Oide

Tacú leis an bhFoghlaim Ghairmiúil i measc Ceannairí Scoile agus Múinteoirí

Supporting the Professional Learning of School Leaders and Teachers

Agricultural Science Introduction Day

Ronan Dowling & Gareth Belton

Oide

Oide is a new support service for teachers and school leaders, funded by the Department of Education, formed from the integration of four existing support services and launched on September 1, 2023.
These support services are:

- Centre for School Leadership (CSL)
- Junior Cycle for Teachers (JCT)
- National Induction Programme for Teachers (NIPT)
- Professional Development Service for Teachers (PDST)

Science Resources for Teachers

Scoilnet supports primary and post primary teachers in sharing and finding useful classroom resources: www.scoilnet.ie

Leaving Certificate Agricultural Science : www.lcagscience.ie

Leaving Certificate Biology: www.pdstbiology.com/

Leaving Certificate Chemistry: pdst.ie/post-primary/sc/chemistry

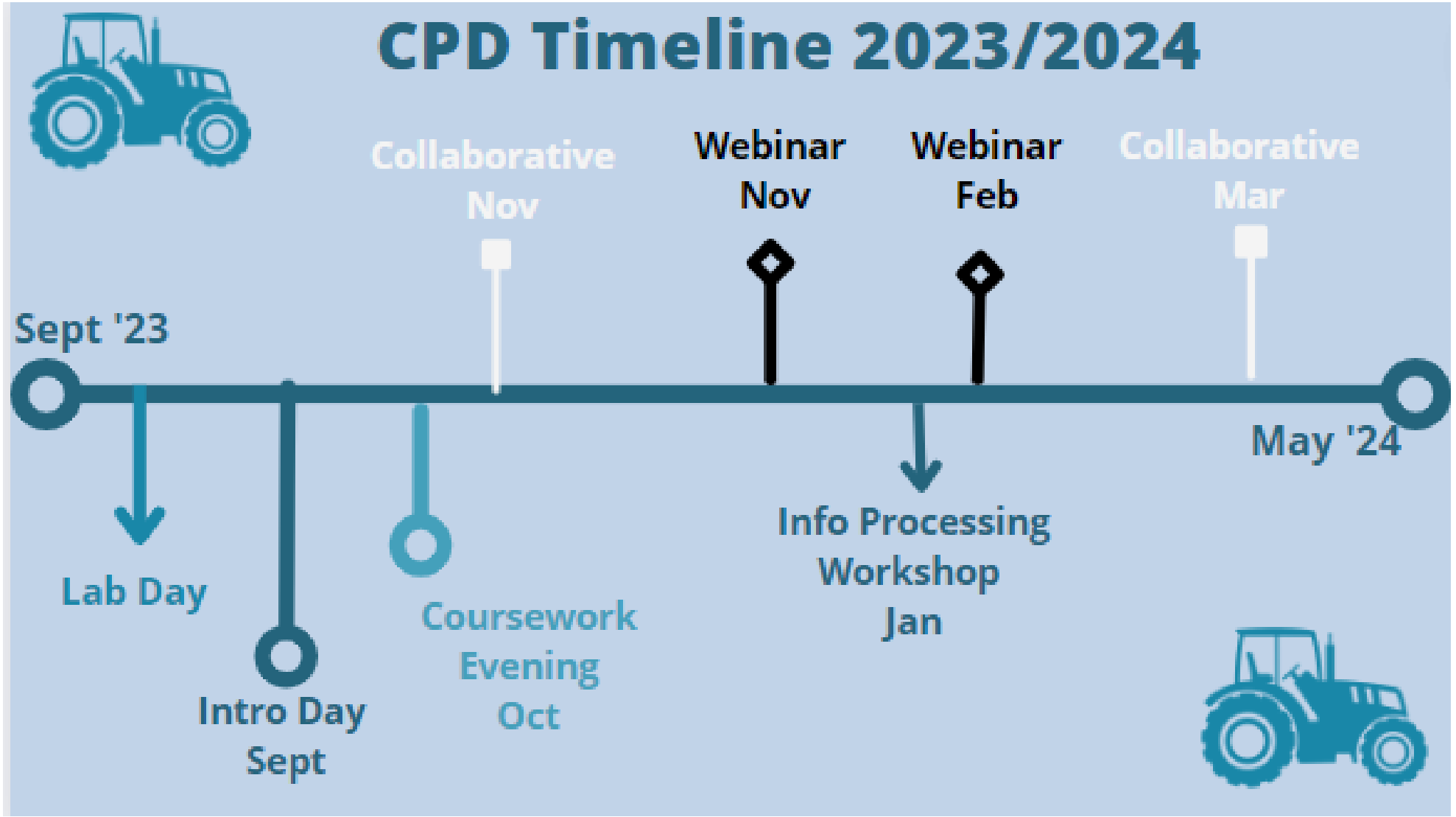
Leaving Certificate Physics: https://pdst.ie/sc/physics

Junior Cycle Science: https://www.jct.ie/science/science

Further Information

Email: info@oide.ie
Web: www.oide.ie
X: @oide_Ireland

X for Ag Science:
@Oide_PP_STEM


CPD Timeline 2023/2024
Collaborative Nov
Webinar Nov
Webinar Feb
Collaborative Mar
Sept '23
May '24
Lab Day
Intro Day Sept
Coursework Evening Oct
Info Processing Workshop Jan

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Timetable

Session 1 9:30 - 11:00	• Overview of the specification • Looking at the evidence: Jigsaw Activity
11:00 - 11:20	Tea/Coffee
Session 2 11:20 - 13:00	• Importance of Strand 1: Scientific Practices • Overview of Coursework
13:00 - 14:00	Lunch
Session 3 14:00 - 15:30	• Planning for teaching, learning and assessment in the Agricultural Science classroom

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Supporting the Professional Learning of School Leaders and Teachers

Session 1

By the end of this session participants will have:

