



Professional Development | An tSeirbhís um Fhorbairt
Service for Teachers | Ghairmiúí do Mhúinteoirí



An Roinn Oideachais
Department of Education

Agricultural Science National Workshop 1 Phase 2

LEAVING CERTIFICATE AGRICULTURAL SCIENCE



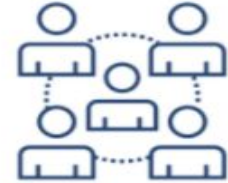
Chris Davies

Ronan Dowling

Gareth Belton

Email agscience@pdst.ie

Expectations for Online CPD



The PDST does not give permission for this CPD event to be recorded. Screenshots cannot be taken.

- The meeting link should not be shared outside of agreed attendees.
- **Camera's are to be switched on during the workshop.**
- Timekeeping.
- Bring relevant resources.
- Respect all participant contributions.
- Engage in professional dialogue and interaction.
- Respect the confidentiality of all participants and issues raised.
- Mute your microphone when you are not talking.
- Raise the pen or hand to indicate to the facilitator that you wish to contribute.



PDST Online CPD Protocols



PDST does not give permission for the CPD sessions to be recorded.



PDST does not give permission for screenshots to be taken.



Please be on time. Late arrivals will not be admitted.



Use the hand signal to contribute at any time.

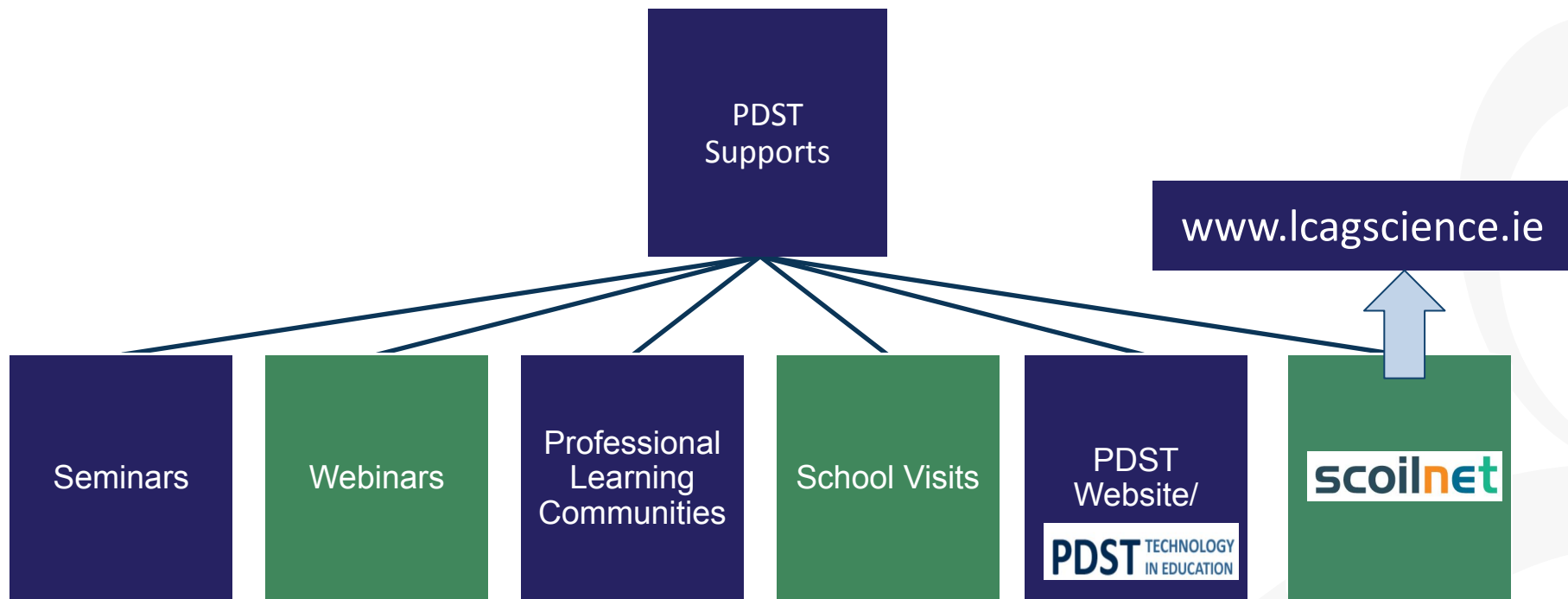


Please turn microphones to mute.



