NCCA
An Chomhairle Náisiúnta Curaclaim agus Measúnachta
National Council for Curriculum and Assessment

Background Paper and Brief for the Review of Leaving Certificate Agricultural Science

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Introduction

The Senior Cycle Review: Advisory Report (NCCA 2022a) was published in March 2022 following the response from the Minister for Education, Norma Foley TD. Actions outlined in the Advisory Report include a review of existing curriculum components - subjects, modules, and programmes. In March 2022, the Minister for Education requested that NCCA undertake a series of actions to support the realisation of her vision for a redeveloped senior cycle as set out in Equity and Excellence for All (Department of Education, 2022.) One key action set out in this plan was that a schedule of senior cycle subjects and modules for redevelopment be prepared for approval by the Minister.

NCCA subsequently prepared a schedule of subjects for review, which was organised into a number of tranches. The redevelopment of Agricultural Science is included in Tranche 3, which will be completed in 2026 for introduction to schools in September 2027.

This paper provides a context for the review of Agricultural Science and has been informed by the views of teachers, school leaders and students gathered through school visits conducted in a representative sample of schools. It begins by considering the background of Agricultural Science with Section 1, presenting an overview of the current context, including consideration of relevant policy developments. Section 2 sets out how Agricultural Science related education is currently. provided for within the Irish curriculum before focusing in more detail on Agricultural Science Section 3 provides an overview of the insights gained through the school visits conducted and the lived experience of schools, teachers, and students. Section 4 considers similar education opportunities internationally and presents an overview of four different jurisdictions. Section 5 draws on the previous three sections to categorise and briefly discuss some issues identified for consideration in the redevelopment of Agricultural Science before finally setting out a proposed brief for this work in Section 6, which will guide the work of the development group.

1. Background and Context

This section sets out some of the significant developments in Agricultural Science since its initial introduction, before focusing on the education and broader policy landscape which are important contextual considerations for the review and redevelopment of Agricultural Science.

The current Leaving Certificate Agricultural Science specification was introduced in 2019. This was the first redevelopment of Agricultural Science for over forty years, replacing the previous syllabus which was revised in 1969 and first examined in 1971. Leaving Certificate Agricultural Science involves the study of the science and technology underlying the principles and practices of agriculture. It aims to develop knowledge, skills and attitudes that promote the sustainability of agricultural resources, placing emphasis on the managed use of these resources. Students study plants and animal types associated with agriculture and undertake investigations into soil, ecology, plant and animal physiology, crops, agricultural practices, and genetics and microbiology, for example.

While there was much support for the review and redevelopment of the LC Agricultural Science curriculum, the enactment phase was not without its challenges. The Irish Agricultural Science Teachers Association (IASTA) began to express concerns about the clarity of the learning outcomes, the nature of the curriculum design template, the lack of teacher guidelines and the timing of sample examination papers. In addition, the introduction of the new curriculum specification in September 2019 was followed quickly by the Covid-19 global pandemic and the associated disruption to the entire education system and society. Understandably, this presented additional challenges for the enactment of the specification and the overall experience of teaching, learning and assessment.

In collaboration with IASTA, teacher unions, and the Professional Development Service for Teachers (PDST), NCCA established an Agricultural Science in Practice Group with the purpose of monitoring in real time the enactment of LC Agricultural Science specification and considering emergent challenges and opportunities for support. Teachers nominated to this group shared their experiences of practice in their Agricultural Science classrooms over 5 meetings from February 2021 to January 2022. Insights from this group are shared in further sections of the Background Paper.

The curriculum development field has evolved since the introduction of the 2018 specification, with implications for developments in Ireland and internationally. To reflect this, and in response to concerns over lack of clarity, the NCCA have published a comprehensive examination of relevant research and practice on the technical form of curriculum specifications to help decide what format should be used when designing curriculum specifications for senior cycle. This research noted that the technical form of curriculum specifications should reflect the integrated development of knowledge, skills, values and dispositions and align with the key competencies of senior cycle. Further, when developing strands of study, the paper advised that the 'students learn about' column in future senior cycle specifications will offer more detail, with the emphasis on scaffolding of learning outcomes and finding a balance between providing support and avoiding over-elaboration.

Since the introduction of the 2018 specification, there have been significant changes in the world of education, agriculture, and beyond. Such changes include the release of a number of agricultural policies across Ireland and the EU, some of which are summarised in Table 1 below. These policies highlight a number of areas which hold significance in considering the context in which Agricultural Science is being redeveloped. These include the importance of balancing productivity with sustainability, enhancing rural development, and addressing climate change and biodiversity loss challenges within the agricultural sector. Further, the impact of Brexit, and most recently, the instability resulting from the war in Ukraine, have influenced a number of factors including climate change, the depletion of fossil fuels, greenhouse gas emissions, and a transition to a low carbon energy future.

Table 1: Examples of agricultural policies across Ireland and the EU released since the introduction of Leaving Certificate Agricultural Science (2019)

Area	Policy	Release date	Focus
Ireland	Organic Farming Scheme	Annually	Encourage environmentally-friendly agricultural methods through financially supporting farmers to maintain or convert to organic practices
	Beef Data and Genomics Program	Ongoing	Improving the genetic quality of the national beef herd, enhancing productivity, and reducing greenhouse gas emissions
	National Biodiversity Action Plan	2017-2021 2023-2027	Address biodiversity loss and enhance the conservation and sustainable use of biological diversity in Ireland Further strengthen biodiversity conservation in Ireland, integrating updated scientific knowledge and responding to emerging challenges such as climate change and habitat loss
	Ag Climatise	2020	Measures to reduce greenhouse gas emissions from agriculture, improve carbon sequestration, and enhance resilience to climate change
	Food Vision	2030	Create a sustainable food system in Ireland, emphasising environmental sustainability, competitiveness, and food security
	Common Agricultural Policy	2023-2027	National implementation of EU's CAP, focusing on sustainability, generational renewal, and balanced territorial development

EU	European Green Deal	2019	Make EU climate neutral by 2050
	Farm to Fork Strategy	2020	Make food systems fair, healthy, and environmentally friendly.
	EU Biodiversity Strategy	2020	Protecting nature and reversing ecosystem degradation, with direct implications for agricultural land use and practices
	Common Agricultural Policy	2023-2027	Greener farming practices, a fairer distribution of payments, and increased support for young farmers and rural development

As part of the scheduling of subjects for a redeveloped senior cycle, a number of curriculum developments have taken place which hold significance for the redevelopment of Agricultural Science. Leaving Certificate Biology, Chemistry and Physics have all been redeveloped and approved by the Minister for publication as part of the Tranche 1 schedule of subjects. It is envisaged that these subjects will be introduced to schools from September 2025. These subjects are also designed with a unifying strand, Nature of Science. Whilst there are similarities to the scientific practices strand in the Agricultural Science specification, the unifying strand in the Tranche 1 specifications aligns with the Unifying Strand from Junior Cycle Science. This offers continuity and progression from Junior Cycle Science and also allows for nuances of learning within each specific discipline of science to be realised. A new subject, Climate Action and Sustainable Development, was also developed as part of Tranche 1 and approved by the Minister for publication. This subject will be introduced on a phased basis from September 2025. As part of the learning in this subject, students are expected to learn about the concept of just transitions, and what a just transition might look like for different sectors, including agriculture.

