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Tacú leis an bhFoghlaim Ghairmiúil i measc Ceannairí Scoile agus Múinteoirí

Supporting the Professional Learning of School Leaders and Teachers

Leaving Certificate Agricultural Science

Information Processing Workshop - Part 2

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Table of Contents

Table of Contents	Page
Key Messages and Participant Outcomes	4
Activity 1 (a) (i)	5
Activity 1 (a) (ii)	6
Activity 1 (a) (iii)	7
Activity 1 (b)	8
Activity 2 (a) (i)	9
Activity 2 (a) (ii)	10
Activity 2 (a) (iii)	11
Activity 2 (a) (iv)	12
Activity 2 (b)	13
Notes	15

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Participant Learning Outcomes

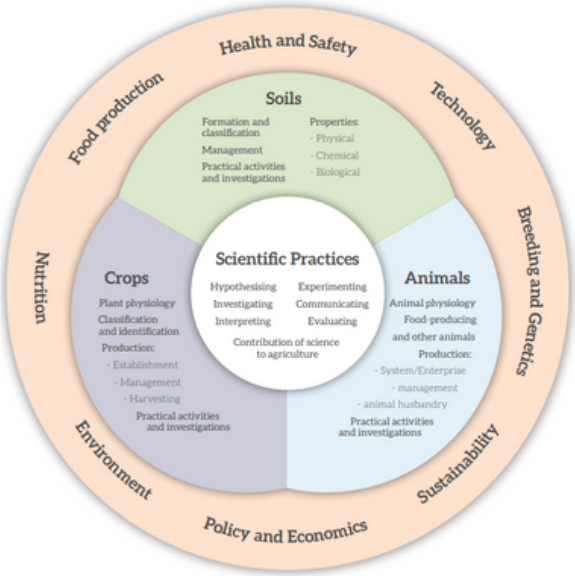
- Engage with information provided in tabular, graphical, and pictorial format.
- Consider how pictures can effectively support teaching, learning and assessment:
  - to develop curiosity
  - to support hypothesising
  - to provide a stimulus for critical thinking and analysis.
- Gain an understanding of the range of statistical analysis students have from engaging with Junior Cycle Maths.
- Consider using stem-and-leaf diagrams and boxplots for analysis of results of investigations.

Key Messages

- Interpret and analyse information and data (numerical, graphical, written and pictorial) in its various forms and see its relevance to their own studies.
- Engagement with information in pictorial format helps spark curiosity and act as a stimulus for hypothesising or for assessment.
- Examining and analysing various forms of data builds students' ability to present their own primary data in varied formats.

Structure of the Specification

(pg 11, Agricultural Science Specification)



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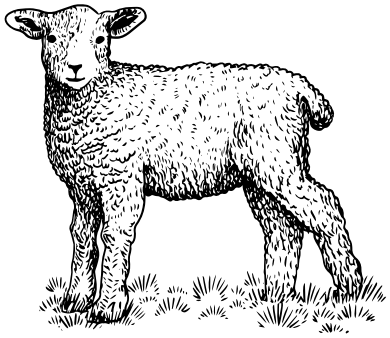
Activity 1 - Part A (i lambs)



A student wanted to examine the difference in growth rate between lambs born and reared as singles in comparison to twins. She collected data on 5 of each born on the same day, all to different mothers.

Singles:

- Lamb 1: Weight at birth - 3.5 kg, Weight at slaughter - 28.2 kg, Weeks between - 40
- Lamb 2: Weight at birth - 3.8 kg, Weight at slaughter - 30.1 kg, Weeks between - 42
- Lamb 3: Weight at birth - 3.4 kg, Weight at slaughter - 29.5 kg, Weeks between - 39
- Lamb 4: Weight at birth - 3.9 kg, Weight at slaughter - 31.0 kg, Weeks between - 41
- Lamb 5: Weight at birth - 4.0 kg, Weight at slaughter - 32.5 kg, Weeks between – 44

Twins:

- Lamb 1: Weight at birth - 2.8 kg, Weight at slaughter - 26.5 kg, Weeks between - 38
- Lamb 2: Weight at birth - 3.1 kg, Weight at slaughter - 28.0 kg, Weeks between - 40
- Lamb 3: Weight at birth - 2.9 kg, Weight at slaughter - 27.3 kg, Weeks between - 39
- Lamb 4: Weight at birth - 3.2 kg, Weight at slaughter - 28.8 kg, Weeks between - 41
- Lamb 5: Weight at birth - 3.0 kg, Weight at slaughter - 29.2 kg, Weeks between – 42

Are there any calculations you would like to do before graphing?	
What graph might you choose to represent this data? And why?	
Have you any other comments to make about this dataset?	

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Activity 1 - Part A (ii wheat)

A student was conducting a study on wheat production across different regions in Ireland. He collected wheat yield data (in bushels per acre) from various regions:
48,55,62,70,42,59,65,78,81,63,56,72,67,73,5048,55,62,70,42,59,65,78,81,63,56,72,67,73,50

Are there any calculations you would like to do before graphing?	
What graph might you choose to represent this data? And why?	
Have you any other comments to make about this dataset?	