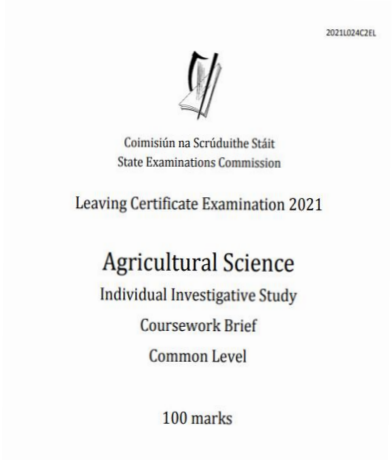
- Understood the place of the new agricultural science specification within the broader context of senior cycle educational reform

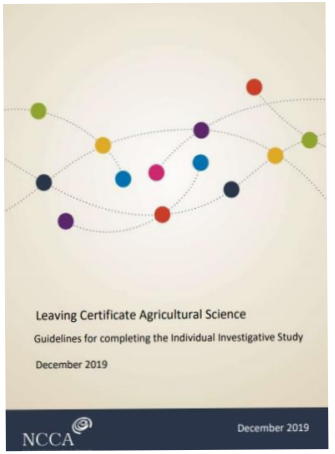
- Become familiar with the agricultural science specification and the supporting policy documents

Rationale for changing the Agricultural Science Specification

Leaving Certificate Agricultural Science

1972 - Leaving Certificate Agricultural Science
2015 - Draft specification launched
2019 - New Leaving Certificate Agricultural Science Specification introduced to Fifth Years
2021 - First examined





180 hours class contact time.
First LC Exam 2021

Overview of Assessment for Certification

Assessed at both Ordinary and Higher level

Coursework 25%

Written Examination 75%

Differentiation
Through the learning outcomes of the specification. In the process of teaching and learning and through assessment

Overview of the Specification

The Specification is set out in four strands:

1. Scientific practices (overarching strand)
2. Soil
3. Crops
4. Animals

There are eight cross cutting themes that permeate the contextual strands and provide appropriate contexts for the study of the four strands

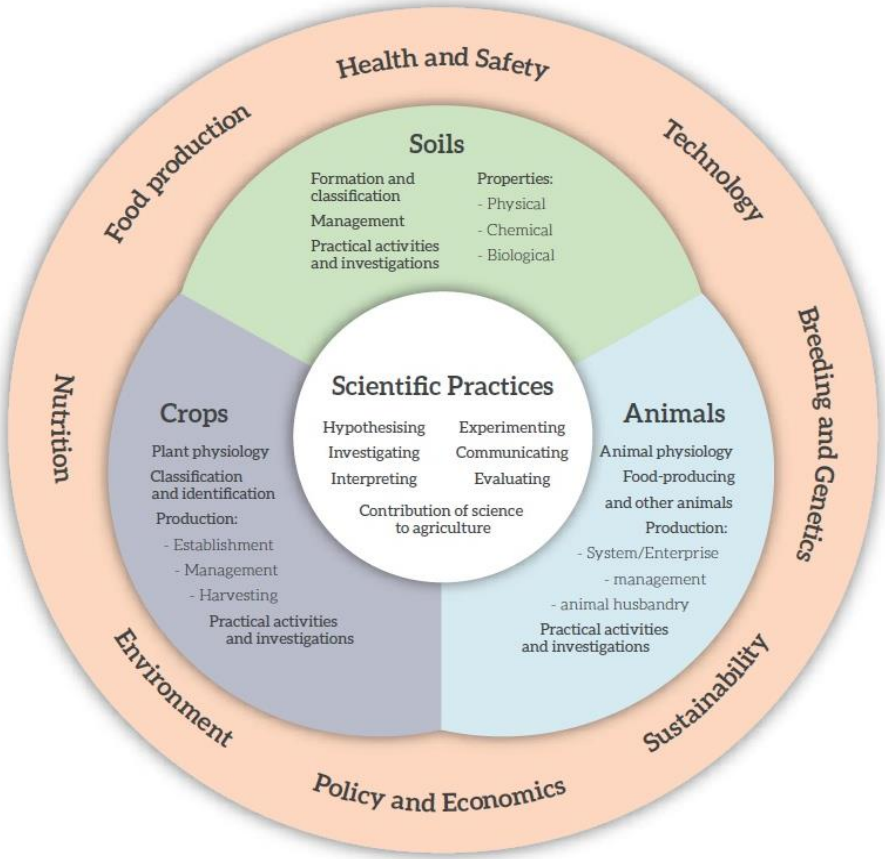
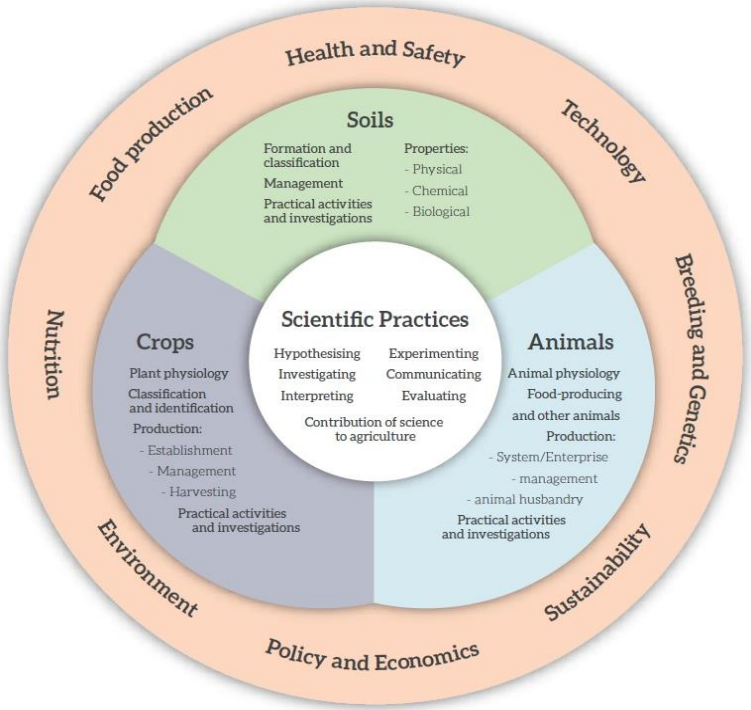