Use the chat function to message the hosts.

PDST Supports



CPD Timeline 2021/22



Role of the PDST

What we are:

- Teachers & School Leaders.
- Teacher Educators.
- Facilitators/Enablers.
- Purveyors of Lifelong Learning.

What we are not:

- Evaluators.
- Policy or Curriculum Developers.
- Exam Creators.

Timetable

Session 1
9:30 - 11:00

- Supports provided by PDST and CPD timeline
- Introduction to the Agricultural Science specification

Tea/Coffee Break
11:00 - 11:20

Session 2
11:15 - 1:00

- The importance of the overarching strand
- Using the Specified Practical Activities to enhance Coursework

Lunch
1:00 - 2:00

Session 3
2:00 - 3:30

- Teaching, Learning and assessment in the Agricultural Science classroom
- Planning a sequence of units of learning

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 educational reform.
- Become familiar with the agricultural science specification and the supporting policy documents.
- Collaboratively explored the implications for teaching, learning and assessment in your classroom.



Ice Breaker:

Getting to know one another!

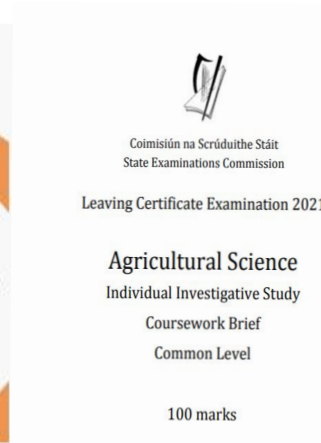


Rationale for changing the Agricultural Science Specification



Leaving Certificate Agricultural Science

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



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
- Through assessment

180 hours
class contact
time.
First LC Exam
2021



Overview of the Specification

The Specification is set out in four strands:

1. Scientific Practices * (Overarching Strand)
2. Soils
3. Crops
4. Animals

8 cross-cutting themes permeate and provide appropriate contexts for the study of the four strands