Section Summary

- The current Agricultural Science specification was introduced in 2019. Since the introduction of the specification, there has been learning and advancements in the technical form of curriculum specifications.
- The current specification intended, amongst other things, to offer students opportunities to take a scientific approach to develop an understanding of human use of the Earth's natural resources and environment for the production of food and non-food materials.
- There have been significant policy developments in the agricultural sector over the last 5 years. Sustainability, productivity, enhancing rural development, addressing the climate crisis and biodiversity loss are recurring challenges within the sector.
- This review of Leaving Certificate Agricultural Science is informed by other curriculum developments in the sciences and through the introduction of a new subject, Climate Action and Sustainable Development.
- The early enactment of the Agricultural Science specification was met with a number of concerns over lack of clarity of the learning outcomes, the nature of the curriculum design template, lack of teacher guidelines and the timing of sample examination papers. Further, the global pandemic led to early enactment challenges.

2. Agricultural Science in the curriculum

This section provides an overview of the opportunities for learning related to Agricultural Science currently available to students within both the junior cycle and senior cycle programmes. It then focuses on the participation rates in Agricultural Science, outlining the uptake of the subject and explores the most recent Chief Examiner's report/subject inspection reports from the State Examinations Commission and the Department of Education.

Agricultural Science in junior cycle

Junior cycle education offers various opportunities to learn about agricultural science through different subjects and programs.

The Junior Cycle Science specification aims to develop students' scientific understanding, skills, and application in daily life. Agriculture-related topics include plant and animal systems, sustainability, photosynthesis, respiration, genetic inheritance, and key physical measurements important for agriculture.

The Junior Cycle Geography specification encourages curiosity and helps students read, analyse, synthesise and communicate about their environment and the wider world. It builds knowledge, skills, values, and behaviours for understanding physical geography, human activities, and their interconnections. Topics such as land use, natural resources, and the impact of human activities on the environment provide opportunities for learning related to agriculture. They engage with a variety of concepts and processes that relate to agriculture, such as weather and weathering, soil types, global climates and climate change.

Agriculture can serve as a learning context in Junior Cycle Business Studies by examining agricultural economics, agricultural markets, and the role of agriculture in the economy and community. Students can explore ethical and sustainability issues related to consumption and learn how to promote sustainable development through their consumer choices.

Students studying Junior Cycle Home Economics learn about healthy and sustainable living, developing their food and health literacy. The curriculum emphasizes understanding food production, sources, and sustainability, linking closely with agricultural practices.

Students can enhance their knowledge, skills, and values in agricultural science through various junior cycle education opportunities. Schools may offer short courses like horticulture, farming, or environmental science for in-depth study of agricultural topics. Extracurricular activities, such as gardening clubs, Young Farmers Clubs, and participation in competitions like the BT Young Scientist & Technology Exhibition and SciFest, provide hands-on experience in agriculture. Schools often partner with local farms and agricultural organizations to arrange visits, workshops, and fairs, giving students real-world exposure and professional interactions in the field.

Agricultural Science in senior cycle

Students in senior cycle have opportunities to study agriculture-related subjects and modules across the Leaving Certificate Established (LCE) and the Leaving Certificate Applied (LCA) programme. In Transition Year (TY), schools have a high degree of autonomy in designing their own programme therefore agriculture and horticulture education is a suggested area of experience for TY students.
There are a variety of subjects offered as part of the Leaving Certificate Established (LCE) curriculum, which provide a broad spectrum of opportunities for students to learn about various aspects of agriculture, from scientific principles and environmental impacts to economic and business considerations. The redeveloped Agricultural Science specification (2018, p.7) aims to enable students to:

- appreciate the natural environment and human interactions with it and the sustainable use of its resources, recognising the need for a rational and balanced approach to the exploitation of these resources in a local and global context
- recognise the need for, and global importance of, relevant strategies and policies to promote the agrifood industry while insulating it from future challenges (e.g. climate change, novel crop and animal diseases) and identify opportunities for innovation and entrepreneurship in the context of local, regional and world markets
- develop their scientific knowledge and skills, in the context of agricultural practices, and increase their awareness of health and safety issues associated with these practices.

The specification structure was designed as four strands of study and eight crosscutting themes that permeate these strands. There are three contextual strands – soils, crops, and animals, and an overarching strand, scientific practices. The subject was assessed through two components: a written examination worth 75% of the total examinable marks, and a coursework component, an Individual Investigative Study, worth 25%.

Leaving Certificate Biology, while not exclusively focused on agriculture, includes topics relevant to agriculture such as plant biology, body systems and processes, metabolic processes, ecology, and genetics. Through Leaving Certificate Geography, Economics, and Home Economics, students learn about areas such as human-environment interactions, rural land use, sustainability, food systems, supply and demand of resources, all of which hold relevance for agriculture.

Agricultural Science in focus

This section explores participation rates in Leaving Certificate Agricultural Science drawing on statistics from the State Examinations Commission (SEC) and provides an overview of assessment for certification and insights from SEC/DE reports.

Student participation

Agricultural Science has seen a slight drop in uptake relative to the increased number of Leaving Certificate Students annually. There was an increased uptake in 2020, the final year of examination of the previous syllabus. The number of students examined at Higher Level has fluctuated over the last five years, with numbers at their highest in 2021, the first year of examination of the new specification. Since then, there has been a slight decrease in uptake of over 3%, with a marginal increase from 2022 to 2023.

Table 2: Leaving Certificate Agricultural Science participation rates (2011-2024)

Year	Higher Level	Ordinary Level	Total Candidates	Total LC candidates	Agricultural Science as a % of total candidates
2011	5286	1186	6472	54,341	11.9%
2012	5587	1302	6889	52,589	13.1%
2013	5951	1463	7414	52,713	14%
2014	6329	1597	7926	54,025	14.7%
2015	6067	1605	7672	55,006	13.9%
2016	6329	1597	7926	55684	14.2%
2017	6376	1284	7660	55731	13.7%
2018	6543	1235	7778	54,396	14.2%
2019	6605	1140	7745	56,071	13.8%
2020	7371	1130	8501	57,668	14.74%
2021	7553	915	8468	57,952	14.6%
2022	6218	1195	7413	58,056	12.8%
2023	6132	1328	7460	58,006	12.9%
2024	5501	917	6418	56,791	11.3%

Of note is that this period also saw the introduction of two new Leaving Certificate subjects to the senior cycle curriculum – Physical Education, and Computer Science – while none have been discontinued. There has been a steady increase in the uptake of the new subjects.

Insights from SEC, DE, and the Agricultural Science in Practice Group

There has been no Chief Examiner's Reports on Agricultural Science published by the SEC since the release of the 2018 specification. However, the SEC have noted good practices in relation to engagement with the Individual Investigative Study (IIS) in a 2021 information note with observations to support teachers and students in their engagement with coursework. Examples of good practice observed in Agricultural Science coursework included:

- Using qualitative and quantitative data as a rich evidence base for analysis and forming conclusions
- Clear and appropriate representation of information and data using photographs, diagrams, tables and graphs
- Linking investigative work to background research and construction of valid, testable hypotheses
- Providing good examples of methods undertaken, with logical steps of progression and some innovative ideas
- Showing evidence of hands-on experience in a range of investigative locations, such as in the field and/or in garden-based locations, farm based locations and the school laboratory

Recent DE inspection reports provide further insights into good examples of teaching, learning and assessment practices in Agricultural Science classrooms:

- The best lessons placed students at the centre of the learning experience, integrated meaningful tasks and skill development, and enabled all students to express their understanding frequently.
- Providing continuity and progression between Leaving Certificate Agricultural Science and other areas of learning (e.g. Junior Cycle Science, TY programmes) is of benefit to students who study the subject.
- Integrating investigative work into the subject learning, including opportunities for students to plan and design their own investigations, leads to a rich learning experience for the students and facilitates opportunities for engagement with the scientific practices strand.
- Students are more likely to achieve success when the learning in the subject is experiential and students can actively consider the meaning of concepts they are exploring, relating to their own contexts.