Figure 4, *Specification 2018, Page 11*

Strand 1 - Scientific practices

The overarching strand is taught through the contextual strands

It provides a strong focus on how science works in scientific investigations, such as hypothesising, experimenting, evaluating, interpreting data and communicating findings



Specification p11

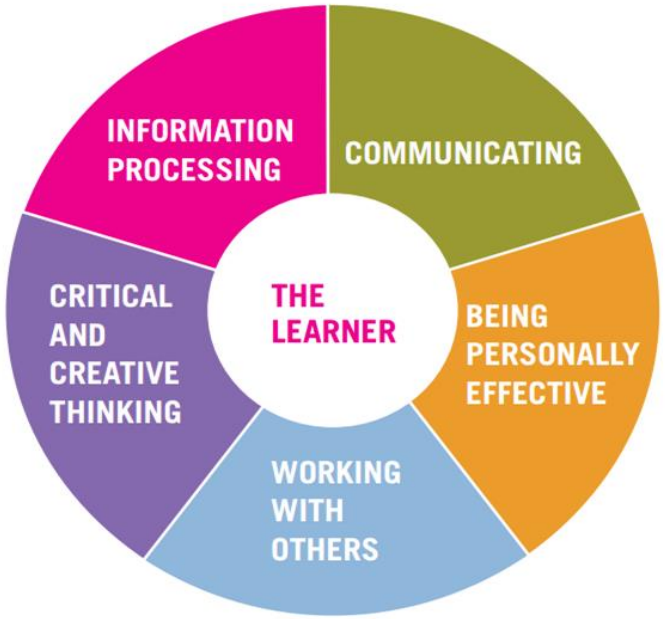
Students gain an understanding of the ideas that underpin the collection, analysis and interpretation of data

Allows students to accurately and effectively use scientific evidence to make informed decisions

Building on Key Skills from Junior Cycle

The key skills are transferable

Junior cycle key skills



Senior cycle key skills

"*The specification is designed to help students develop skills as they build on their knowledge and understanding of agricultural science*" Specification p.13

Learning Outcomes in the Specification

Each of the four strands is presented in the form of learning outcomes:

These are statements about what the learner should be able to do after a period of learning

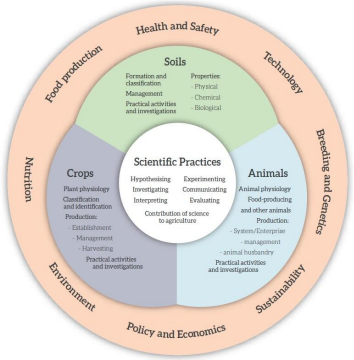
The sequence in which the strands and learning outcomes are presented does not imply any particular order of teaching and/or learning

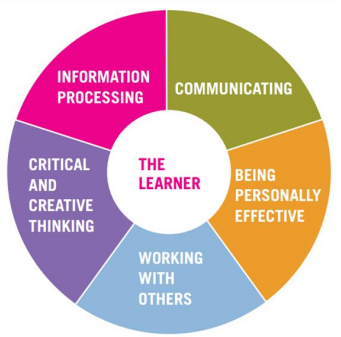
Specification p.12

Learning Outcomes:

Statements in curriculum specifications to describe the *knowledge, understanding, skills and values* students should be able to demonstrate after a period of learning.

(Focus on Learning Learning Outcomes, NCCA 2019 pg. 6)





Working with learning outcomes

Understanding action verbs within Learning Outcomes

The action verb is described in terms of *what the learner should be able to do.*

The action verb glossary is aligned with the command words used in the *assessment*. (Specification p.30)

Action verbs have been carefully chosen to inform the teacher what is expected of the students and the verbs used ensure that students can achieve a range of *skills and knowledge.*

(Focus on Learning Outcomes, NCCA, 2019, pg. 12)

Glossary of action verbs

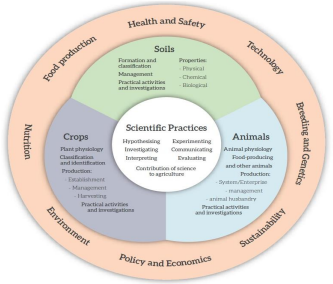
This glossary is designed to clarify the learning outcomes throughout the specification. The action verb is described in terms of what the learner should be able to do. This glossary will be aligned with the command words used in the assessment.

ACTION VERB	STUDENTS SHOULD BE ABLE TO
Analyse	study or examine something in detail, break down in order to bring out the essential elements or structure; identify parts and relationships, and interpret information to reach conclusions
Annotate	add brief notes of explanation to a diagram or graph
Apply	select and use information and/or knowledge and understanding to explain a given situation or real circumstances
Appraise	evaluate, judge or consider text or a piece of work
Appreciate	recognise the meaning of, have a practical understanding of
Briefly describe/ explain	provide a short statement of only the main points
Argue	challenge or debate an issue or idea with the purpose of persuading or committing someone else to a particular stance or action
Calculate	obtain a numerical answer showing the relevant stages in the working
Classify	group things based on common characteristics
Comment	give an opinion based on a given statement or result of a calculation
Compare	give an account of the similarities and (or) differences between two (or more) items or situations, referring to both (all) of them throughout
Consider	describe patterns in data; use knowledge and understanding to interpret patterns, make predictions and check reliability
Construct	develop information in a diagrammatic or logical form; not by factual recall but by analogy or by using and putting together information
Convert	change to another form
Criticise	state, giving reasons the faults/shortcomings of, for example, an experiment or a process
Deduce	reach a conclusion from the information given
Define	give the precise meaning of a word, phrase, concept or physical quantity
Demonstrate	prove or make clear by reasoning or evidence, illustrating with examples or practical application

30 Agricultural Science Curriculum Specification

Assessment of the Written Examination Paper

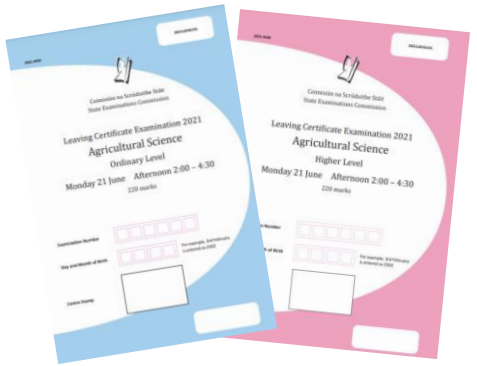
The written examination paper will assess:



1. Knowledge, recall and understanding of facts related to the principles and practices of agricultural science.

2. Application of knowledge and understanding from different areas of the specification which will include familiar and unfamiliar situations.