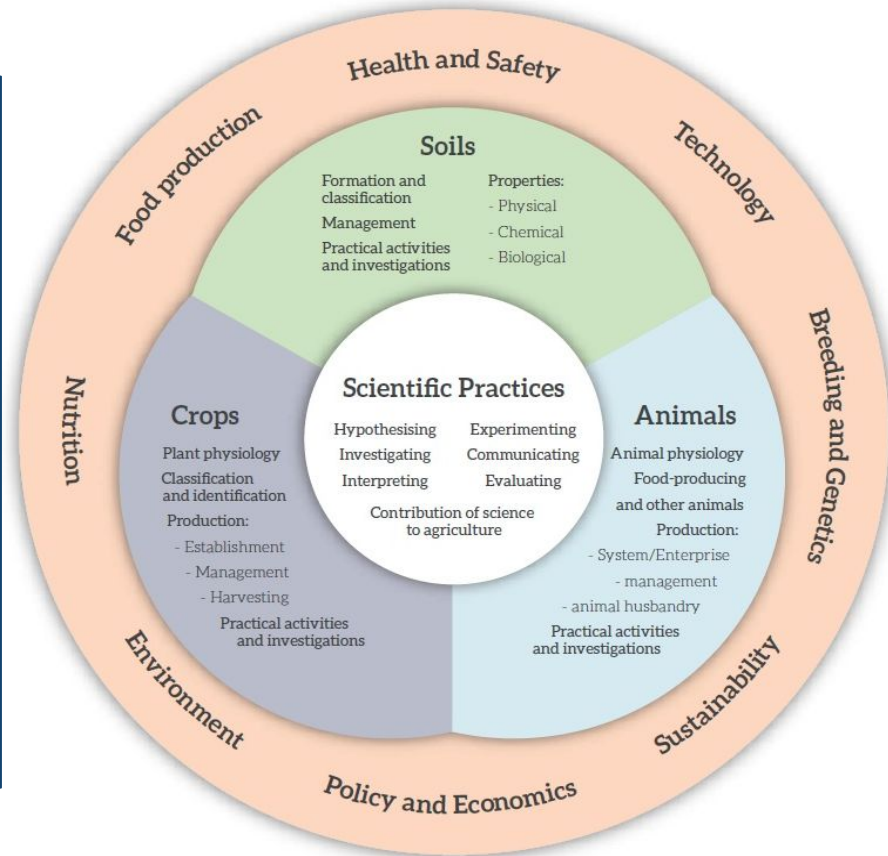
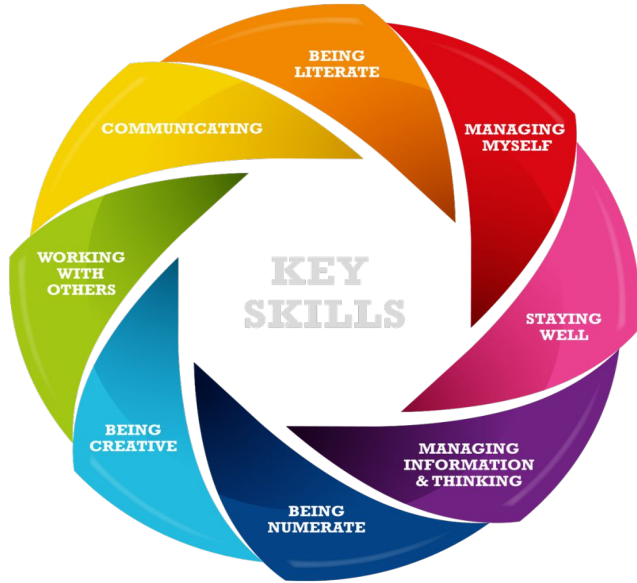


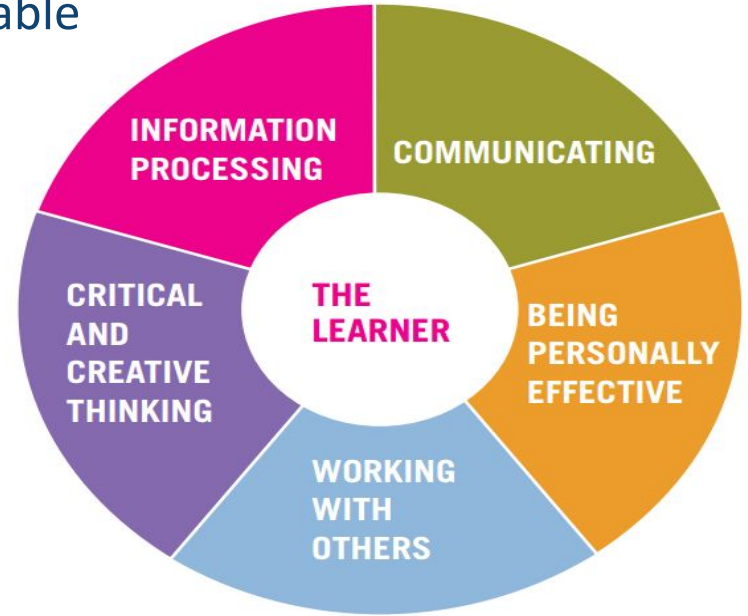
Figure 4, Specification 2018, Page 11

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”

Key Skills in Agricultural Science

Learners will research the work and ideas of others. Learners will record their own observations of the world around them.

Through the act of creating, learners will see the need to communicate their intent clearly to various audiences, so their ideas and work are better understood.

