PDST
Professiona Deve opment | An tSeirbhís um Fhorbairt
Service for Teachers | Ghairmiúi do Mhúinteoirí

An Roinn Oideachais
Department of Education

Agricultural Science
National Workshop 5

LEAVING CERTIFICATE
AGRICULTURAL SCIENCE

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Expectations for Online CPD

The PDST <u>does not</u> give permission for this CPD event to be recorded. Screenshots <u>cannot</u> 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.
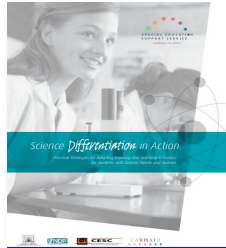- Raise the pen or hand to indicate to the facilitator that you wish to contribute.

PDST Supports
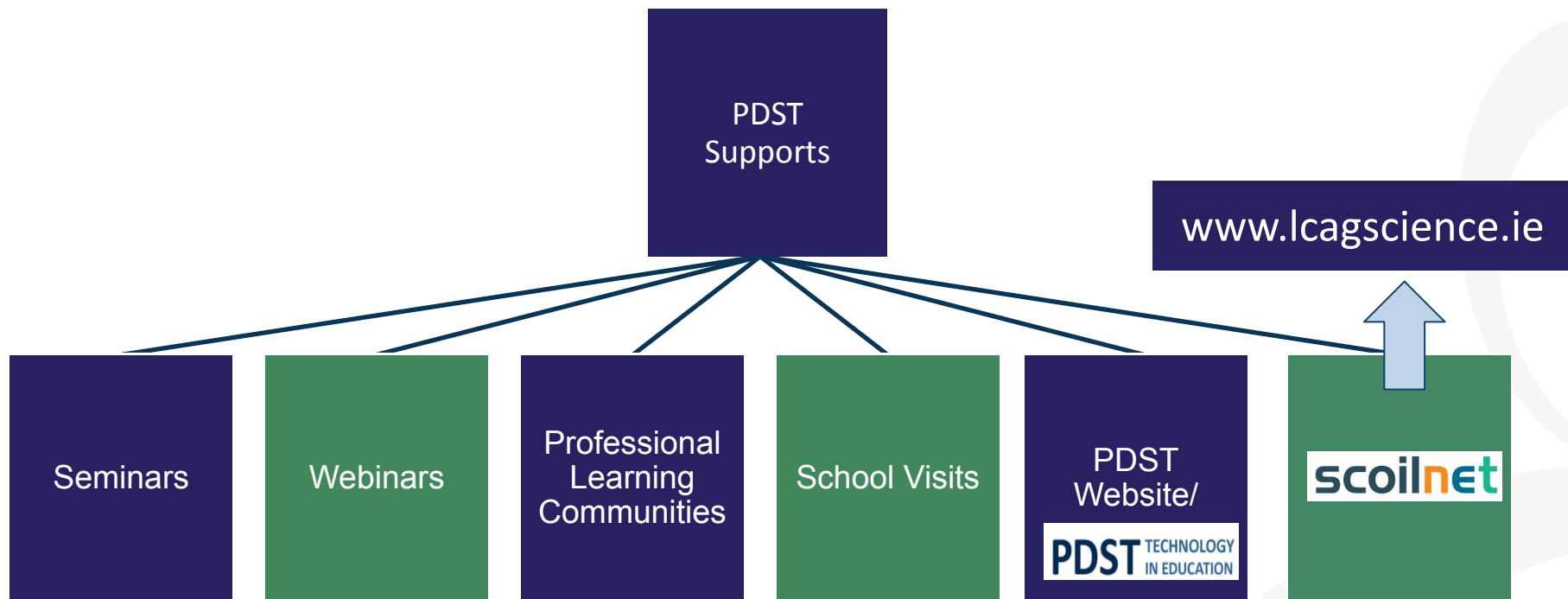
Purpose for Today

To support inclusion in the agricultural science classroom through exploring inclusive pedagogies