The Agricultural Science in Practice Group explored changes they made in their own practice through planning using the learning outcomes of the specification and, in particular, their engagement with the Scientific Practices strand. Some insights from the group include:

- A non-linear, student - centred approach to planning and teaching leads to rich engaged learning and promotes the development of scientifically literate students. This approach allows the teacher to progressively give students greater responsibility to design investigations and to think like scientists.
- There are opportunities for developing rich learning experiences through relating the work of farmers and producers to the learning outcomes in the specification and through the use of the crosscutting themes.
- Students need varying levels of scaffolding and support in developing knowledge and skills around scientific practices. Whilst this type of learning initially takes time and requires space in the classroom for students to try out new ideas, and sometimes, learn through mistakes, this pays dividends further into the course as students become more competent in their investigative work.
- The experience of classroom based assessments (CBAs) at Junior Cycle Science has had a positive impact on students' abilities to engage with scientific practices in Leaving Certificate Agricultural Science.

Section Summary

- Students have multiple opportunities to engage with agriculture-related learning across junior and senior cycle.
- Junior Cycle Science offers specific opportunities for continuity and progression in developing students' understanding of scientific concepts related to Leaving Certificate Agricultural Science, as well as deepening skills of working scientifically.
- There has been a slight decline in the number of students studying Agricultural Science over the last five years.

- There is evidence of a wide range of good practices in Agricultural Science classrooms since the introduction of the 2018 specification. These include promoting student-centred and experiential learning, integrating investigative work into subject learning, and providing opportunities for students to plan, design and carry out their own investigations.

3. Insights from school visits

School visits were conducted as part of the scoping work for this Background Paper. A representative sample was selected from the 34 schools that expressed an interest in becoming involved in Agricultural Science curriculum developments. The six schools were selected using criteria relating to DEIS status, gender, school size and type. Visits to these schools took place in September and October 2024 and involved focus group meetings with 32 senior cycle students, 6 teachers of Agricultural Science and 10 school leaders. The following section provides an overview of the insights gathered through these visits.

Clarity in the specification

The biggest concerns expressed by teachers relate to clarity in the specification. Whilst teachers enjoy and welcome many areas set out in the learning outcomes, they feel that in the absence of further scaffolding, it is difficult to clarify boundaries for knowing when learning outcomes have been achieved. Teachers noted this presents challenges for examination preparation, leads to over-reliance on textbooks for clarity, and potentially risks going into too much detail with certain areas of learning to ensure students are sufficiently prepared. Teachers would welcome the clarity provided by the further scaffolding of learning outcomes in the revised Tranche 1 Biology, Chemistry and Physics specifications. In many instances, teachers remark that this type of scaffolding of learning outcomes in a revised Agricultural Science specification would address their concerns over clarity.

The broad context of Agricultural Science

Teachers welcome the introduction of the revised 2018specification. They recognise that change was needed in the subject, and there are many aspects of the specification they value. Students and teachers alike see the benefit of the practical and applied nature of learning in the subject. Students, in particular, enjoy learning that is relevant and where they can apply their knowledge to agricultural practices in their local context and beyond. They often cite the benefits and enjoyment of farm walks, open days, and visits to other enterprises as reinforcing the learning they experience in the classroom.

There was strong agreement across the focus groups that a redeveloped specification should address challenges facing the agricultural sector. In particular, it was felt sustainability, climate change and biodiversity loss should be central and embedded in the learning outcomes. Currently, teachers felt there was some scope to engage with these areas through the crosscutting themes of the specification. However, there were concerns expressed over the amount of crosscutting themes, leading to teachers 'linking to' or 'touching off' them at a surface level. Suggestions were offered to make the crosscutting themes more central to the specification, such as reducing the number of them, or providing opportunities through the learning outcomes to go deeper into areas within specific crosscutting themes. Some teachers felt a redeveloped specification should have three crosscutting themes – Sustainability, Health, and Technology - to align with recent developments in Biology, Chemistry, and Physics.

The relevance and appeal of the subject

Students choose Agricultural Science for a variety of reasons. It appeals to those from an agricultural background, as they can relate to and apply the subject content to their context. They welcome the complementarity of Agricultural Science with other subjects such as Biology, Geography, and Home Economics. Some students, particularly those who are not from an agricultural background, became interested in the subject through exposure to aspects of agricultural science in junior cycle and TY modules, and suggested more could be done to showcase links to agriculture across these programmes. Many students see Agricultural Science as important for a range of future pathways. They see diverse opportunities for employment in the agricultural sector and have ambitions for further studies in areas such as agricultural science and technology, food science, equine science and veterinary studies. Others hope to complete the Green Cert to enable them to work on the family farm in future years. The option of doing a science subject with an additional assessment component (AAC) also appeals to students.

Whilst students from an agricultural background felt Agricultural Science would suit their experience, many were surprised at the level of scientific knowledge required. On balance, this is welcomed, and in particular students enjoy learning the science behind production of animals and crops. However, there are some aspects of the course where students feel there is a lack of visibility in relation to relevance. They and their teachers felt certain elements of soil science could be reconsidered as they are overly complicated and, whilst a knowledge of soil science is acknowledged as necessary, there is a perception that currently the detail is excessive and unnecessary. The examples of cation exchange capacity and lists of soil profiles were cited as areas that were overly challenging and unappealing. This concern was often expressed in relation to the varying levels of details in textbooks and perhaps further scaffolding of learning outcomes in a redeveloped specification could clarify soil science learning in a way that makes it more relevant and appealing.

The specified practical activities (SPAs) were welcomed by students and their teachers. They are perceived to be practical, relevant, connect scientific principles and practices with agriculture, and help to consolidate the conceptual learning in the subject. Students in particular enjoy SPAs that relate to what they can see and experience in agricultural settings, such as grassland, soil, and milk investigations. A number of teachers expressed concern over the complexity and feasibility of some of the SPAs, demonstrating cation exchange capacity in strand 2.2.1 (2018, p.18) and the hybridising investigation in strand 3.3.2 (2018, p.21) were mentioned in that regard. Others suggested that SPAs in a redeveloped specification could be less focused on demonstrating and confirming pre-existing knowledge and be more investigative, this, they felt, would increase students' curiosity and encourage them to apply scientific thinking and skills to construct knowledge.

Across the schools, it was suggested that perceptions over difficulty and increased subject choices could account for the slight decline in uptake of Leaving Certificate Agricultural Science in recent years. A variety of perspectives were shared as to how a redeveloped specification could widen the appeal. Some students remarked on the challenge of gender balance in the agricultural sector and the need for ongoing efforts within the system to include female representation where possible, exam questions and learning experiences within and beyond the Agricultural Science classroom were cited in that regard. Teachers feel the subject holds appeal through the mixture of theory, practical work and an AAC, but this could perhaps be improved by encouraging students to engage with agricultural practices unique to their locality and region. Students concur, and in

many instances, suggest that a practical experience in an agricultural setting should be mandatory learning for all students. They feel that students should have exposure to learning related to working in the sector, they mention policies and legislation that govern agricultural practices, and a greater emphasis on machinery and future technologies as potential areas for inclusion. School leaders and teachers recognise that Agricultural Science has the potential to engage students and instil in them an interest in practical agriculture whilst at the same time maintain a focus on the conceptual and theoretical learning associated with the subject. Realising this aim presents a distinctive challenge in specifying a curriculum that enables students to learn about the theoretical aspects of the subject and simultaneously appreciate the practical and applied aspects of the subject.