Specification p26.

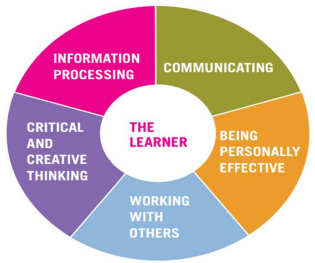


Assessment of the Written Examination Paper

3. The application of key skills to:

(i) Analyse, interpret and evaluate scientific information.

(ii) Form reasonable and logical arguments based on evidence.



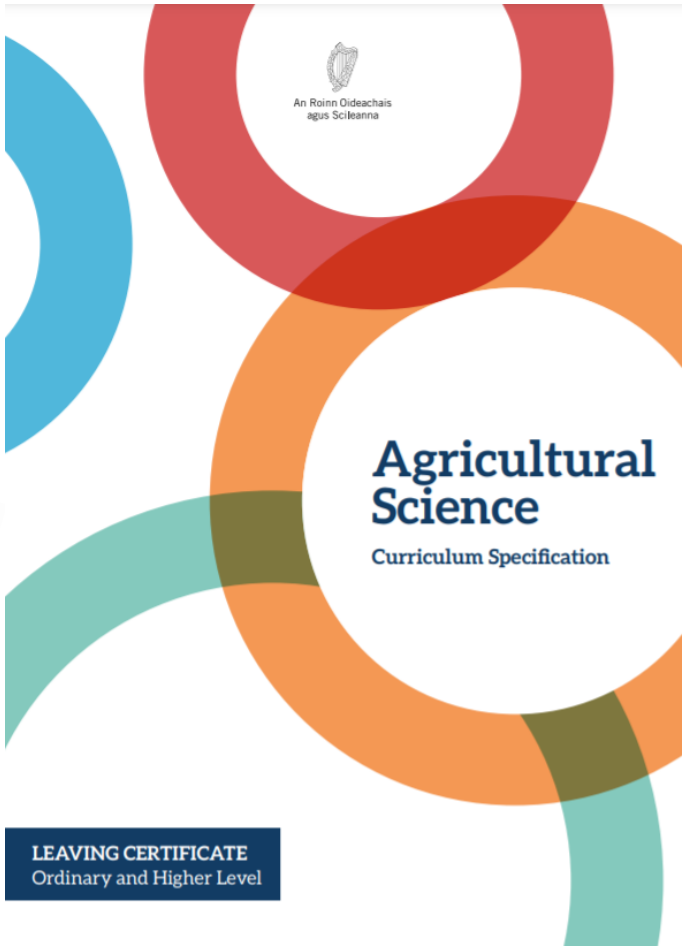
(iii) Problem solve based on integration, analysis and evaluation of qualitative and quantitative data.

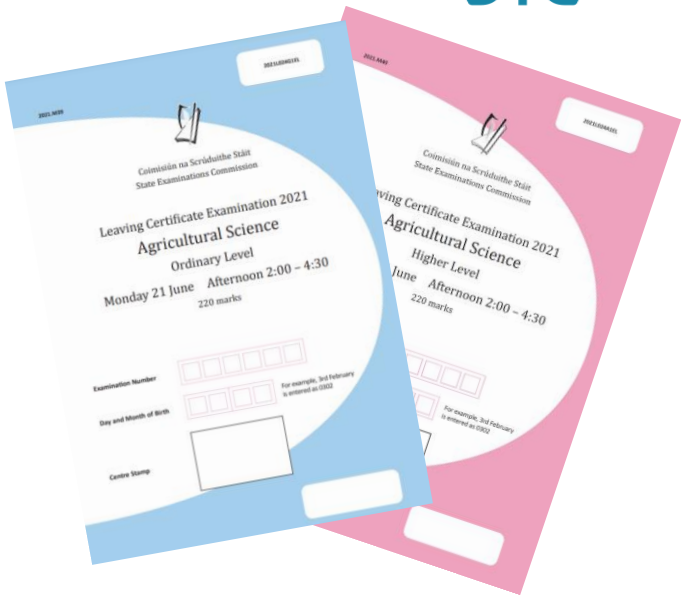
(iv) Understand the ethical, historical, environmental and technological aspects of agricultural science, and how this contributes to the social and economic development of society.

Specification p26.

Working with the evidence

P. 9-10





Oide
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Supporting the Professional Learning of School Leaders and Teachers

Session 1 Plenary

Participants will have:

- Understood the place of the new agricultural science specification within the broader context of senior cycle educational reform

- Become familiar with the agricultural science specification and the supporting policy documents

Oide

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Supporting the Professional Learning of School Leaders and Teachers

Coffee Break

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Tacú leis an bhFoghlaim Ghairmiúil i measc Ceannairí Scoile agus Múinteoirí
Supporting the Professional Learning of School Leaders and Teachers

Session 2

By the end of this session participants will have:

- Recognised the importance of Strand 1 as the overarching strand in the specification
- Appreciated the role of Specified Practical Activities in developing skills for IIS and reinforcing scientific practices outlined in Strand 1
- Engaged with the guidelines for the IIS and understand how to build the necessary skills