To explore how practical differentiation can be implemented in the agricultural science classroom

To allow for reflection and continued collaboration to support future growth and development of the specification

Timetable

Session 1 9:30 - 11:00	• Reflection of journey to date • Inclusion in the agricultural classroom
Tea/Coffee Break **11:00 - 11:20**	
Session 2 11:15 - 1:00	• Differentiation in the agricultural science classroom
Lunch **1:00 - 2:00**	
Session 3 2:00 - 3:30	• Student voice • Digital technologies to enhance teaching, learning and assessment

Key Messages

Using the Universal Design for Learning (UDL) framework and the Gradual Release of Responsibility (GRR) model to scaffold an inclusive learning environment

Action verbs in learning outcomes provide insights into how learning might be differentiated by content , process and product

Reflecting on your CPD journey to date will allow you to appreciate how you have become more engaged with the specification, more resourceful, confident and active in teaching and learning

Session 1

By the end of this session participants will have:

- Reflected on how our CPD journey has enhanced their teaching, learning and assessment

- Considered the UDL framework and support documents as core factors for making learning accessible for all students

- Actively engaged with the GRR model to develop effective differentiated strategies to support all learners

Our Journey so Far..... Look How Far we Have Come!

MAR / APR 2019

National Workshop 1

MAY 2019

PLC 1

OCT / NOV 2019

National Workshop 2

NOV / DEC 2019

PLC 2

JAN 2020

Webinar 1

FEB / MAR 2020

National Workshop 3

SEPT 2020

Guidance and Additional Flexibilities Webinar

SEPT / OCT 2020

PLC 3

OCT / NOV 2020

National Workshop 4

NOV / DEC 2020

PLC 4

JAN 2021

Webinar 3

FEB / MAR 2021

National Workshop 5

APR / MAY 2021

PLC 5

MAY 2021

Webinar 4

2021 / 2022

What is Inclusion?

Universal Design for Learning (UDL)

UDL provides an overarching framework to improve the teaching and learning experience of all students within the Agricultural Science classroom through creating:

- Flexible options to support all
- Responds to learner diversity
- Removes barriers to learning
- Avoids marginalisation

"Levels of demand in any learning activity will differ as students bring different ideas & levels of understanding to it. The use of strategies for differentiated learning such as adjusting the level of skills required, varying the amount and the nature of intervention, and varying the pace and sequence of learning will allow students to interact at their own level"

(Specification, pg 14)

Engagement, Representation, Expression

Supporting inclusion in the Agricultural Science Classroom

The subject teacher has primary responsibility for progress of all students.

The Student Support Plan should be available, accessed and consulted with when planning.

STUDENT SUPPORT FILE

Name of Student	
Date of Birth	
School	
Date File Opened	
Date File Closed	

ACADEMIC SUCCESS ⟷ SOCIAL, EMOTIONAL & BEHAVIOURAL COMPETENCE

SCHOOL SUPPORT PLUS
(Support for a few)

SCHOOL SUPPORT
(Support for Some)

CLASSROOM SUPPORT
(Support for All)

A Continuum of Support

Developing a student support plan is the outcome of a problem solving process, involving school staff, parent(s)/ guardian(s) and the student. We start by identifying concerns, we gather information, we put together a plan and we review it.

