



Oide

Tacú leis an bhFoghlaim
Ghairmiúil i measc Ceannairí
Scoile agus Múinteoirí

Supporting the Professional
Learning of School Leaders
and Teachers

Senior Cycle Agricultural Science Laboratory Day





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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



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

scoilnet

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>



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Further Information

Email: info@oide.ie

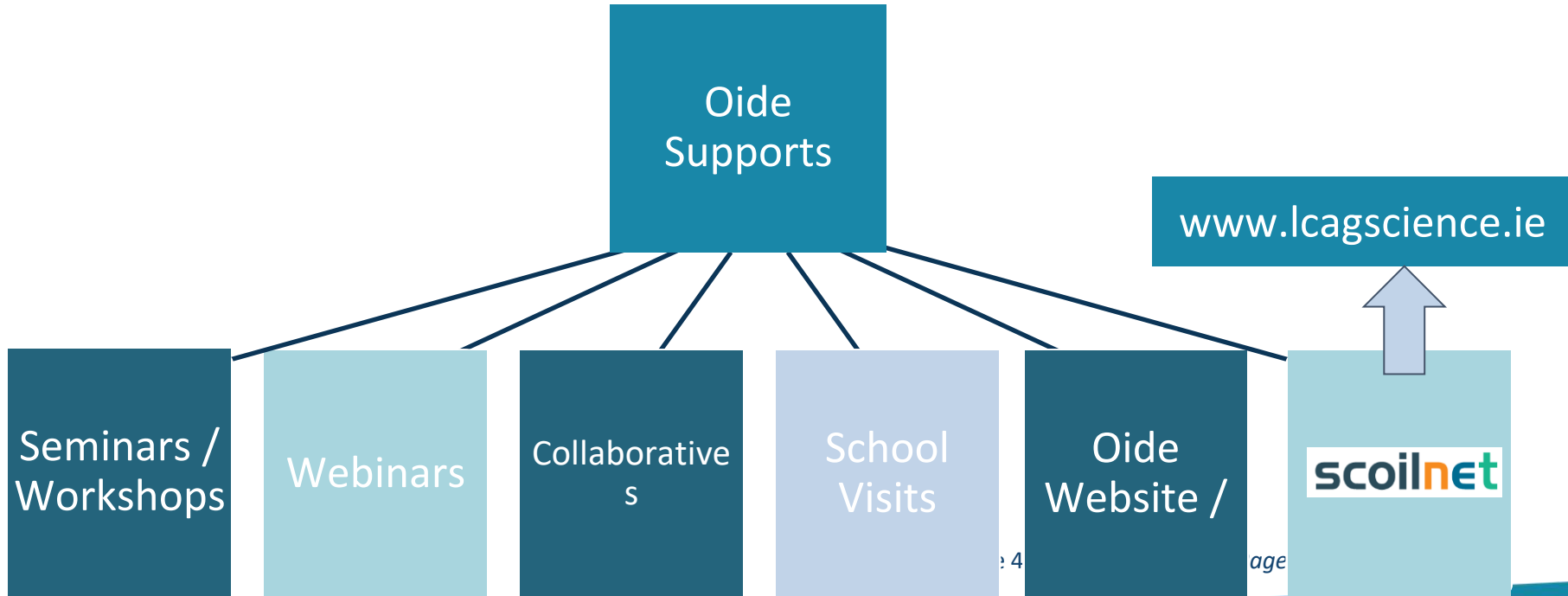
Web: www.oide.ie

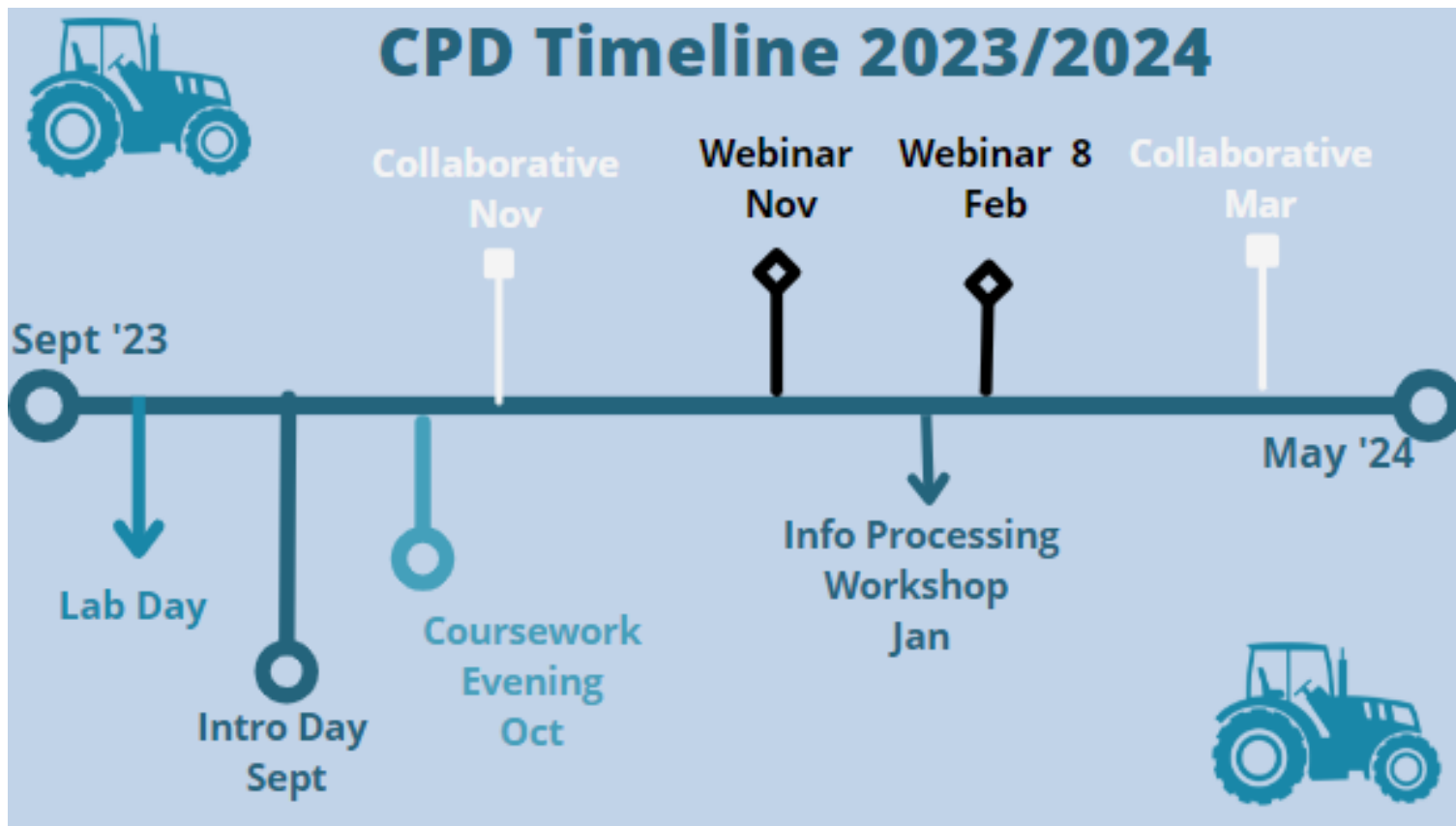
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Oide Supports



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Key Messages



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Creating a safe learning environment promotes students' engagement with scientific practices



Conducting specified practical activities students will develop the necessary skills required to carry out their individual investigative study



Appreciate the role practical work and investigations has to play in the agricultural sector and how this can be used to teach the contextual strands, key skills and cross cutting themes of the course