Overview of Coursework Assessment

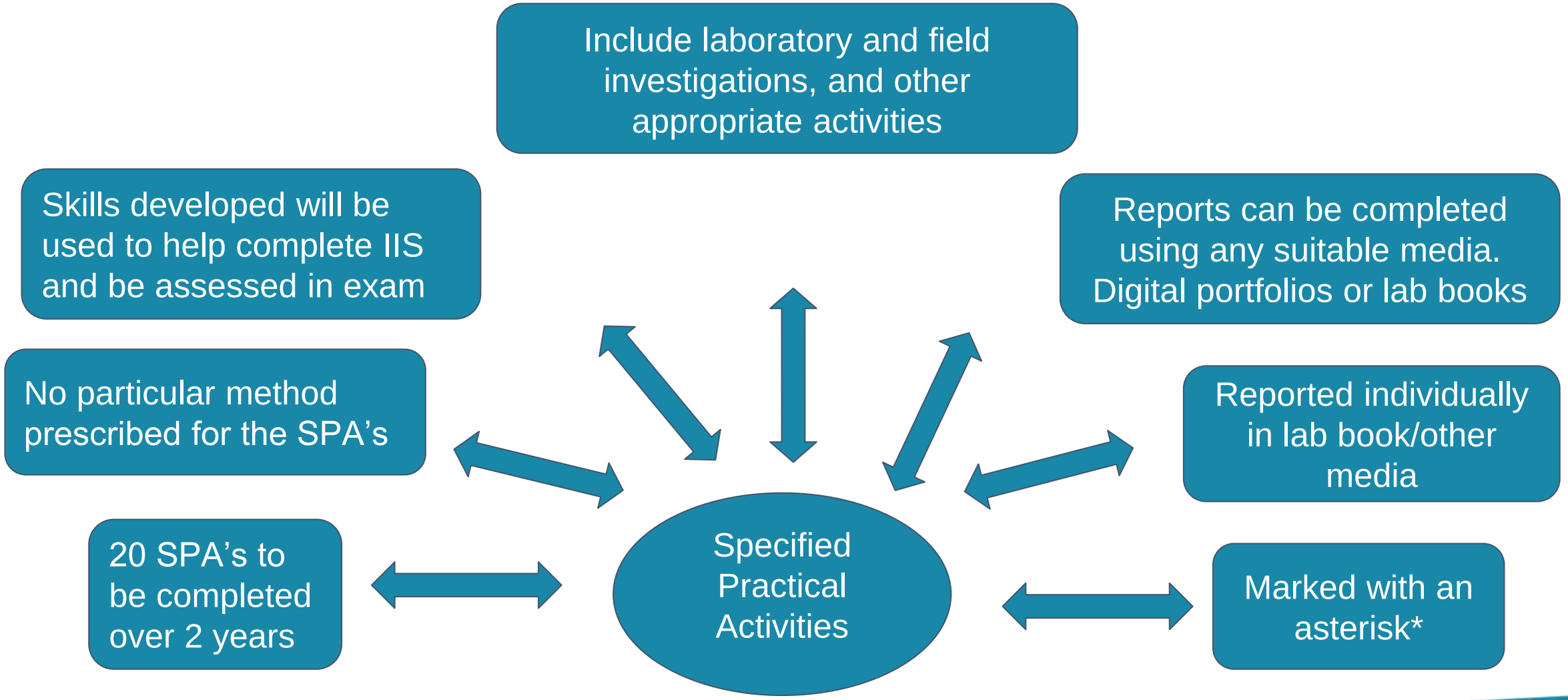
The coursework assessment of leaving certificate Agricultural Science includes:

- Portfolio of specified practical activities (Specification p.27)
- Individual Investigative Study (IIS)

