. Only statistics and volume not carried forward at all.

AH definitely builds upon H skills.

The topics that do follow on from Higher [to Advanced Higher] do tend to be extended in some depth (calculus, vector and logs in particular).

However, specialists noted that progression between National 5 and Higher — while still rated highly — was less clear due to the lack of reasoning skills and problem solving at the lower level. In fact, one specialist noted a jump between National 5 and Higher that learners often found challenging:

Higher definitely builds upon N5 skills, although usually pupils have to perform well at N5 to stand a chance of achieving success at Higher.

They felt that this jump was even more evident from Higher to Advanced Higher.

AH definitely builds upon H skills in terms of complexity, but, even more than Higher, students need to perform well at H to stand a chance of achieving success at AH.

There were also some issues noted where progression was not as clearly evident.

There are some topics that do not progress at all [from National 5 to Higher], and I would suggest that any review could consider that.

While the Advanced Higher course has an extensive range of topics, many of them are new to this level and do not follow on from Higher. The Calculus skills are, however, used extensively.

The 4th level curriculum benchmarks were discussed as being more open to interpretation than the National Courses, but specialists felt that there was good progression from the 4th level curriculum benchmarks to National 5 in the range, demand and complexity of knowledge and skills.

Fourth level benchmarks are a bit vague compared to NQs but if interpreting them reasonably, N5 certainly builds upon those skills.

However, one specialist noted that the National 5 Mathematics course could not feasibly cover the full range of the 4th level benchmarks, though they did consider the progression in demand and complexity to be extensive.

Slightly less than half the level 4 benchmarks are used for National 5 Mathematics. Most of the others are, however, used in the National 5 Applications of Mathematics course and it is important to take this into consideration here. It is totally unrealistic for a single National 5 course to be able to take forward all of the level 4 benchmarks. Almost all are used between the two National 5's on offer.

Stage 3 findings indicated that candidate evidence reinforced Stage 2 findings, so the realistic opportunities for good progression between levels were well-demonstrated in candidate assessment.