Additional Assessment Component

The additional assessment component (AAC) came in for much discussion. School visits highlighted many welcome aspects of the current component in the 2018 specification, an Individual Investigative Study (IIS). Teachers and students felt the IIS provides opportunities for students to pursue areas of interest to them, to showcase their knowledge and skills developed over the course, and to gain a portion of their marks before sitting the Leaving Certificate exam. Teachers recognise that the IIS allows students to engage with scientific practices, which are at the core of science. There were positive remarks about the guidance offered to students through the NCCA guidelines and the accompanying detail within the Brief released annually by the SEC. Students welcome the broad window of time over which to conduct their IIS, and many feel this is necessary to allow for gathering seasonal data at multiple points across the year.

There were mixed views on the nature of the Brief for the IIS. Some students welcome the broad nature of the Brief, as it gives them scope to pick areas that interest them and allows them to become invested in their IIS. Many students, however, felt the process of selecting a topic for investigation from the Brief is the biggest challenge, a broad Brief makes this all the more difficult. Teachers echo this concern, and some observed students tweaking experiments from previous years to suit the current Brief, or asking for ideas to investigate. Some students suggested it might be helpful if the Brief contained more detail and provided a context to the investigation; maintaining scope for students to pursue interests, but helping them to clarify a topic more easily. Others felt it could be helpful if there were, for example, three prescribed titles given to students as a Brief and they can pick one. Whilst this could reduce their choice to pick their own design, it would eliminate the challenge of selecting a topic and get them straight into the investigative aspects, where they feel more confident in their abilities.

There were also mixed views on the weighting of the IIS. Some students felt 25% was a sufficient weighting, and anything greater could put added pressure on them. These students preferred a greater weighting for the exam. The majority of students, however, felt that given the amount of work that goes into the IIS, it deserves a greater weighting. Many welcomed the news that AACs in a redeveloped specification would be worth a minimum of 40%. This view was shared by a number of teachers, who felt a higher weighted project would suit students who enjoyed the practical nature of the subject. They also felt it placed more value on the role of scientific practices, and on developing students through authentic engagement with the specified practical activities. Students and teachers alike shared the view that a greater weighting for the AAC should not equate to a greater workload. They believe what is currently expected in the IIS is appropriate, it should just hold a greater value in terms of weighting.

Whilst many teachers believe the current format of the IIS is appropriate, others had suggestions for alternative approaches to a redeveloped AAC. Examples included a portfolio approach, where students would accumulate marks for prescribed tasks, rewarding practical work conducted throughout the course, engagement with secondary data related to agricultural practices, and redesigning the 4.3.2 SPA on farmyard layout (2018, p.24) into an aspect of the AAC. Feedback identified the need for better scaffolding of research skills throughout the course to better prepare students for researching as part of their IIS, and to ensure the IIS is a natural extension of what happens in the classroom. Some teachers felt that scaffolding students through applied learning tasks, such as the approach in Leaving Certificate Computer Science, and Climate Action and Sustainable Development, would be useful in developing students towards their AAC.

Some general concerns were raised about AACs by teachers and school leaders. These related to future potential challenges of multiple AACs and the need to spread the assessment load. It was also felt that students may need support in developing generic project management skills to successfully negotiate a senior cycle with multiple AACs.

Section Summary

- Agricultural Science holds appeal due to its practical relevance, its scientific focus and the opportunities afforded by the AAC. Students engage with the subject based on their background, its conceptual links with other subjects, and as means to pursue a diverse range of future pathways.
- Teachers have concerns over clarity and would welcome further scaffolding of learning outcomes aligned to the technical form of the redeveloped Biology, Chemistry and Physics specifications.
- Sustainability, climate change and biodiversity loss should be embedded in the learning of a redeveloped specification.
- Students would benefit from a more in-depth engagement with crosscutting themes.
- Students enjoy learning in Agricultural Science that is practical and relevant. The SPAs, in this regard, are enjoyed by students. However, some seem unworkable or too challenging, whilst others could be more investigative in nature .
- The appeal and relevance of the subject could be widened through greater exposure to agricultural science in junior cycle and TY, greater gender representation, and exposing students to learning that relates to working in the agricultural sector.
- Students find it difficult to move from the topic in the Brief for the IIS to selecting a valid investigation, and would welcome more scaffolding both in terms of learning in the subject and the level of detail in the Brief.
- Teachers believe students need more scaffolding in research to prepare them for research as part of the IIS.
- The majority of students and teachers welcome the move to an AAC with a minimum weighting of 40%, however they believe this should not equate to an increased workload.

4. International trends in Agricultural Science education

This section looks at the teaching and learning of Agricultural Science as offered to students in New Zealand, Queensland (Australia), the Caribbean, and Northern Ireland. Across these jurisdictions, the place and purpose of the study of Agricultural Science in the senior secondary or secondary phase is explored, along with trends in curriculum design and assessment.

New Zealand

Agricultural and Horticultural Science in New Zealand is the study of primary production. It aims to develop students' understanding of the interconnectedness of all aspects of the growing environment, covering, for example, the interconnectedness of the production of a primary product, which includes people, soils, water, climate, husbandry, economics, plants and animals. Learning in Agricultural and Horticultural Science emphasises environmental, social, cultural, and economic sustainability, and focuses on innovation in response to economic and environmental challenges.

The Agricultural and Horticultural Science curriculum is designed around three 'Big Ideas', which can be summarised as:

1. Agriculture and horticulture connect people to locations of purposeful production.
2. Primary producers manage life processes and the growing environment.
3. Primary producers make informed decisions about sustainability.

These 'Big Ideas' are combined with 'Significant Learning' to provide a learning matrix to be used by teachers for constructing learning programmes. The National Certificate for Educational Achievement (NCEA) matrix for Agricultural and Horticultural Science sets out five strands for the subject. These are: skills and investigations, plant production, livestock production, physical environment, and agribusiness.

Students studying Agricultural and Horticultural Science as one of their three approved subjects for university entrance achieve credits through a combination of internal and external assessments, as outlined below:

Table 3: Summary of assessments in AgHort, New Zealand

Assessment	Internally/externally assessed?
Carry out an investigation into an aspect of a New Zealand primary product or its production	Internally assessed
Research and report on the impact of factors on the profitability of a New Zealand primary product	Internally assessed
Demonstrate understanding of how market forces affect supply of and demand for New Zealand primary products	Externally assessed

Demonstrate understanding of how the production process meets market requirements for a New Zealand primary product(s)	Externally assessed
Analyse a New Zealand primary production environmental issue	Externally assessed

External assessments are via examination. For internal assessments, students' teachers determine the grade using guidance from the New Zealand Qualification Authority (NZQA) and based on their professional judgement and a holistic examination of evidence provided against the criteria in the Achievement Standard.