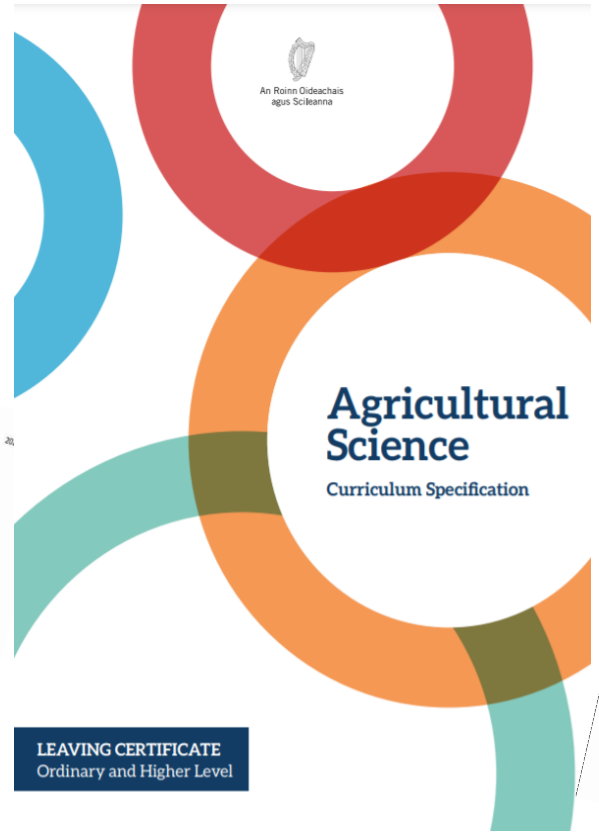
https://tinyurl.com/NCCA-Ag-guidelines

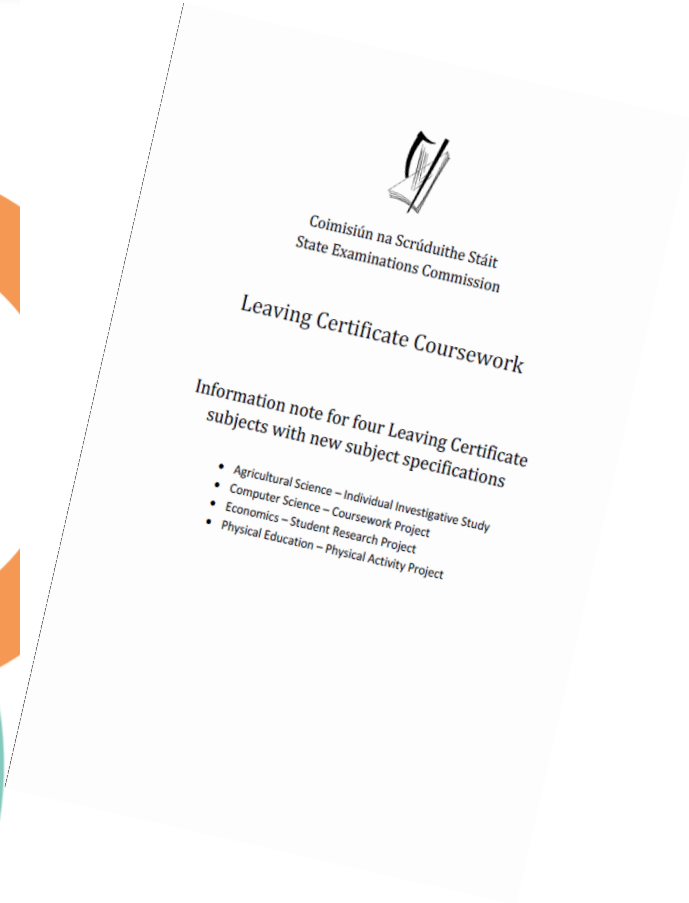
https://tinyurl.com/IIS-Brief

Specified Practical Activities SPA's



Sources of information for the IIS





Individual Investigative Study (IIS)

- Authenticity is key
- The IIS is a research investigation that collects primary data through the use of controlled variables
- Students must collate their own primary data through experimentation
- Authentic data is clearly connected back to the hypothesis
- The investigation must have a clear and justified research question that allows the study to be timely, original and relevant.

- Affords students opportunities to connect learning from their local experiences to the course
- If using an extended, modified or adapted SPA, then connect it to your agricultural enterprise of choice
- Reference conventions to be used and acknowledged

Overview of the Individual Investigative Study (IIS)

Students gather and process data, evaluate evidence and develop arguments

Report is examined by the SEC and the skills developed throughout the coursework will be assessed in the written examination

IIS is completed in parallel with their studies over the duration of the course

Students are not assessed on the study itself but on the quality of their report of the investigation

Students prepare and present the report describing the research question, methodology, results and conclusions

The title of the brief is used as a lens e.g. ““The role of food production in maintaining natural resources in Irish Agriculture” (SEC, 2024 Brief)

Submitted electronically with maximum 2,500 words

(NCCA Guidelines, 2019)

IIS - Engagement Activity on the Structure of the Report

Oide

Thematic brief 2024

The theme for the 2024 brief is, **"The role of food production in maintaining natural resources in Irish Agriculture"**.

Use the theme, **"The role of food production in maintaining natural resources in Irish Agriculture"**, as a "lens" to look through while undertaking the learning contained in the specification's strands and crosscutting themes.

In your Individual Investigative Study, you should do the following;

- Choose a specific agricultural enterprise[1] and a topic relevant to that enterprise and to the theme.
- Develop a research question that is related to the theme and which you would like to investigate in the context of the chosen enterprise.
- Carry out initial research on the topic as it relates to the theme.
- In the context of your chosen enterprise, investigate the topic by carrying out one or more experiments, supplemented, if appropriate, by other investigative activities. Carry out specific scientific investigation(s) of the topic. This will involve developing and testing specific hypothesis and drawing conclusions based on evidence gathered.
- At least one of the experiments you carry out must involve gathering and processing data.
- Document and present your work in the digital coursework booklet provided by the State Examinations Commission for marking.

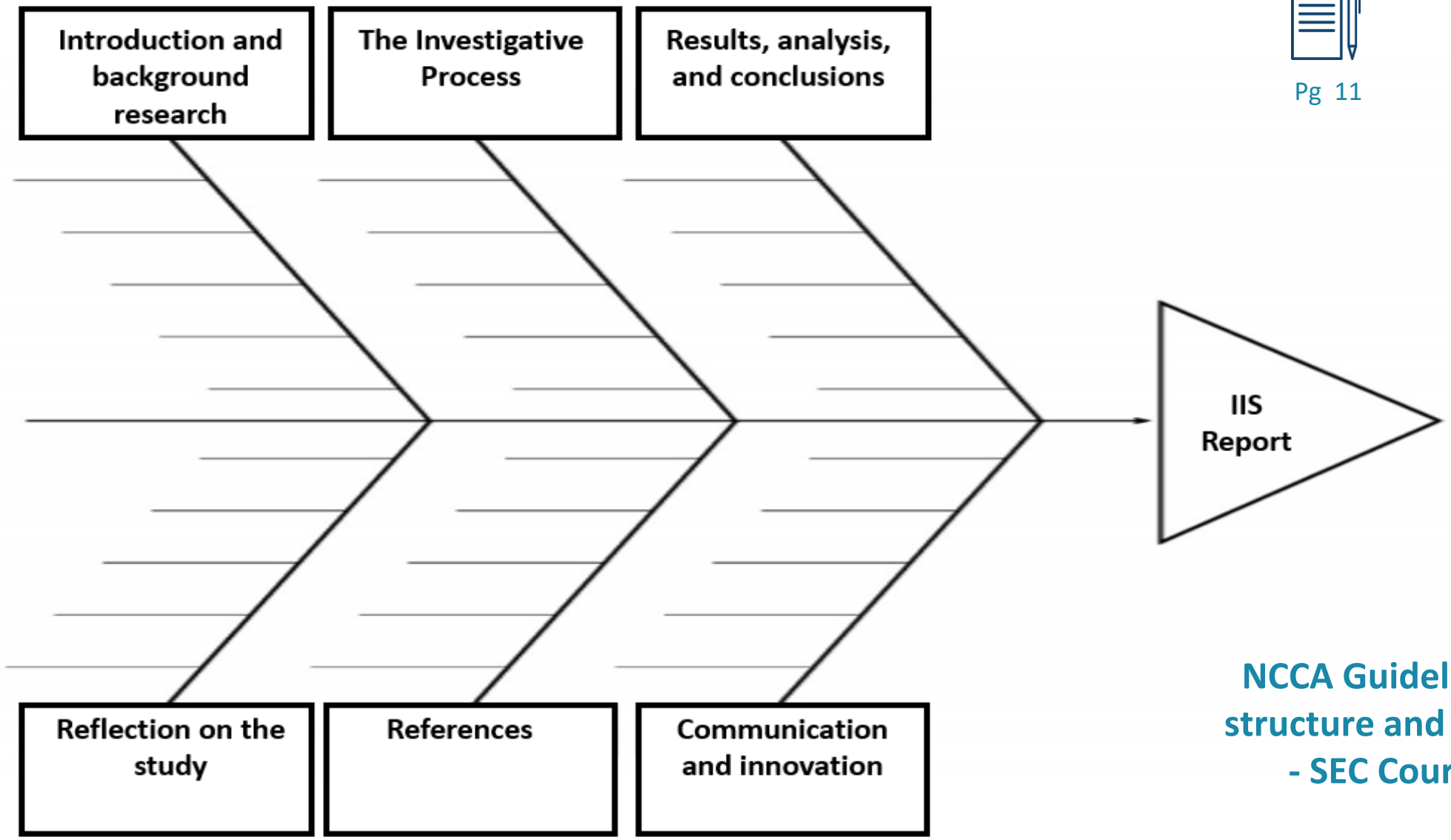
Submit the final report to your teacher on or before **12 April 2024**. You are not allowed to make any changes to it after that date.