Learners will develop this skill through examining relationships, developing and testing hypothesis, designing experimental tests to prove or disprove assumptions, solving problems and applying those solutions to new contexts.



Learners will gain an understanding of setting personal goals, working to a timetable or deadline, choosing and using resources effectively and acting autonomously.

Learners may work collaboratively and through this they will learn from others, but more importantly they will be engaged in a social experience involving the understanding of interpersonal dynamics.

Learning Outcomes in the Specification

Each of the four strands is presented in the form of Learning Outcomes :

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

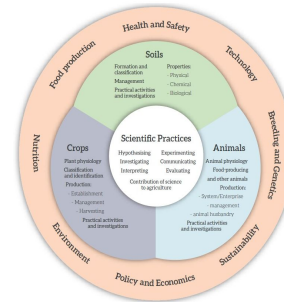
The sequence in which the strands and learning outcomes are presented does not imply any particular order of teaching and/or learning.

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 Outcome

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 Learning Outcomes, NCCA, 2019, pg. 12)

Glossary of action verbs

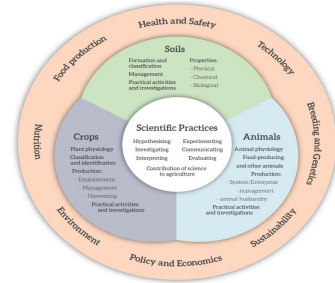
This glossary is designed to clarify the learning outcomes throughout the specification. The action verb is described in terms of what the learner should be able to do. This glossary will be aligned with the command words used in the assessment.

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

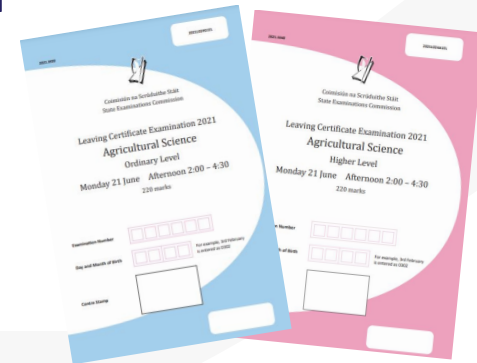
Assessment of the Written Examination Paper

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.

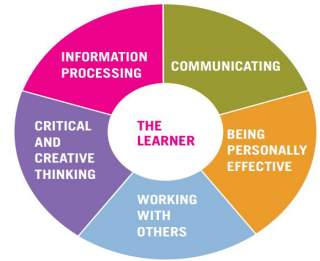


Assessment of the Written Examination Paper

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.



Session 2

By the end of this session participants will have:

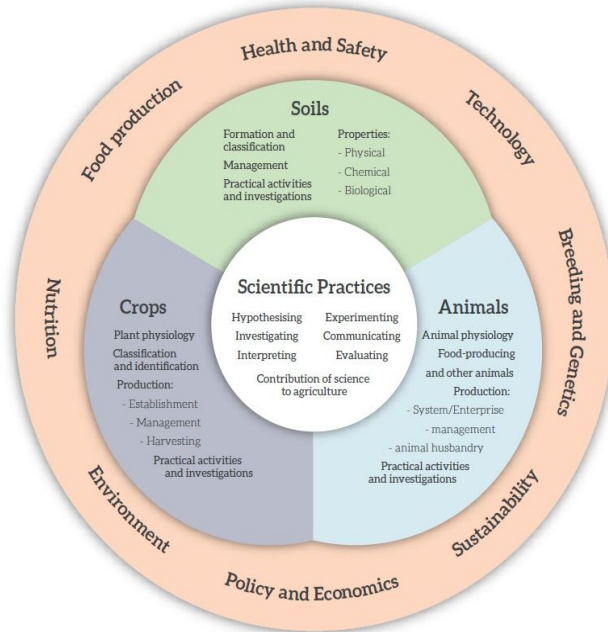
- Recognised the importance of Strand 1 as the overarching strand in the specification
- Appreciated the role of Specified Practical Activities in developing skills and reinforcing scientific practices outlined in Strand 1
- Engaged with the guidelines for the IIS and understand how to build the skills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