Timetable



<p>Session 1 10:30 - 12:30</p>	<ul style="list-style-type: none">• Welcome and Introduction• Promoting good scientific practices in agricultural science• Carousel of Specified Practical Activities
<p>12:30 - 13:30 Lunch</p>	
<p>Session 2 13:30 - 15:00</p>	<ul style="list-style-type: none">• Practical activities to support the IIS



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Session 1:

Promoting Scientific Skills through Specified Practical Activities



Participant outcomes

By the end of this workshop participants will be able to:

- further promote students' engagement with scientific practices through the specified practical activities to enrich and deepen the learning experience while enhancing practical skills
- further appreciate the role SPA's play in developing students' skills necessary to carry out their individual investigative study

Continuum of Inquiry



“Most students will need frequent practice to develop their understanding of scientific processes to use evidence to support explanations and to develop their inquiry skills to a point where they can conduct their own inv

“Providing opportunities for students to develop a range of inquiry skills will be necessary to progress along the continuum of inquiry”.





Reflection

How do you promote good scientific practice in the agricultural science classroom?



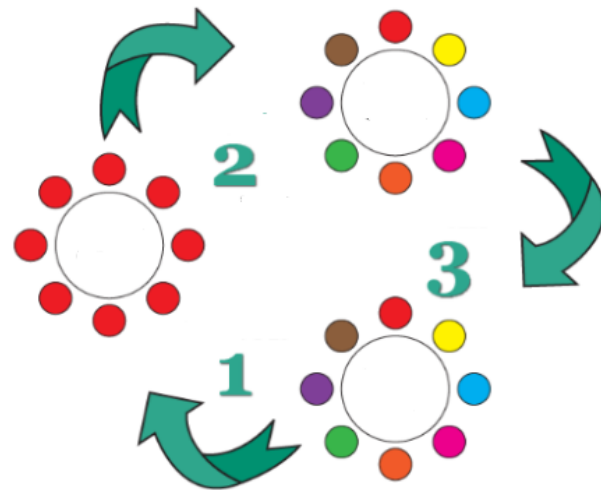
Think
Pair
Share





Carousel of Practical Activities

- The carousel consists of six practical activities (5 are SPAs)
- Please select four of these activities based on your own needs of professional development
- Each group will have 30 minutes for each activity with 10 minutes at the end of the session for group feedback, reflection and sharing of good practice

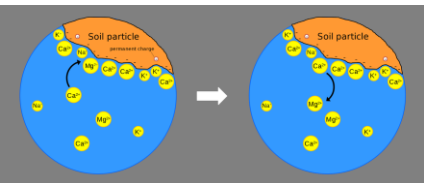
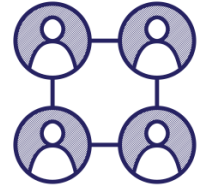




Specified Practical Activity Stations

Select any 4 activities from the following carousel:

1. **2.2.1(b) Cation Exchange Capacity**
2. 2.2.1 Flocculation
3. 2.2.3 (b) Isolating and Plating Rhizobium Bacteria
4. **3.3.1(d) Comparing uniformity of certified and uncertified seed**
5. 3.3.2(h) Investigating the effect of nutrients on the biomass above and below the ground
6. Demonstrating the use and benefits of using alternate equipment to exemplify the difference between accuracy and precision in obtaining primary data





Reflection

How will I integrate my learning from the carousel activities into my own professional practice?

How will students' engagement with SPAs develop core scientific skills to support the IIS?



How could I progressively plan across my department plan to enhance these skills?

What are my next steps?