Some references to get you started in your research – this list is not exhaustive.

- Food Wise 2025 – a 10 year vision for the Irish agri-food industry (2015), published by Department of Agriculture, Food and the Marine. file:///C:/Users/secit/Downloads/109085_e436312e-df39-45ed-8ad2-a05aad476c4f.pdf

Report structure and mark allocations

Section	Indicative content to be included	Marks
Introduction and background research Suggested range between 300 and 500 words	▪ Give a title to your Individual Investigative Study. ▪ Identify the agricultural enterprise chosen as the context for the study and state the topic selected for investigation. ▪ State the research question, and make clear how it relates to the theme of the brief and the chosen enterprise. ▪ Outline what the initial research you carried out tells you about the topic and the research question. Include references. (Use short in-line citations here, with full references at the end of the report.)	20
The investigative process Suggested range between 500 and 800 words	▪ Describe the specific experiments and other relevant investigative activities undertaken, stating clearly the purpose of each and describing how it was carried out. ▪ Make clear what specific hypotheses were developed and tested. ▪ Describe in detail how you gathered the data.	25
Results, analysis, and conclusions Suggested range between 600 and 1000 words	▪ Present the data and results from your investigation. Use tables, graphs, and photographs as appropriate. ▪ Analyse and interpret the data, results, and other information. ▪ Make judgements and draw conclusions from your analysis. ▪ Take due account of any relevant limitations of your study. ▪ Link the conclusions clearly to the research question.	35
Reflection on the study Suggested range between 150 and 200 words	▪ Reflect on the insights gained from engagement with the study and comment on: o The degree to which the research question was answered o Possible changes or alternative approaches that might have made the investigation better o Future directions and possible areas of further investigation o Significance of the outcomes of the study for the agri-food sector and/or the study of agricultural science.	10
References	▪ Full references for all sources used during the study and/or referred to in the report. This section will not attract a separate mark. Any deficiencies in referencing will be taken account of when marking the relevant section of the report.	-
Communication and innovation	**This is not a distinct section of the report.** Marks will be awarded for evidence of taking an individual approach, for coherence and for innovative thinking.	10



NCCA Guidelines and Report structure and mark allocations - SEC Coursework Brief

Information note (2021) new specification

Pg 12

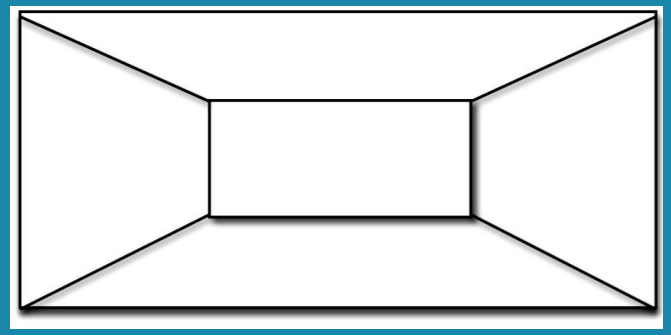

Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Coursework

Information note for four Leaving Certificate subjects with new subject specifications

- Agricultural Science – Individual Investigative Study
- Computer Science – Coursework Project
- Economics – Student Research Project
- Physical Education – Physical Activity Project

In your groups read pages 3-6 of the information note. Then using the placemat activity, record individual and group responses and ideas which you think are important / significant to the coursework.



Oide

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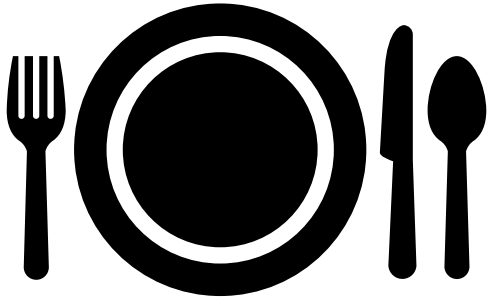
Supporting the Professional Learning of School Leaders and Teachers

Session 2 Plenary

Participants will have:

- Recognised the importance of Strand 1 as the overarching strand in the specification
- Appreciated the role of Specified Practical Activities in developing skills for IIS and reinforcing scientific practices outlined in Strand 1
- Engaged with the guidelines for the IIS and understand how to build the necessary skills

Lunch



Oide

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Supporting the Professional Learning of School Leaders and Teachers

Session 3

By the end of this session participants will have:

- Recognised the importance of active teaching methodologies which encourage student centred learning
- Worked collaboratively to discuss how aspects of the specification affect planning a two year sequence of topics
- Explored the resources available on Scoilnet

How do you make your classroom a student-centred learning environment?