Strand 1: Scientific Practices

Overarching strand delivered through the contextual strands

Provides a strong focus on how science works in scientific investigations: hypothesising, experimenting, evaluating, interpreting, communicating



Specification p16

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

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



Using the scientific method to write up SPA's

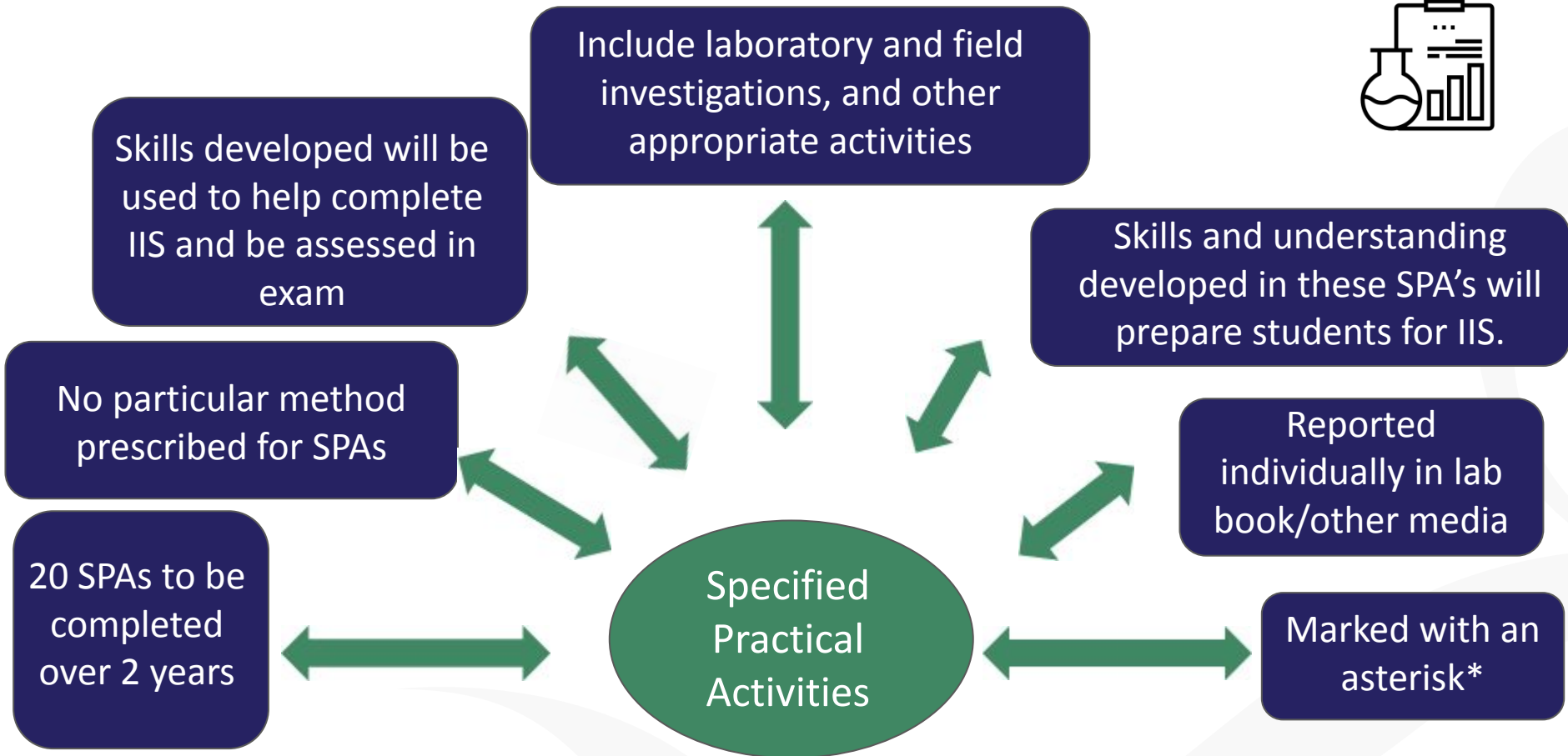


Applying the Scientific Method in Animal Research

Pat Lonergan