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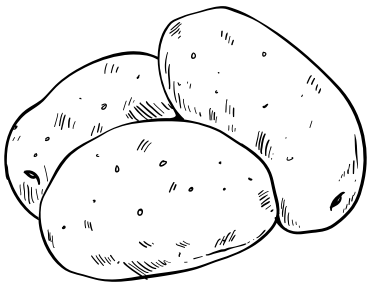
Activity 1 - Part A (iii potatoes)



A student collected the average yields per hectare of potatoes in various farms across their county, in the East of Ireland (in tonnes per hectare):
2.5,14.2,11.8,13.7,12.9,14.6,13.5,15.1,13.9,12.2,14.8,13.3,12.7,13.1,14.512.5,14.2,11.8,13.7,12.9,14.6,13.5,15.1,13.9,12.2,14.8,13.3,12.7,13.1,4.5

Are there any calculations you would like to do before graphing?	
What graph might you choose to represent this data? And why?	
Have you any other comments to make about this dataset?	

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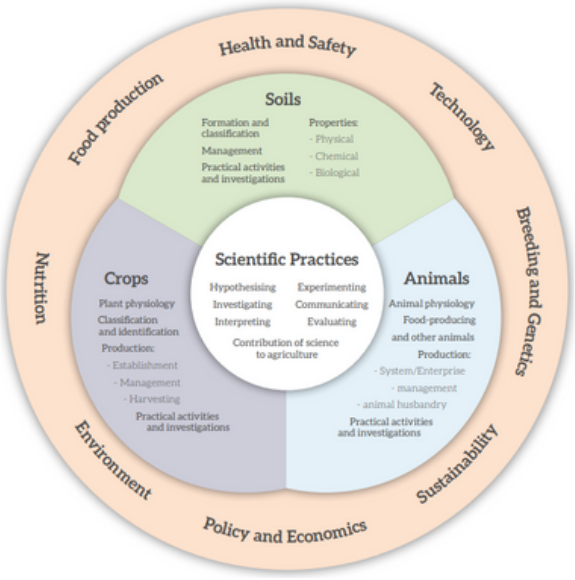
Activity 1 - Part B

The learning outcome 1.1 c says students should be able to: "compile and interpret data or other information gathered from print, laboratory, and electronic sources (including websites), to research a topic or solve a problem". (NCCA, 2019, p16). Consider what other areas of the specification; learning outcomes, specified practical activities or key skills provide opportunities to develop our students' data analysis skills.

Where across the specification might you engage with stem and leaf diagrams?	
Where across the specification might you engage with box plots?	
What other forms of data analysis have you engaged with? For what areas of the specification.	

Structure of the Specification

(pg 11, Agricultural Science Specification)



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Activity 2 - Part A (i) Building Curiosity

What do you notice?	
What do you think is the reason for this?	

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Activity 2 - Part A (ii) From Observation to Hypothesis

What do you notice?	
What might be the reason for this?	
What is your hypothesis?	
How could you test your hypothesis?	

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Activity 2 - Part A (iii) A stimulus for assessment

The photograph is showing a procedure carried out on sheep, at least once a year.

1. **What is the name of this process?**	
2. Why does this have to be done?	
3. What health and safety procedures should occur when this happens?	
4. Are there any environmental issues associated with the treatment?	
5. Explain the difference between an ecto and endoparasite.	
6.Are there any more sustainable methods of protecting the sheep besides this method?	

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Activity 2 - Part A (iv) Try one yourself

How could you use this photograph as part of an assessment?

1. **What description if any might you provide with the photo?**	
2. What lower order questions might you ask?	
3. What higher order questions might you ask?	
4. What questions might you ask to incorporate or link to some other aspect of the course besides Strand 4: Crops?	

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Activity 2 - Part B

Two pertinent learning outcomes include:
1.3 d “make predictions on the behaviours of systems based upon interpretation of numeric, graphic and symbolic representations” and 1.4 a “communicate the procedures and results of investigations by displaying evidence and information in various forms, including flow charts, tables, graphs, and laboratory reports”. (NCCA, 2019, p18).
Consider what other areas of the specification; learning outcomes, specified practical activities or key skills provide opportunities to develop our students’ interpreting skills.

Where across the specification are there opportunities to engage with datasets?	
Where across the specification are there opportunities to engage with data in graphical formats?	
Where across the specification are there opportunities to engage with data in pictorial formats?	

Structure of the Specification

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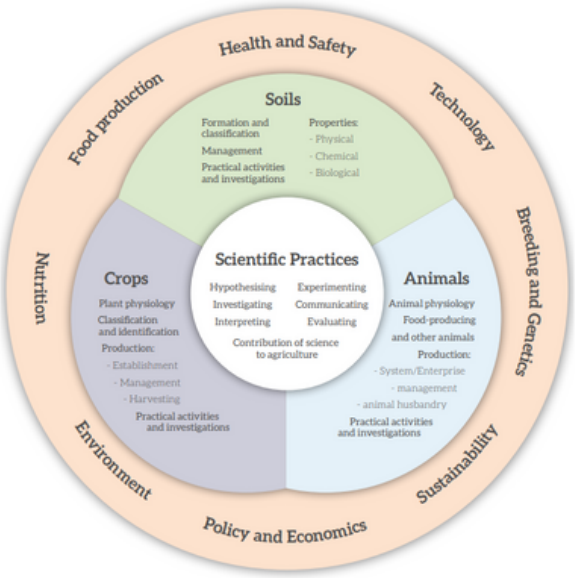

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