Agricultural Science
Curriculum Specification

"Students vary in the amount and type of support they need to be successful"
(Specification, pg 14)

Key Supports for Inclusion

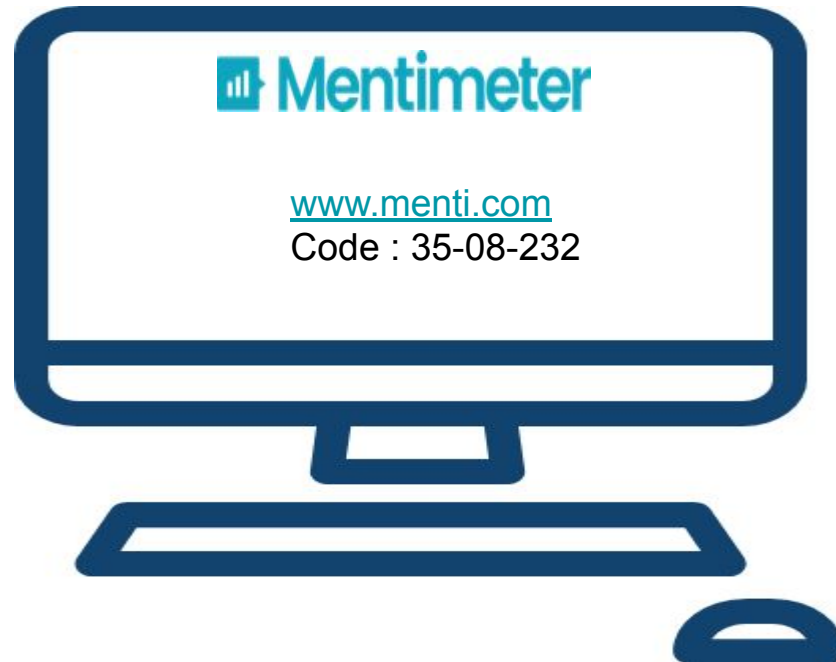# What Inclusive Pedagogies have Worked Well in your Classroom?

How have you supported and included students with SEN in your classroom?

Mentimeter

www.menti.com
Code : 35-08-232

Pg 12

The Gradual Release of Responsibility

TEACHER RESPONSIBILITY

FOCUS LESSON Modeled Instruction	I do it (you watch)
Shared Instruction	We do it (together)
Guided Practice / COLLABORATIVE	You do it (I watch/guide)
Independent Practice / INDEPENDENT	You do it alone (Reflect)
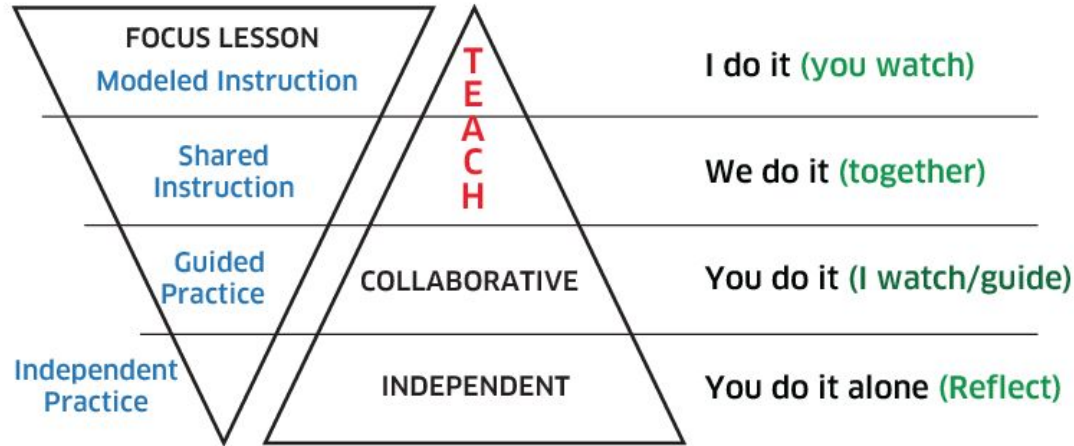
STUDENT RESPONSIBILITY

Fisher & Freyer (2008)

- Dialogic instruction
- Instructional scaffolding
- Think aloud strategies
- Articulate thinking
- Guided instruction
- Peer cooperation
- Self assessment
- AfL strategies
- Being personally effective

The Gradual Release of Responsibility

Pg 13 -14 BO

Stage 1
Focus lesson
I do it - you watch

Stage 2
Shared instruction
We do it - together

The Gradual Release of Responsibility

Stage 4
Independent practice
You do it...