Queensland (Australia)

Agricultural Science in the Queensland Certificate of Education (QCE), the senior secondary qualification, is an interdisciplinary science subject aimed at students who are interested in the application of science in a real-world context. It focuses on agricultural systems, resources, agricultural production, and agricultural management and on the importance of using science to predict possible effects of human and other activity, and to develop management plans or alternative technologies that minimise these effects and provide for a more sustainable future. It provides opportunities for students to engage with agricultural production systems as they adapt to meet the changing needs of society.

A new syllabus for QCE Agricultural Science was published in July 2024 for implementation with Year 11 students (aged 16+) in 2025. This syllabus comprises four units:agricultural systems, resources, agricultural production, and agricultural management. The topics included for each unit are detailed in the syllabus document, and include:

Table 4: Summary of Units in Agricultural Science syllabus, Queensland

Unit 1	Agricultural systems: Students examine the plant and animal science required to understand agricultural systems, their interactions and their components. The three topics are: Agricultural enterprises, Animal production, Plant production.
Unit 2	Resources: Students examine resources and their use and management in agricultural enterprises, the implications of using and consuming these resources, and associated management approaches. The three topics are: Management of renewable resources, Physical resource management, Agricultural management, research and innovation.
Unit 3	Agricultural production: Students investigate how agricultural production systems are managed through an understanding of plant and animal physiology, and how they can be manipulated to ensure productivity and sustainability. The three topics are: Animal production B, Plant production, Agricultural enterprises B.

Unit 4	Agricultural management: Students consider how environmental, social and financial factors can be used to evaluate production systems, and how research and innovation can be used and managed to improve food and fibre production. The two topics are: Enterprise management, Evaluation of an agricultural enterprise's sustainability.

Assessment for Units 1 and 2 is internal and schools develop at least two but no more than four assessments, complete at least one assessment for each unit, and ensure that each unit objective is assessed at least once. Assessment for Units 3 and 4 is 50% internal, 50% external. For the internal assessment, students complete a:

- Data test (10%): Students respond to items using qualitative and/or quantitative data derived from practicals, activities or case studies relevant to Unit 3 subject matter. The teacher provides an examination that may ask students to respond using single words, sentences (up to 150 words per question), or calculation. Time allowed is perusal time: 5 minutes and working time: 60 minutes.
- Student experiment (20%): Students modify (i.e. refine, extend or redirect) an experiment relevant to Unit 3 subject matter to address their own related hypothesis or question. It is recommended that this individual task is designed so that students can develop a response (maximum 2000 words) in approximately 10 hours of class time.
- Research investigation (20%). Students gather evidence related to a research question to evaluate a claim relevant to Unit 4 subject matter. It is recommended that this task is designed so that students can develop their individual response (maximum 2000 words) in approximately 10 hours of class time.

The Caribbean

Students in the 16 Caribbean Examinations Council (CXC) member states and territories[1] can choose to study Agricultural Science for the CXC Caribbean Secondary Education Certificate (CSEC). This is taken after 11 years of education (at around the age of 16) and constitutes the standard secondary school leaving qualification.

The Agricultural Science Syllabus is designed to allow students to develop knowledge and understanding of the interaction between the component parts of agriculture and the scientific principles that explain the processes that take place when inputs are transformed into outputs. While requiring students to understand the conceptual and theoretical issues associated with the discipline, the syllabus also provides the opportunity to develop a wide range of practical skills and an awareness of the technologies associated with agriculture.

The syllabus was developed in response to four key objectives of the food and agriculture sector in the Caribbean. These are to: 1) achieve the goal of food and nutrition security; 2) adopt sustainable agricultural approaches that are responsive to an uncertain physical and economic environment; 3) contribute to economic diversification through transformation of communities and improvement of livelihoods; and 4) ensure that the human resource capacity available to the sector is adequate in quality and quantity.

The Agricultural Science CSEC syllabus is organised into six sections, which are:

Section A: Introduction to Agriculture
Section B: Crop Production
Section C: Animal Production
Section D: The Business of Farming
Section E: Crop and Animal Management Technologies
Section F: Entrepreneurship and Communication in the Agricultural Sector

On completion of the CSEC in Agricultural Science, students are expected to have developed skills in knowledge and comprehension, and in application. These are the skills and abilities that are assessed for the CSEC through external examinations and internal school-based assessment. The requirements of these assessments vary depending on whether a student is aiming for a

1 The CXC regional examining body provides secondary and post-secondary examinations in 16 English-speaking Caribbean countries and territories (Anguilla, Antigua and Barbuda, Barbados, Belize, British Virgin Islands, the Cayman Islands, Dominica, Grenada, Guyana, Jamaica, Montserrat, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago, and the Turks and Caicos Islands). WES Statement | Caribbean Examinations Council (cxc.org)

Single Award or Double Award in the Agricultural Science CSEC. For the internal assessments, students are required to keep a portfolio, which includes:

Single Award:

- documentation on skills in the field (10 skill performances)
- one investigation in crop production
- one investigation in animal production

Double Award (in addition to the skills demonstrated for the Single Award):

- documentation for a business plan for the establishment of a sustainable agricultural enterprise
- two projects that demonstrate sustainable agricultural production and management, one each for crops and for livestock

The school-based assessment is marked by the teacher using criteria set out by the CXC.

Northern Ireland

The CCEA General Certificate of Secondary Education (GCSE) qualification in Agriculture and Land Use is a two-year course, usually taken on completion of compulsory secondary education at around age 16.

GCSE Agriculture and Land Use aims to support students' development as individuals and skilled contributors to the land-based industries, and is an applied qualification in which students develop knowledge and understanding through practical demonstration and/or in a context related to employability. It is designed to appeal to young people from the changing agricultural sector and to those who are interested in working in the wider land-based and environmental industries. Students develop their scientific knowledge in relevant and work-related contexts, appreciate how this knowledge can enhance productivity in the land-based and environmental sector, and have the opportunity to design and plan an experimental investigation based on realistic scenarios. In addition to developing core knowledge about the land-based and environmental sector, its effects on society and the economy, and the skills required to work in it, students develop skills to make informed decisions about further learning opportunities and career choices in the sector. They also develop awareness of the complex relationships between humans and the environment in which they engage in agricultural activity, and a critical and analytical approach to problem solving within the context of work-related scenarios.

The CCEA GCSE in Agriculture and Land Use has three units, with subject content set out as learning outcomes in the GCSE specification:

Table 5: Units and learning outcomes of CCEA GCSE in Agriculture and Land Use

Unit	Learning outcomes related to
Unit 1: Soils, Crops and Habitats	Composition of Soils, Horticulture, Plant Biology, Crop Production (including Grass), Care and Management of the Countryside, Renewable Energy and Climate Change, and Careers.
Unit 2: Animals on the Land	Livestock Farming, Breeding and Reproduction, Health and Welfare, Nutrition, Food Production and Processing, Farm Economics, Farm Health and Safety, and Pollution and Farm Waste.
Unit 3: Contemporary Issues in Agriculture and Land Use.	Controlled assessment (see below).

Assessment for the three-unit Agriculture and Land Use GCSE comprises of a mix of internal and external assessments. Units 1 and 2 are externally assessed by written examination, while Unit 3 is a controlled internal assessment. For Unit 3, students complete two controlled assessment tasks including

- a practical investigation task (20%) for which the report should not exceed 2000 words
- research project (30%) for which the report should not exceed 3000 words

Teachers mark the controlled assessment tasks and the CCEA moderates the results.