What does student centred learning look like in the Agricultural Science classroom?

Pg 14

In groups:
Read p14 of the specification and carry out the TPS activity

Think
Pair
Share

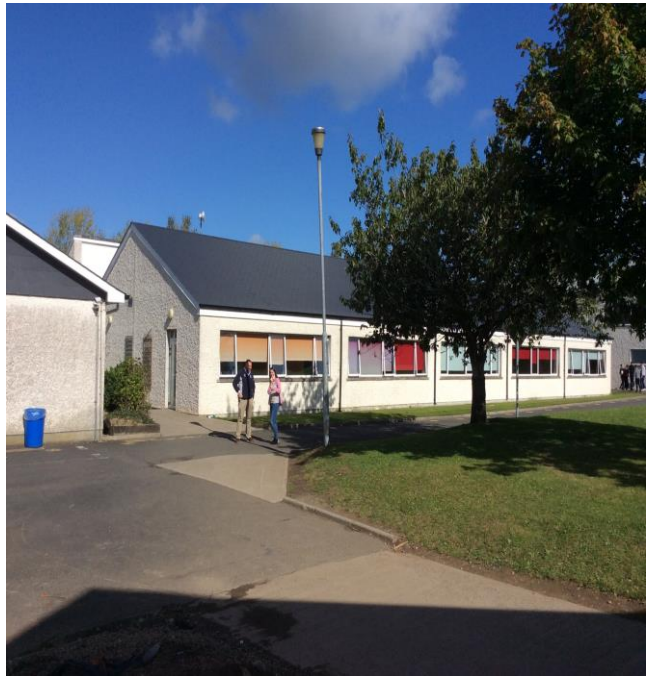
Teaching and Learning Activities

"Students will develop their key skills as they engage with the fundamental principles and concepts of agricultural science through participation in a wide range of activities" (Specification, p13-14)

Bringing Strand 1 to Life in the Agricultural Science Classroom

Oide

Pg 15- 16



Many thanks to the teachers and students of Ardscoil Rath Iomgháin in County Kildare

Planning for Agricultural Science

P. 17-18

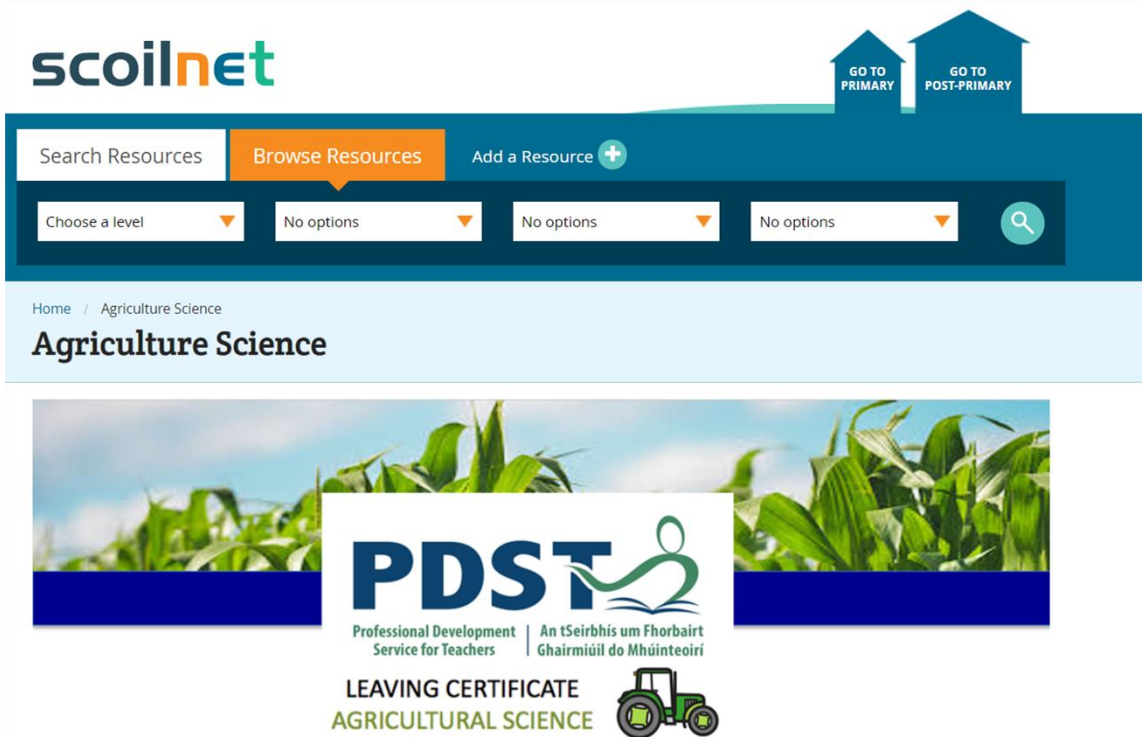
Working collaboratively plan your implementation of the specification over a two-year period.

Some questions to consider are:

- What topics will I teach and how long will it take?
- How does time of year and the local context fit with my plan?
- Are there opportunities to develop key skills and incorporate CCTs?
- What SPAs can be completed? Will they develop the necessary skills for IIS?
- What opportunities for assessment do we need to factor in?

Resources - Scoilnet.ie

A collection of resources made by teachers for teachers



How do I search for resources?

How to upload a resource I made

How to create a learning pathway

Next Steps

Now you have completed the Introduction Day Workshop for new teachers, what's next from Oide?

- Autumn & Spring Webinars
- Autumn & Spring PLCs
- Laboratory Days

What are your takeaways from today?
Stop/Start/Continue

I will stop…..

I will start….

I will continue...

Oide

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Introduction to Agricultural Science Day - Evaluation