Stage 3
Collaborative learning
You do - I watch

Stage 1 Modelling Research - "Teacher as Learner"

Teacher modelling instruction

Stage 1

- Have I listed what I need to find out?
- What are other sources saying about this topic? What sources would I consider?
- Make sure I am using appropriate and effective search terms and queries.
- What domains am I going to use? Are they trusted? Am I gathering relevant information?
- How will I identify bias in my sources?
- Have I compiled information from various sources and how have will I synthesise it into my your own words?

Using the GRR Model to Develop Effective Research Skills

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Pg 15 & 16

2022L024C2EL

Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Examination 2022

Agricultural Science

Individual Investigative Study

Coursework Brief

Common Level

100 marks

"Supporting conservation of the environment through Irish agricultural practice"
SEC, p5

Rewordify.com
understand what you read

grammarly
Your best writing-assitant online

Immersive Reader

WORLD BOOK ONLINE

Session 1: Plenary

Participants will have:

- Reflected on how our CPD journey has enhanced their teaching, learning and assessment

- Considered the UDL framework and support documents as core factors for making learning accessible for all students

- Actively engaged with the GRR model to develop effective differentiated strategies to support all learners

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Tea/Coffee Break

Enjoy!

Session 2

By the end of this session participants will have:

- Recognised the importance of learning outcomes in supporting the inclusive classroom

- Appreciated the importance of action verbs, key skills and how they can they can support teaching, learning and assessment

- Used Bloom's taxonomy to support practical differentiation

What does a Differentiated Agricultural Science Classroom look like?

- Many instructional arrangements are offered to students

- Multiple materials are provided to students

- Student readiness, interest, and learning profile shape instruction

- Differences are studied as a basis for planning

- Assessment is ongoing and diagnostic to make instruction more responsive to learner needs

Adapted from Universal Design for Learning **A Best Practice Guideline 2017"**

How do we Differentiate?

We can differentiate by:

1. **CONTENT**
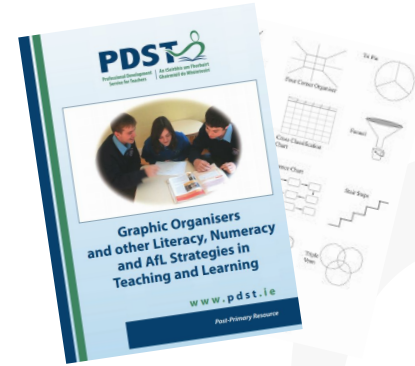   In what ways can I vary the content of what I am teaching?
   Concrete, Symbolic, Abstract

2. **PROCESS**
   How will I teach the lesson?

3. **PRODUCT**
   How will the student demonstrate understanding?

(Science Differentiation in Action, pg 2)

Adjust curricular aims to suit the needs and abilities of all students

Promote creative and higher-level thinking

Group students for learning based on their needs

Use a variety of instructional approaches and strategies

Provide a choice of learning activities

Students present learning in different ways

Use different instructional strategies when revising

Whole class discussion to determine prior knowledge

Use appropriate assessment modes

Differentiation in Action in Agricultural Science

(Science Differentiation in Action, pg 91)

Differentiation in the Agricultural Science Specification

The Leaving Certificate Agricultural Science specification is differentiated in three ways:

1. _Learning outcomes_

2. _Teaching and learning_

3. _Assessment_

(Specification pg. 25)

1. Understanding Learning Outcomes

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)

The flexible nature of learning outcomes can _challenge the most able students in their learning as well as meeting the needs of students with special educational needs._
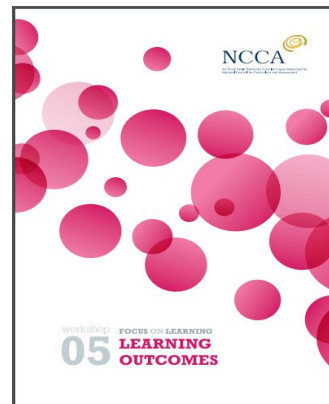
Working with Learning Outcomes

Understanding action verbs within Learning Outcomes

- The action verb is described in terms of <u>what *the learner should be able to do.*</u>

- The action verb glossary is aligned with the command words used in the *<u>assessment</u>*.(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 <u>skills</u>* and <u>knowledge</u> .