The three units of the CCEA GCSE in Agriculture and Land Use mean that it is possible to take part of the assessment at the end of the first year of study; students have the opportunity to take the assessment for either Unit 1 or Unit 2 in the first year of teaching. The Unit 3 controlled assessment in Contemporary Issues in Agriculture and Land Use can only be taken at the end of the course of study, i.e. it is a terminal unit. (Students can re-sit each unit once.)

Section summary

- Across the jurisdictions, the varying purposes of Agricultural Science relate to the interconnectedness of agriculture with a number of areas, including science, nature, the economy, people, society, culture, and the environment. There is a focus on systems, resources, production and management and an emphasis on the importance of adaptability in agriculture to meet societal needs.
- In Queensland and the Caribbean in particular, there is emphasis on the use of technology/alternative technologies for agricultural management. In Northern Ireland, there is an emphasis on applied learning, where students develop scientific knowledge in relevant and work-related contexts, developing as skilled contributors to land-based industries.

- Despite the nuances in individual curricula and contexts for the teaching and learning of Agricultural Science, environmental and economic sustainability is a key feature of the curriculum design across the jurisdictions explored.
- The curricula explored link to and build on students' previous learning in the sciences.
- The curricula have a practical focus, which is evident from the subject content and assessment arrangements, where internal assessments feature across the jurisdictions involving practical investigations and research projects, for example.
- There is a local/regional focus to the curricula, wherein the curriculum is designed to respond to wider agricultural aims and issues in the jurisdiction.
- There are a variety of curriculum design features used across the jurisdictions to organise the learning. These include designing the curriculum around 'Big Ideas', organising the learning into units with associated topics, and detailing sections with some guidance on the order in which the curriculum is to be experienced. The practice of setting out the expectations for students as learning outcomes is common across the jurisdictions.

5. Issues for Consideration

This section sets out a number of issues for consideration in the redevelopment of Agricultural Science. These arise from the nature of the subject itself, in addition to drawing on themes emerging in the previous sections of this background paper.

Breadth, depth, and clarity

As the world of agriculture and the subject of Agricultural Science continue to evolve, careful consideration must be given to the breadth and depth of learning set out in the specification. Facilitating student interest in a wide range of topics related to the intersection of agriculture with science, technology, and other fields, is critical. While there are undoubtedly many areas of agricultural relevance that students could learn about, one challenge in the first instance for the redevelopment process, will be to clarify the boundaries of the new specification and address teacher concerns over clarity. This poses further challenges in, firstly, clarifying the breadth of the discipline area that is agricultural science. Secondly, in the treatment of this discipline area and its related concepts, principles and content, striking and clarifying an appropriate depth of knowledge, skills, values and dispositions is important.

Emerging needs in the sector

In the redevelopment of Leaving Certificate Agricultural Science, and to ensure the curriculum remains relevant and impactful in the modern world, it will be important to consider the emerging needs in the agricultural sector in Ireland, as well as wider considerations. National and international policies identify sustainability, productivity, enhancing rural development, addressing the climate crisis and biodiversity loss as key challenges to which agriculture has to respond, and school insights suggest these would be welcome additions to a redeveloped specification. Socio-economic factors specific to Ireland are pivotal to preparing students for further study and work in the agricultural sector, and in the promotion of agriculture as a viable and attractive industry for young people.

There is a trend in other jurisdictions of adopting a local/regional focus in clarifying the purpose of Agricultural Science curricula, and this suggestion was echoed by teachers and students in school visits. In redeveloping Leaving Certificate Agricultural Science, it will be important to consider how the purpose of the subject, and the subsequent curriculum design to realise that purpose, will effectively respond to emerging needs.

Ensuring relevance

There has been a slight decline in participation in Agricultural Science. Insights from school visits suggest this decline may be due to increased subject choices, and perceptions over the difficulty of achieving high marks in the subject.

It will be important to consider how the redeveloped specification will encourage interest in and engagement with Agricultural Science, leading to improved participation rates. Maintaining a balance between theory and practice, applying learning to the agricultural sector locally and nationally, attending to gender representation in the sector, and appropriate scaffolding of

scientific practices throughout the learning process are suggested by schools as means by which to ensure the relevance of the subject to a wide range of students with diverse aspirations.

Integration of assessment with teaching and learning

A variety of assessment approaches are evident across the international jurisdictions, including investigation through research and experimentation, and exploring contemporary issues in agriculture such as market forces and the environment, and their relationships with primary production. The insights from school visits point to the benefits of the AAC in allowing students to pursue their interests, showcase their learning, and use scientific practices developed over the course of study. However, insights also reflect concerns about the perceived challenges students face in some aspects, such as selecting a topic for investigation and conducting research. In a redeveloped specification, it is important to consider how to effectively integrate assessment with teaching and learning, as they plan to progressively develop students' competencies as independent investigators, whilst meeting the learning in the learning outcomes of the specification.

Section Summary

- In the redevelopment of Leaving Certificate Agricultural Science, it is imperative to respond to emerging needs to ensure the curriculum remains relevant and impactful. Prioritising key areas such as sustainability, productivity, enhancing rural development, addressing the climate crisis and biodiversity loss are pivotal. This could also be considered in light of a local/regional focus to the purpose of the curriculum.
- As the world of agriculture continues to evolve, consideration must be given to clarity; the breadth and depth of learning set out in the specification.
- In the redevelopment of Leaving Certificate Agricultural Science, consideration will need to be given to widening the appeal of the subject.
- In a redeveloped specification, consideration will need to be given to how assessment in Agricultural Science is integrated into everyday classroom teaching and learning.

6. Brief for the review of Leaving Certificate Agricultural Science

NCCA has established a development group to undertake the task of redeveloping a curriculum specification for Leaving Certificate Agricultural Science. The work of the Development Group is, in general terms, agreed by the NCCA Board for Senior Cycle and by the Council in the form of the brief set out below.

This brief is designed to provide the basis for redeveloping the Link Modules. While the brief is derived from the key insights and issues for consideration identified in the previous sections of this paper, it is also guided by the parameters for the design of assessment arrangements in the development of specifications for all Tranche 3 subjects (Appendix 1).

The specification will be student-centred and outcomes-based and in general terms, the specification should be broadly aligned with levels 4 and 5 of the National Framework of Qualifications. It will be available at both Higher and Ordinary level, and it will be designed to be taught and assessed in a minimum of 180 hours.

The specification will align to the template, agreed by Council, for curriculum specifications as set out in the *Technical form of curriculum specifications for subjects and modules in a redeveloped senior cycle* (NCCA, 2023). The Senior Cycle Key Competencies will be embedded in the learning outcomes.

The specification will be completed in Q2 2026.

More specifically, the development of the new specification for Agricultural Science will address:

- How the specification aligns with the guiding principles of senior cycle and the vision for senior cycle education.
- How the specification can support continuity and progression, including how to connect with and build on related learning at junior cycle, transition year, and in other senior cycle subjects and modules as well as future learning in life, study, entrepreneurship, further education and training, higher education, apprenticeships, traineeships, and the world of work.
- The rationale for Leaving Certificate Agricultural Science, making it transparent and evident to students, teachers, and parents and how to further widen the appeal and promote broader uptake of the subject.
- How the specification can support the development of a range of student key competencies and the development of a range of digital skills relevant to future life, work, and study.
- How the specification, in its presentation and language register, can be strongly student-centred and have a clear focus on how students develop and demonstrate their knowledge, skills, values and dispositions.

