

An tSraith Shóisearach do Mhúinteoirí

Junior **CYCLE** for teachers

L2LPs and Inclusive Education for Junior Cycle Mathematics

Booklet

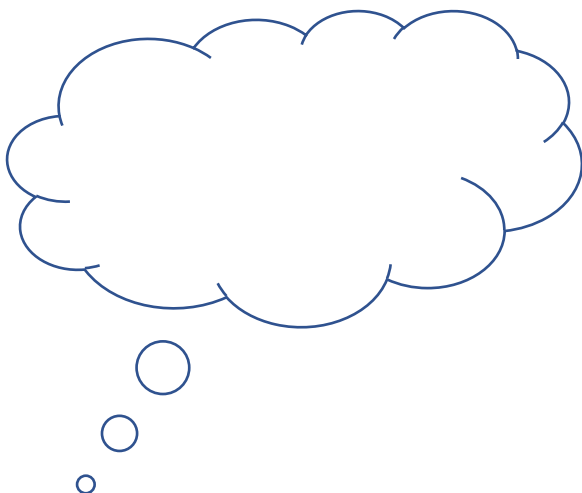
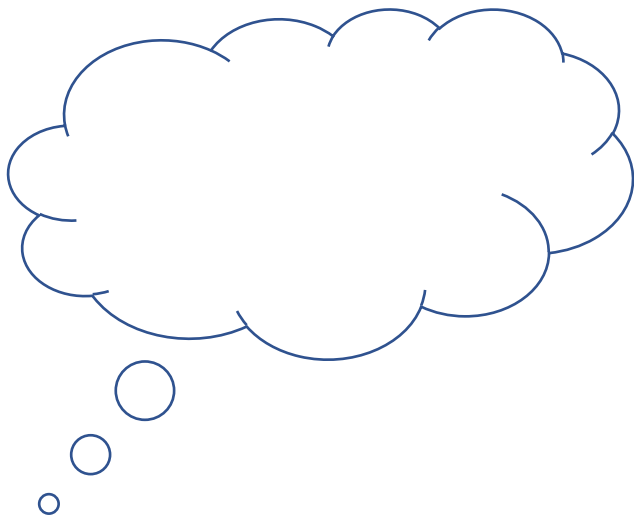


Self-directed CPD on Inclusion and Level 2 Learning Programmes (L2LPs)

The self-directed CPD includes four sections. The first section provides an opportunity for you to consider your experience of inclusion of special needs students and learn about the structure and nature of L2LPs. Section two is an interactive quiz with some commonly asked questions related to Level 2 Learning Programmes. Section three provides an opportunity to examine a unit of learning designed with consideration of learning outcomes from some Level 2 Priority Learning Units and Mathematics Specification (Level 3). This unit of learning includes a statistics task aligned to the key learning, ongoing assessment and evidence of learning outlined in the unit. In section four the principles of Universal Design for Learning (UDL) are explored and further resources on UDL are detailed.

The total approximate time for completion of the CPD is 45 minutes.

Experience of Inclusion of Students with Special Educational Needs



Data Generation and Analysis Unit of Learning

Please note that this is a sample unit of learning designed for the purpose of teacher professional development. This unit can be used for individual consideration and/or departmental discussion.

Concept/Theme: Data Generation and Analysis

Using authentic data, explore possible sources and applications of data, sampling, [representation](#) and statistical summaries to describe, compare and interrelate data, where applicable. The statistical enquiry cycle will be referenced throughout the unit

Student Context:

This unit is designed for a first year group with little or no previous engagement with the learning outcomes from the statistics and probability strand of the Mathematics Specification. However, students would have some prior learning [in the area of](#) data generation and analysis from the primary school curriculum.