(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

30   Agricultural Science Curriculum Specification

Knowledge and Skills in Agricultural Science

Creating

Evaluating

Analysing

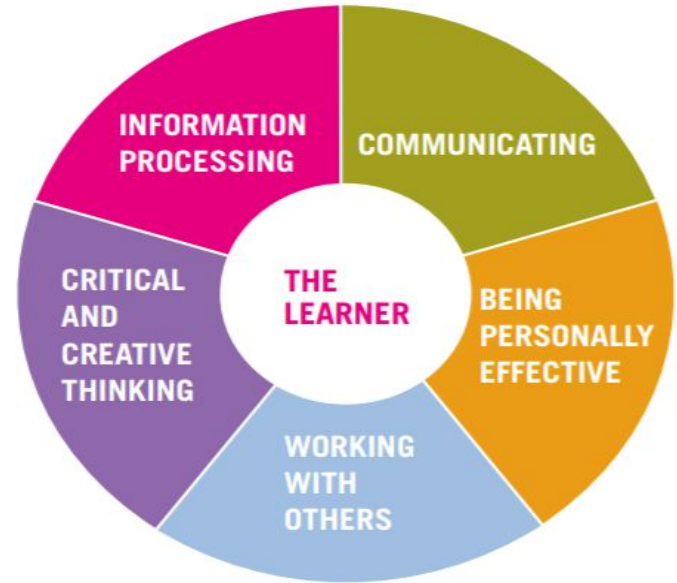Applying

Understanding

Remembering

Figure 5: Key skills of senior cycle

Adapted from *"NCCA - Focus on Learning - Effective Questioning 2015"*
Bloom's Taxonomy (Revised, 2001)

Learning outcomes, learning intentions and success criteria – Making the connection

Learning outcomes

Selected from the specification

Develop learning intentions

Developed by teacher shared with students.

Organise learning activities

Organise teaching, learning & assessment experiences to achieve the learning intention

Develop success criteria

Agreed by teacher and students

Feedback

Figure 1: Planning teaching learning and assessment

Learning Intentions

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Can be for a lesson or series of lessons

Learning Intentions

Describes clearly what the teacher wants the students to know, understand, and be able to do as a result of learning and teaching activities

Statement created by the teacher

Differentiating Learning Outcomes Task

1: Developing Learning Intentions

Learning Outcome 4.3(e)

*"**Investigate** the factors that determine the output and quality of produce from a chosen enterprise (breed variety, nutrition, housing, management)"*

In groups:

Develop learning intentions for learning outcome 4.3 (e)

Action Verb:

Investigate

Observe, study, or make a detailed and systematic examination, in order to establish facts and reach new conclusions

"

2. Differentiated 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)

Success Criteria

Linked to the learning intentions

Describes what success looks like

Success Criteria

Developed by the teacher and/ or students

Help the teacher and student to make judgements about quality of student learning

Differentiating Learning Outcomes Task

Teaching and Learning
Learning Outcome 4.3E

"Investigate the factors that determine the output and quality of produce from a chosen enterprise (breed variety, nutrition, housing, management)"

In groups develop:
       Learning Intentions
       Learning Activities
       Success Criteria

By setting appropriate and engaging tasks, asking *higher order questions* and giving *feedback* that promotes learner autonomy, assessment supports learning as well as summarising achievement

(Specification, pg 15)

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3. Teaching and Learning to Support Summative Assessment

Learning Outcome 4.3E

"Investigate the factors that determine the output and quality of produce from a chosen enterprise (breed variety, nutrition, housing, management)"

"Examination questions will require candidates to demonstrate *knowledge, understanding, application, analysis and evaluation appropriate to each level*"

(Specification pg. 26)

Using the action verb "discuss" consider possible student responses.