- The assessment of Leaving Certificate Agricultural Science that is aligned to the parameters for the design of assessment arrangements in the development of specifications for all Tranche 3 subjects and modules (Appendix 1). Typically, as noted in Appendix 1, there should be two assessment components: one written examination and one other assessment component. However, there may be exceptions to this that are justified even after extensive consideration of the overall assessment load on students.
- How the specification, in its presentation, can support teachers in planning for teaching, learning and assessment.
- The breadth and depth of the subject ensuring that teaching, learning, and assessment methods are sustainable.
- How the specification can support the development of students' knowledge, skills, values and dispositions in connecting the world of agriculture with science and technology, economics, culture, environment, and society.
- How the specification can adopt a local/regional focus in preparing students to engage with aims and issues of the agricultural sector in Ireland and beyond.
- How the specification can foster greater awareness and appreciation among students for the diverse fields within agriculture and STEM-related professions.

The work of the Development Group will be based, in the first instance, on this brief. In the course of the work and deliberations of the Development Group, elaborations of some of these points and additional points may be added to the brief.

References

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Appendix 1: Overarching parameters for the design of assessment arrangements in the development of specifications for all Tranche 3 subjects.

1. **Executive summary**

- The Minister for Education announced an update on September 20, 2023, on the approach to be taken to the introduction of new and revised subject specifications including how assessment would be addressed in those specifications. Specifically, each subject shall have an assessment component in addition to the final written examination.
- This assessment component (an AAC) will be worth at least 40% of the total available marks.
- Each subject is to have one written examination; typically marks for the written examination will be 60%,
- Typically, there should be two assessment components: One written examination and one other assessment component (an AAC).
- More than one AAC or written examination may be justified in exceptional circumstances and after extensive consideration of the overall assessment load on students. Such exception, however, would be based on strong, clear evidence that a second AAC or a second written paper in the final examination is essential to assess student learning which cannot be achieved through a single AAC and a single written examination paper.

2. **Introduction**

This document outlines the overarching assessment arrangements and parameters to guide the design of specifications for all Tranche 3 subjects which include:

- Agricultural Science
- Computer Science
- Design and Communication Graphics
- History
- Home Economics
- Mathematics
- Music
- Physics and Chemistry.

This advice is informed by ongoing work with Tranche 1 and 2 subjects and will be amended, as appropriate, for future tranches which may take account of their subject areas and existing assessment arrangements.

The arrangements as detailed here reflect the policy direction issued by the Minister of Education that all subjects will have an assessment component, to be in a form that is not a traditional written examination, for those components to be set and assessed by the SEC and thereby lead to a reduced emphasis on final examinations in June of 6th year.

Specifically, the arrangements for all assessment components as outlined in this document are framed by the Minister's announcement(s) on March 29, 2022, and subsequently on September 20 2023. Underpinned by the following understandings, the assessment components:

- will not take the form of traditional written examinations.
- will be set and marked by the SEC.
- will be subject to SEC arrangements for their completion, authentication, and submission.

In developing the arrangements outlined below, the following rationale for moving towards all subjects having another assessment component is central. This rationale is informed by

deliberations on research commissioned by the NCCA and the SEC, and on the assessment literature more generally. From this work, it is evident that these components have the potential to:

- **Reduce dependence** on written summative examinations and therefore provide for a **broader assessment system**; written examinations have an important role but can be seen as a 'snapshot' of learning and can lead to teaching and learning having an excessive focus on examination preparation; other forms of assessment can mitigate the potential for this narrowing of learning by assessing aspects of student learning better and/or more comprehensively than written examinations alone can do; or assess learning that is not readily assessable through written examinations.
- Support and enhance teachers' understanding and assessment of **key competencies** by contributing to a greater understanding of how students' knowledge, skills, values, and dispositions are assessed.
- Provide opportunities for students and teachers to **reflect on student learning,** boost students' motivation to learn and enhance opportunities for formative feedback practices.
- Extend the range and diversity of assessment opportunities; including **spreading the assessment load** over the course of the last two years of senior cycle and thus contribute to a reduction in or spreading of pressure on students.
- Build and develop **teachers' assessment skills and assessment literacy** as teachers support students in working through the assessment activities as detailed within assessment briefs or guidelines.
- Generate student assessment data which can help reduce the vulnerability of the system to future unprecedented or unexpected system shocks such as COVID.
- Allow for assessment opportunities that are more **authentic** than a system relying on terminal written examinations solely.

It is also important to note that a review of the assessment literature more generally also indicates that when introducing other assessment components, it is necessary to consider how to mitigate risks, for example, of:

- over-assessment of students
- over-rehearsal of assessments
- the assessments becoming overly structured, compartmentalised, repetitive, and routine.

As is already the case where other forms of assessment apply, the new assessment arrangements will be guided by the overarching principles of equity, fairness, and integrity.

In addition, at a programme wide level (i.e. taking account of all subjects and modules implemented across schools), it is necessary to have regard to the overall assessment load on students primarily as well as on schools more generally. Whilst it can be expected that SDGs might focus on the approach to assessment in their own subject initially, they are encouraged to be mindful of the overall assessment load across all subjects and modules. Such programme level considerations will also include the methods of assessment being undertaken. As stated above more than one AAC or written examination may be justified in exceptional circumstances and the following section outlines the process for such cases.

3. Process

This section sets out the process through which a variation to the parameters defined in this document will be considered and decided upon; for example, an additional AAC or a second final written examination.

1. Following extensive discussion by the SDG and after exploration of a range of options for a single suitable AAC/single written examination for the subject, the NCCA Executive generates a written note setting out the strong, clear case being made by the Development Group.
2. The written case is agreed and signed off by the Development Group.
3. The written case is discussed with the Board for Senior Cycle.
4. The written case is discussed with the Council. On foot of this discussion, the Council decides whether or not to send the case forward to the Department.

   a) Having considered the importance of managing and spreading the assessment load for students, if the Council decides that the case isn't sufficiently strong to merit consideration by the Department, the Council requests the Development Group to work on the basis of one AAC and one written examination.

   OR

   b) Having considered the importance of managing and spreading the assessment load for students, if the Council decides that the case is sufficiently strong to merit consideration by the Department, the Council agrees to send the case forward to the Department of Education.
5. In the case of 4b, the written case is sent to the Senior Cycle Redevelopment Programme Management Office (SCRPMO) in the Department of Education for consideration and response.
6. The Department may convene the Senior Cycle Redevelopment Implementation Group (SCRIG) to support its consideration of the request for a variation. The SCRIG is a Department-led structure established to provide oversight and support the co-ordination of work across the key agencies/organisations contributing to the redevelopment of senior cycle. Its members include senior officials from the Department (Curriculum and Assessment Policy Unit, Inspectorate, Teacher Professional Learning [TPL]), NCCA, SEC and Oide.
7. The Department decides to support or decline the request for the variation sought and communicates its decision in writing to the NCCA in a timely manner.
8. The Subject Development Group progresses its work in line with the Council's response (arising from 4a) or the Department's response (arising from 4b and 7).

4. Timelines

The process outlined above will require time. Such time, if involving a number of weeks, could have significant implications for the timeline for specific stages of work on the subject specification and/or the overall completion of the specification ahead of sending it to the Department for consideration. This time factor may necessitate NCCA organising additional online meetings of the Board for Senior Cycle and the Council in order to ensure the development work remains within the overall timelines.