UCD School of Agriculture and Food Science

Specified Practical Activities



Specified Practical Activity Task

Learning Outcome 3.3.2H

Investigate the effect of nutrients on the growth of a sample of different plants and measure the biomass of these plants above and below ground *



Google Doc

In breakout rooms:

Work collaboratively to come up with a suggested method for the above investigation

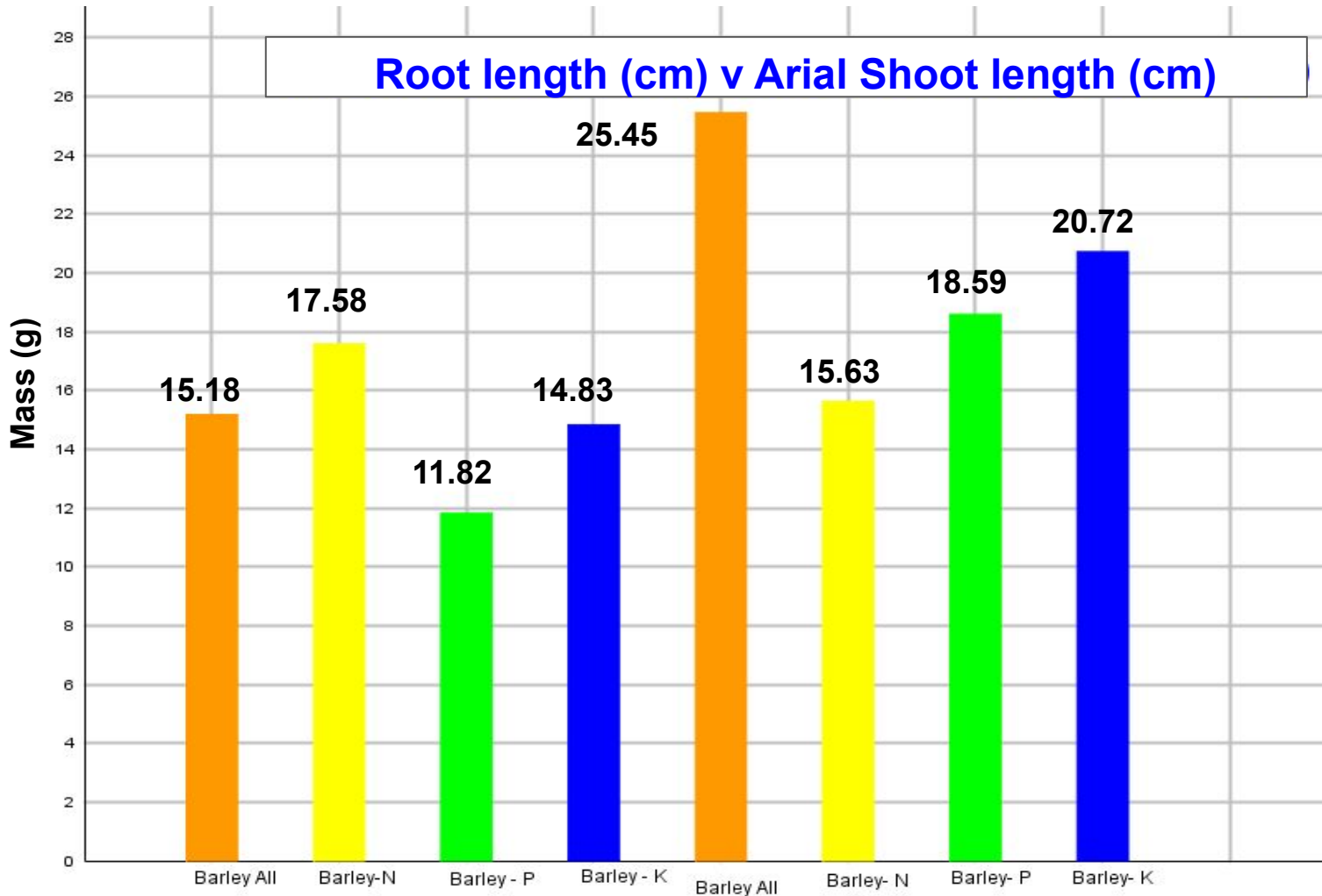
What headings would you expect your students to include for conducting the investigation