How does the action verb determine the way the learning outcome is assessed?

How do you support students to apply their knowledge to an unfamiliar context?

Pg 28-30

Session 2 - Plenary

Participants will have:

- Recognised the importance of learning outcomes in supporting the inclusive classroom

- Appreciated the importance of action verbs and key skills and how they can they can support teaching, learning and assessment

- Used Bloom's taxonomy to support practical differentiation

Lunch Break

Enjoy!

Session 3

By the end of this session participants will have:

- Reflected on their journey through the specification to date

- Considered their experiences of distance learning and identify positive aspects to incorporate into blended learning going forward

- Explored the resources available on Scoilnet whilst creating and sharing a learning path corresponding to a particular unit of learning
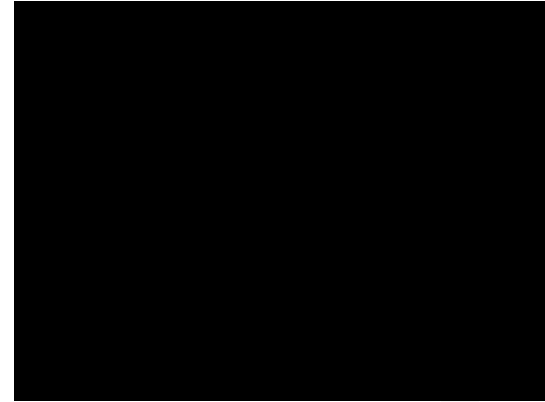
Sharing Student Experiences of the Specification

Grace, 5th Year:
"I've learned so many new skills in the course already and I'm looking forward to learning many more"

Aoife, 6th Year:
"I particularly love how the focus is on the environment, sustainability and the future and what we can do better, it's such a modern outlook which is not something you get in other subjects"

Patrick, 6th Year:
"The IIS gets you percentage before the exam which is handy"

Reflecting on your Experiences to Date

Take some time to consider your responses to these questions:

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1. What have been the highlights of the specification?
2. How have your students engaged positively with the specification?
3. Do you have a vision for your Agricultural Science classroom going forward?

"We do not learn from experience . . . we learn from reflecting on experience."
- John Dewey

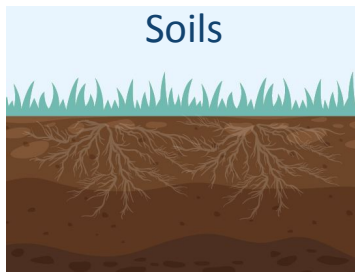edutopia.org

Distance Learning and the Specification

Blended Learning Explained

Digital Portfolios

Blended Learning in the Agricultural Science Classroom

Blended learning is *"the thoughtful integration of classroom face-to-face learning experiences with online learning experiences"* (Garrison and Kanuka, 2004)

Blended Learning Considerations

- Learning Outcomes
- Key Skills
- Cross Cutting Themes:Technology
- Research and IIS
- SPAs and Data Analysis
- Teacher Collaboration
- Assessment
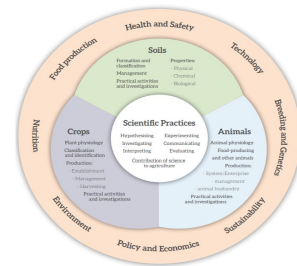
"Use of technology should be used to enhance student learning"
(Specification, pg 14)

The Online Classroom and Inclusivity

Content	Pedagogy	Technology

Inclusive Considerations

- Student Choice
- Student Voice
- Flexibility
- Inclusive Environment
- Stimulating and varied interactions
- Facilitating students' learning processes

Student Centred?