Table 1 below sets out the general parameters and processes to guide the work of the subject development groups (SDG) as they consider the most appropriate assessment for each subject. The specific parameters for each of the Tranche 3 subjects are set out in Table 2.

Table 1: Assessment parameters and processes – general application to tranche 3 subjects

Considerations	Parameters to guide the work of the development group.
Nature	The purpose and nature of the assessment component will be clearly outlined in the subject specification and accompanying guidelines to support the completion of the assessment. Details will be provided on the nature of the component. Existing examples include: • research project/extended essay • oral assessment • performance assessment • portfolio assessment • creation of an artefact • field study • experiment/ proof of concept/ practical investigation. The subject specification and the accompanying guidelines will articulate clearly what the students are required to do, the form(s) in which it can be carried out and submitted, and the workload expectations associated with the assessment. The alignment of the assessment component to a particular set of learning outcomes from the subject specification will be provided, as well as details on which key competencies and associated learning outcomes will be assessed. This does not preclude the same LOs from being assessed in the final examination.
Weighting	The assessment component in each subject will be worth at least 40% of the total available marks.
Timing	The SDG will advise on the time required for the carrying out of the assessment component across the course of study.
Completion and Submission	While the SDG may suggest when this may occur (as referenced above having regard to the assessment load on students in particular), a final decision will be made by the SEC following consideration of the overall schedule of completion dates for all assessments across all subjects. This will be finalised by the SEC following engagement with the NCCA and DE. The dates for final completion and\or submission of the assessment component by the student will be published by the SEC and this detail will not be included in the subject specification. (See table 1 below in relation to Mathematics also)
Design	The majority of assessment components will result in a completed item that is materially different to a traditional written examination and which tests different competencies being transmitted to the SEC and assessed by the SEC. In some instances, the design of the assessment may require examiners to visit schools to conduct the assessment but manageability at school and system level will need to be considered.

Guidance	Guidelines to support the assessment components will be specific to each subject. These guidelines will be developed collaboratively by the NCCA and SEC. They will be informed by the deliberations of the SDG during the development of the specification and will detail: • the purpose of the component concerned i.e., what it is intended to assess. • the nature of the assessment component/activity. • descriptors of quality in the form of a graduated rubric and details on assessment standards at higher and ordinary levels if deemed necessary by the assessment method. • details on the timing of the assessment (its duration and when it could happen). • guidance on the processes that may be used for the administration of the assessment.

Table 2: Parameters for assessment arrangements for each Tranche 3 subject

Subject	Current arrangements	Parameters for new assessment arrangements
Agricultural Science	Written examination is 2.5 hours duration for higher level and ordinary level students and is awarded 300 of the 400 marks available (75%). Coursework is an Individual Investigative Study, which is done in response to a common brief from SEC and is worth 100 marks (25%).	Written examination: typically, 60% weighting. Assessment component: minimum 40% weighting. Written examination will be set at higher and ordinary levels. Assessment component would be based on one submission to SEC in response to a common brief.
Computer Science	The final examination is worth 70% and is 2.5 hours duration on one day towards the end of May. There is a paper-based element (1.5 hrs.; 130 marks) followed by a computer-based element (I hr.; 80 marks). The coursework is worth 30% of the final marks. The common brief is released in December of 6th year and a report and summary video (90 marks) is typically submitted in March of 6th year. This is completed over a 10-week period. Coursework and practical are set at a common level but are graded in line with the standards that apply to the level at which the candidate sits the written examination.	Written examination: typically, 60% weighting. Assessment component: minimum 40% weighting. Written examination will be set at higher and ordinary levels. Assessment component would be based on one submission to SEC in response to a common brief.

	Written examination is examined at higher and ordinary levels.	
Design and Communication Graphics	Written examination has 1 paper worth 240 marks which is 60% of the marks available. This paper is 3 hours in duration. Written examination is examined at higher and ordinary levels. Student assignment is worth 160 marks which is 40% of the marks available. The student assignment at higher level differs from the student assignment at ordinary level with a different brief set for HL and OL students. There are 9 outputs required in a portfolio for both levels with the HL page limit set at 14 pages and OL page limit 12 pages.	Written examination: typically, 60% weighting. Assessment component: minimum 40% weighting. Written examination will be set at higher and ordinary levels. Assessment component would be based on one submission to SEC in response to a common brief.
History	Written examination is worth 80% of the total marks available, and the exam is 2 hour 50 minutes in duration. Coursework is a Research Study Report (RSR) and is allocated the remaining 20%. There is a different word count for HL and OL students, with the OL word count set at 800 words and the HL word count set at 1600.	Written examination: typically, 60% weighting. Assessment component: minimum 40% weighting. Written examination will be set at higher and ordinary levels. Assessment component would be based on one submission to SEC in response to a common brief.
Home Economics	Written examination is 2 hr 30 minutes duration and worth 280 or 320 marks (out of 400) depending on the elective chosen. For students who choose the **Home Design and Management** or **Social Studies** electives, the written examination is worth 80% and the **Food Studies Coursework** is worth 20%. For those who choose the **Textile Fashion and Design** elective, the written exam is worth 70%; the **Food Studies Coursework** is worth 20% and the **TFD Coursework** is allocated 10%. **Food Studies Coursework** is based on 4 assignments completed by the	Written examination: typically, 60% weighting. Assessment component: minimum 40% weighting. Written examination will be set at higher and ordinary levels. Assessment component would be based on one submission to SEC in response to a common brief.

	beginning of November of 6th year and submitted to the SEC.	
Mathematics	There are 2 written papers that are worth the full allocation of marks. Paper 1: HL OL and FL is 2.5 hrs duration. Paper 2: Hl and OL 2.5 hrs duration.	Written examination: typically, 60% weighting. Assessment component: minimum 40% weighting. Written examination will be set at higher ordinary and foundation levels and it would be expected to take the form of a single paper Assessment component would be based on one submission to SEC in response to a common brief. Assessment component to be completed in Year 1 of the two-year programme.
Music	There are 3 areas for assessment: Composing element is worth 25% and assessed by a written paper of 1.5 hours duration. Performing element is worth 25% and is assessed by a performance of 3 or 4 pieces depending on the selection of one performance format or 2. Listening element is worth 25% and is assessed by an aural exam and written paper of 1.5 hours duration. HL Elective: Higher level students select one of the 3 areas above and choose to increase mark allocation to 50% by including an additional assessment activity. For ordinary level students, their best mark in one out of the three areas is doubled to reach 100%-mark allocation.	Written examination: typically, 60% weighting. Assessment component: minimum 40% weighting. Written examination will be set at higher and ordinary levels. Assessment component will be based on a brief issued by the SEC.
Physics and Chemistry	Written paper at HL and OL worth full mark allocation of 400 marks. 3-hour paper. Section 1 Physics worth 200 marks. Section 2 Chemistry worth 200 marks.	Written examination: typically, 60% weighting. Assessment component: minimum 40% weighting. Written examination will be set at higher and ordinary levels. Assessment component would be based on one submission to SEC in response to a common brief.

Whilst an AAC in each subject must have a minimum weighting of 40%; an SDG may propose a weighting of 50%. In these circumstances, the process outlined at Section 3 above will apply to determine if such a weighting receives further consideration as to whether it shall be applied or not. It would not be anticipated that an SDG would seek to apply a weighting to the AAC above this level.

NCCA

An Chomhairle Náisiúnta
Curaclaim agus Measúnachta
National Council for
Curriculum and Assessment