Identify a suitable hypothesis and variables for the investigation

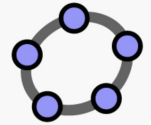


LO
3.3.2(h)

Adobe
Spark



Graphs
created
using
Geogebra



'Where
appropriate,
these
reports
should
include
video, audio
and
electronic
analysis'
Pg 27 Spec.

Reflecting on the Investigation

1. What changes would you make to the method?
2. What systematic errors did you notice?
3. If you were to repeat this investigation, what would you do differently and why?



Overview of Coursework Assessment

<https://tinyurl.com/Ag-Science-Spec>

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>

What is a Portfolio?

A portfolio - paper or electronic - is a **collection of evidence (research record)** that is gathered to show a person's **learning journey over time** and to demonstrate their abilities.

How might you use portfolios to ensure participants are **active in their own learning**?



Individual Investigative Study (IIS) Overview

Students gather and process data, evaluate evidence and develop arguments

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

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

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

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. “Supporting Conservation of the Environment through Irish Agricultural Practice”, 2022 Brief

Submitted electronically with maximum 2,500 words

Individual

- Authenticity is key
- An investigation that collects primary data through the use of controlled variables
- Students must collate their own primary data
- Authentic data is clearly connected back to the hypothesis

Investigative

Study

- 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

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



Retrieval Exercise



Please complete a recap Quizizz on Sessions 1 and 2 by following the steps below:

Step 1: Open up joinmyquiz.com or quizizz.com

Step 2: Type in the code 893733



*“Use of technology should be used to enhance student learning”
(Specification, pg 14)*

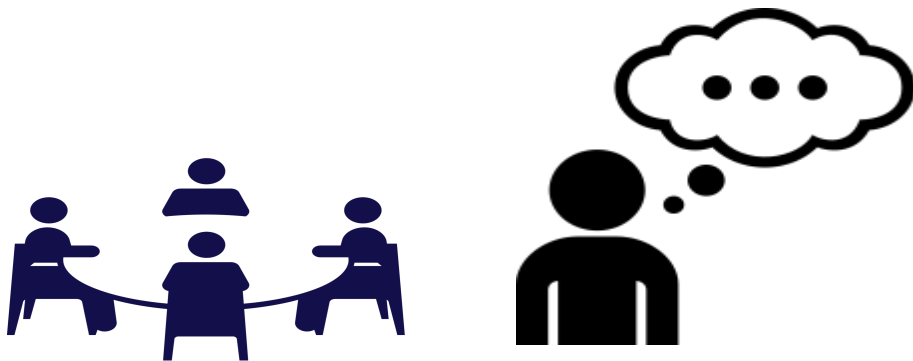
How do you make your classroom a student centred learning environment?