Reflection: Using Distance Learning to Build Effective Blended Learning

When teaching online….

1. How did you differentiate for students online and make your classroom inclusive?

2. How did you encourage student engagement?

3. What did assessment look like?

4. How did you support feedback?
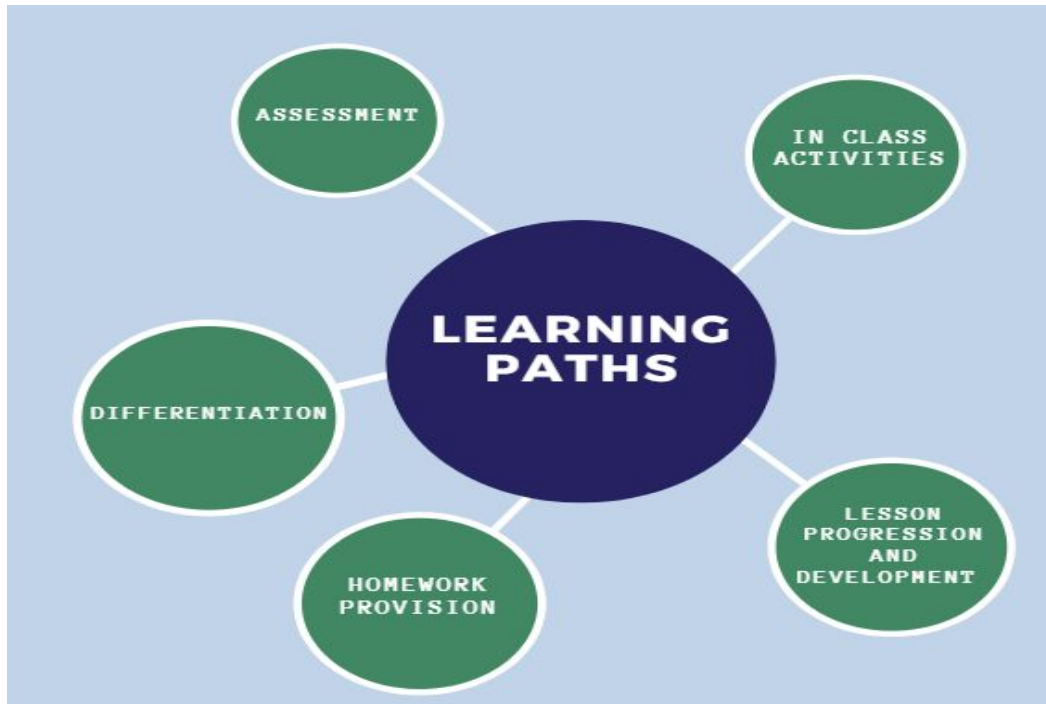
5. How did you facilitate collaboration?

Pg 32 & 33

Learning Paths on Scoilnet.ie

- A collection of resources
- Selected and curated by the teacher
- Easy to share with colleagues/students

Pg 35 & 36

scoilnet
Learning Paths

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scoilnet

GO TO PRIMARY   GO TO POST-PRIMARY

| Search Resources | Browse Resources | Add a Resource ⊕ |

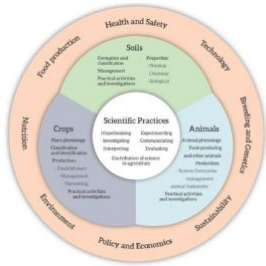| Choose a level ▼ | No options ▼ | No options ▼ | No options ▼ |

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http://www.lcagscience.ie

Create and Share your own Learning Path

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In your groups:
- Pick the title of a unit of learning from your planning documents.
- Ensure each group member has a different title.
- Then log onto scoilnet and create a corresponding learning path for that unit of learning.
- Copy the url of the learning path back into the Google Doc.