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Participants will have:

- promoted students' engagement with scientific practices through the specified practical activities to enrich and deepen the learning experience while enhancing practical skills
- appreciated the role SPAs play in developing students' skills necessary to carry out their individual investigative study



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Session 2:

Practical Activities to Support the IIS



Participant outcomes

By the end of this session participants will be able to:

- appreciate the role SPAs play in developing students skills necessary to carry out their individual investigative study
- understand the role practical work and investigations play in the agricultural sector and how this can be used to teach the contextual strands, key skills and cross cutting themes of the specification
- extend, modify or adapt SPAs in order to support students when completing the IIS



IIS Exploration

Specified Practical Activity

4.3(h) : Investigate the quality of a sample of milk over time



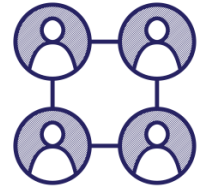
“The Individual Investigative Study allows students to design their own investigations, stemming from their areas of interest and/or experience in the field. They can also choose to adapt, modify and extend specified practical activities from the course”

(pg 12 NCCA guidelines)



Milk Quality Tests

1. Resazurin Test - Will tell us the quality of the raw milk over time.
2. The California Mastitis Test - A qualitative test for mastitis
3. The Delvo test - tests for the presence of antibiotics in milk.
4. Total Bacterial Count (TBC) - Gives the total bacterial count in the milk sample.
5. Total milk solids - Allows us to assess the solids in the milk sample



Group 1

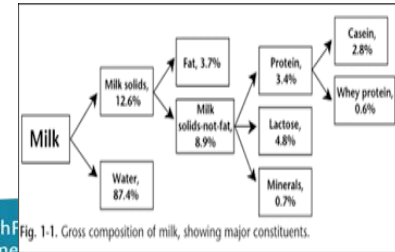
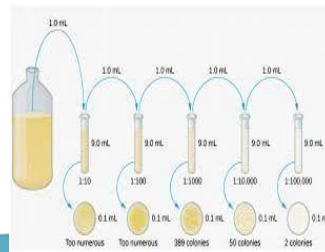


Fig. 1-1. Gross composition of milk, showing major constituents.



IIS Exploration



Specified Practical Activity

3.3.2 (I) : Measure the dry matter (DM) content of a named crop

“The Individual Investigative Study allows students to design their own investigations, stemming from their areas of interest and/or experience in the field. They can also choose to adapt, modify and extend specified practical activities from the course”

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IIS Exploration



Specified Practical Activity

3.3.2 (I) : Measure the dry matter (DM) content of a named crop

“The Individual Investigative Study allows students to design their own investigations, stemming from their areas of interest and/or experience in the field. They can also choose to adapt, modify and extend specified practical activities from the course”

(pg 12 NCCA guidelines)

Specified Practical Activity

3.3.2 (d) Investigate the botanical composition of an old permanent pasture or a new ley

- Calculate the percentage clover in a sward



3.3.3 (b) : Investigate two factors which affect crop preservation

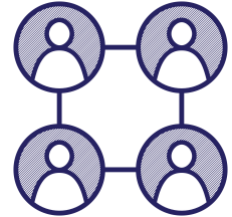
- Calculate the morphological composition (percentages of leaf, stem and dead) of a sward





Grass Quality Experiments

1. Calculate the percentage dry matter of a sward using a microwave
2. Calculate the percentage of grass or clover in a sward
3. Calculate the percentage of leaf, stem and dead in a sward

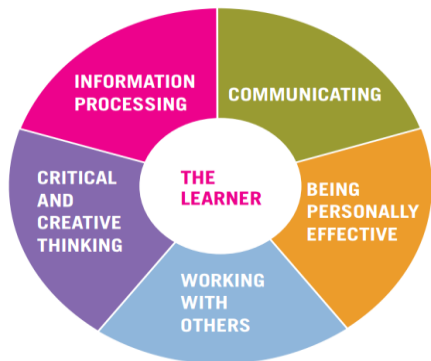


Group 2



Reflection

Which of the senior cycle key skills will students have developed through actively engaging with these experiments?



Specification, 2019 P.13





Group Reflection

How have you extended, adapted or modified SPAs to allow students to carry out coursework titles in your classroom?



<https://padlet.com/agscience/webinar/b6kiyza9ric6sua4>



Participant outcomes



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Evaluation

Please scan the QR code to log on:

Oide Laboratory Workshop for
teachers of Agricultural Science