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



Google Doc



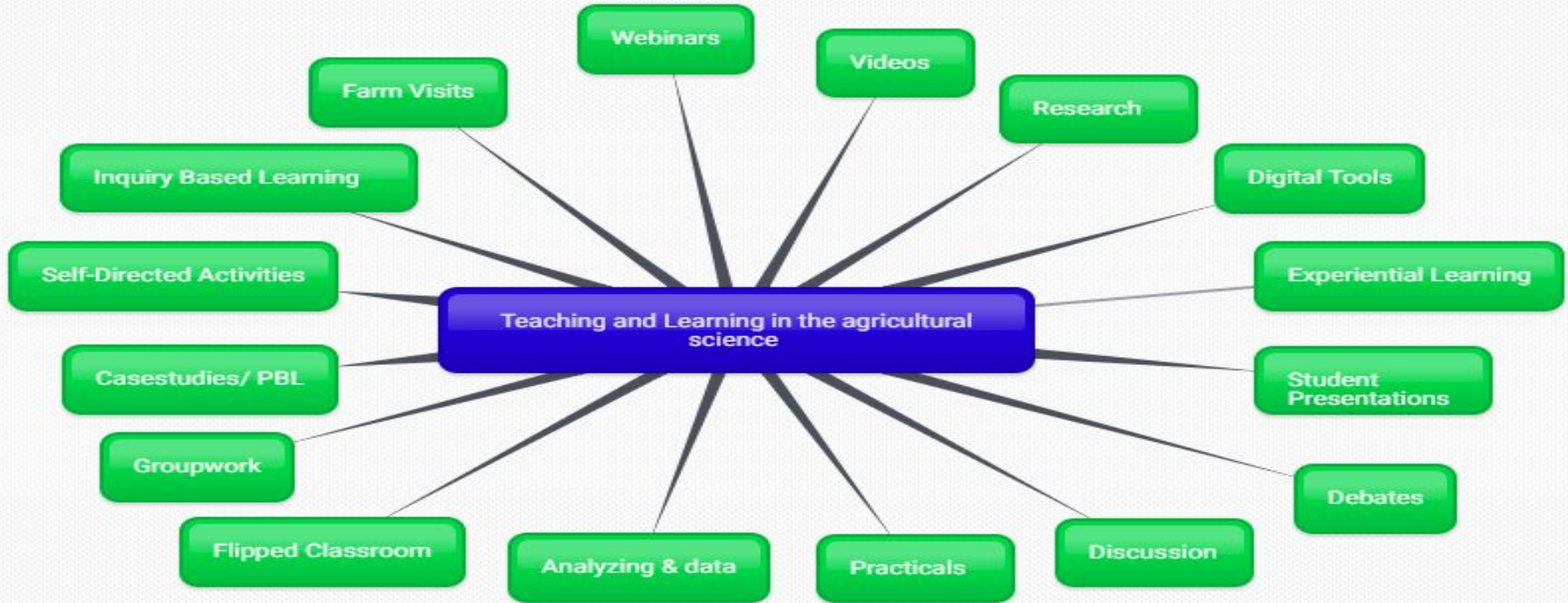
In groups:

Read p14 of the specification
and carry out the TPS activity.

**Think
Pair
Share**



Active Teaching and Learning



“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)

Planning for Agricultural Science



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?



Scoilnet.ie

- A collection of resources - “for teachers by teachers”

GO TO PRIMARY GO TO POST-PRIMARY

Search Resources Browse Resources Add a Resource +

Choose a level No options No options No options

Home / Agriculture Science

Agriculture Science

PDST
Professional Development Service for Teachers | An tSeirbhís um Fhorbairt Ghairmiúil do Mhúinteoirí

LEAVING CERTIFICATE
AGRICULTURAL SCIENCE

<http://www.lcagscience.ie>

How to search for resources



How to upload a resource



How to create a learning path



Session 3

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



Questions & answers



How many learning Outcomes are there

What are Strand Units?

What is their history Ant.

Do I HAVE TO USE ALL LEARNING OUTCOMES?

has art history gone?

Is the Course the same?

WHERE ARE THE LEARNING OUTCOMES IN THE SPECIFICATION?

same as us

do I need to use a visual sketch Book

Do we need to use all LOS?

Do I have to use all

Where has Art Craft Design

Are the Key

Phase 2 - National Workshop 1 Evaluation

Please complete the evaluation form:

<https://forms.gle/LfK91cSbwPfYuERQ9>