Unit of Learning Template		
Title:		
Learning Outcomes		
Choose a learning outcome		
Choose a learning outcome		
Choose a learning outcome		
Choose a learning outcome		
Choose a learning outcome		
Choose a learning outcome		
Choose a learning outcome		
Choose a learning outcome		
Choose a learning outcome		
Cross Cutting Themes		
Choose an item.		
Choose an item.		
Choose an item.		
Choose an item.		
Choose an item.		
Choose an item.		

Next Steps

- Last day of National Workshops but not the end of the journey
- What's next from PDST? School Support, Webinars and PLCs
- Reflect on the following questions:

1. What are your next steps to enhance an effective environment for teaching, learning and assessment in your classroom?
2. What are the shared opportunities to collaborate in the PLCs?

What?

Now what?

So what?
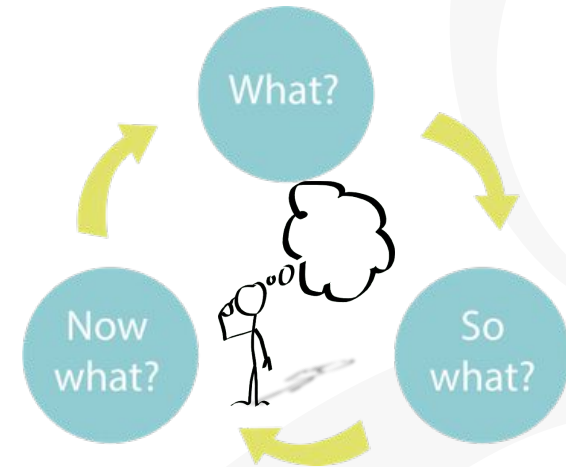
(Freshwater & Rolfe, 2001)

Session 3 - Plenary

By the end of this session participants will now have:

- Reflected on their journey through the specification to date

- Considered their experiences of distance learning and identify positive aspects to incorporate into blended learning going forward

- Explored the resources available on Scoilnet whilst creating and sharing a learning path corresponding to a particular unit of learning

National Workshop 5 Evaluation

Please complete the evaluation form:
https://tinyurl.com/4jq5z25x

References

Session 1

https://www.cast.org/impact/universal-design-for-learning-udl

https://www.curriculumonline.ie/getmedia/f668d804-6283-4d4a-84ab-c71e5b37d198/Specification-for-Junior-Cycle-Science.pdf

CRC Committee, General Comment 9 on Children with Disabilities (2006), UN Doc CRC/C/GC/9, 27February 2007, para 67

Lani Florian & Jennifer Spratt (2013) Enacting inclusion: a framework for interrogating inclusive practice, European Journal of Special Needs Education, 28:2, 119-135, DOI: 10.1080/08856257.2013.778111

National Council for Special Education (2011). Inclusive Education Framework.Meath:NCSE

Winter,E.& O'Raw,P.(2010).Literature review on the principles and practices relating to inclusive education for children with special educational needs

Session 2

Universal Design for Learning **A Best Practice Guideline 2017"(https://www.ahead.ie/userfiles/files/shop/free/UDLL%20Online.pdf)**

https://ncca.ie/media/4107/learning-outcomes-booklet_en.pdf (focus on learning outcomes NCCA)

http://www.sess.ie/sites/default/files/Resources/science/textbook.pdf (Differentiation in action)

https://ncca.ie/media/3958/learning-outcomes-an-international-perspective.pdf (Learning outcomes International)

Session 3

European Commission (2020) Blended Learning in School Education – guidelines for the start of the academic year 2020-21

https://www.schooleducationgateway.eu/downloads/Blended%20learning%20in%20school%20education_European%20Commission_June%202020.pdf

Freshwater, D. and Rolfe, G., 2001. Critical reflexivity: a politically and ethically engaged research method for nursing. *NT Research*, *6*(1), pp.526-537.