Learning Outcomes (L3): SP3 (a-h), GT1, N1(e), U2, U6, U13

Learning Outcomes (L2):

Numeracy

- 2.39 - Identify basic approaches to data collection, e.g. record sheets, tally system
- 2.40 – Collect a range of data using one of the following: a survey, record sheet, tally system or audio-visual records
- 2.41 – Interpret basic data of two criteria (e.g. more/less or one class than another, bigger/smaller)

Communication and Literacy

- 1.21 – Use a range of different forms of writing to suit purpose and audience

Key Learning:

- Students should be able to measure accurately and understand the need for approximation and rounding in the context of real-life problems
- Students should learn about the stages of a statistical investigation (Designing the investigation, identifying the variable of interest, [organising](#) and managing the data, and analysing and interpreting data summaries)
 - Students should understand that the decisions they make in the planning stage of the statistical enquiry cycle (e.g. what variables to measure and/or how many) will impact on the other stages of the cycle (e.g. limitations and misuses)
- Students should understand that representing data in graphical form is a mode of communication in statistics
- Students should be able to justify their choice of variables and graphical representations
- Students should begin to develop their skills in statistical design with a [particular focus](#) on question generation
- Students should understand the purpose of the measures of central tendency and range

Ongoing Assessment

- Can students select and justify their choice of approximation and decimal rounding in a variety of contexts?
- Can students identify variables in statistical questions?
 - Can students determine which variables are dependent and independent, and identify measuring strategies?
- Can students calculate the measures of central tendency and range accurately and appropriately?

L2LP Evidence of Learning

- Class discussion about data collection methods will occur intermittently during the unit. Questioning (written/oral) must be used and recorded in the student's portfolio as evidence of learning for 2.39
 - Evidence for this learning outcome can be gathered during multiple lessons.
- A record of the data gathered must be kept in some format for inclusion in students' portfolios as evidence of learning for 2.40
 - There will be an opportunity to record the hand sizes of students during the Investigating Hand Size task.
 - There will be an opportunity to record the reaction times during the reaction times task.
- There will be opportunities during the unit to discuss categorical and numerical data during multiple lessons.
 - Worksheet A (Investigating Hand Size task) may be kept in the student's portfolio as evidence of learning for 2.40.
 - Students can compare reaction times during the reaction times task. A record of the comparison may be kept in the student's portfolio as evidence of learning for 2.40.
- Students should use a diagram or table to communicate their thinking.
 - Students are asked to draw a bar chart of gathered data during the Investigating Hand Size task. This bar chart must be kept in the student's portfolio as evidence of learning for 1.21.

Note: More evidence of different forms of writing may be needed for other Level 3 subjects or Level 2 specific lessons to meet the requirements of 1.21

Tasks/Resources/Strategies

- Investigating Hand Size task
- www.cso.ie & <https://censusatschool.ie/about/>
- Reaction timer (http://www.jct.ie/maths/cpd_workshops_2019_2020)

Use this space to record your thoughts

Investigating Hand Size

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Data Generation and Analysis

Investigating Hand Size

An Roinn Oideachais agus Scileanna
Department of Education and Skills

1

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Notes for Teacher: Task Details

This task is presented to students by the teacher using the slides in this presentation.

Students will need some resources in advance of the task. They are

- rulers
- a copy of the Statistical Enquiry Cycle poster
- L2LP Evidence of Learning Worksheet for students undertaking a L2LP

Links to the Statistical Enquiry Cycle poster and the worksheet are available on the next slide.

Please note that students engaging with this activity would have some prior learning in the area of measurement.

2

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Notes for Teacher: Accompanying Student Resources

Statistical Enquiry Cycle Poster L2LP Evidence of Learning Worksheet

[Statistical Enquiry Cycle Poster Link](#)

[L2LP Evidence of Learning Worksheet](#)

3

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Learning Intentions:

- We are learning about the Statistical Enquiry Cycle
- We are learning about mean, median and mode

Possible Success Criteria:

- I can document my thinking and work using the stages of the Statistical Enquiry Cycle
- I can explain the decisions I make during the investigation

4

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Does everyone have the same size hands?

Compare your hand size to student next to you

5

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What measurements did you use to compare hand size?

RULE OF THUMB

6

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Why might recording hand sizes be a useful activity?

Glove Size	Small	Medium	Large	X Large
Hand Size (cm)	18 - 21.5	20 - 24	23 - 26.5	25.5 - 29
Hand Size (inches)	7 - 8.5	8 - 9.5	9 - 10.5	10 - 11.5

LADIES GLOVE SIZE GUIDE

167-172mm	SMALL
173-178mm	MEDIUM
179-185mm	MID LARGE
186-193mm	LARGE

7

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Is there a process we can use to find the mean, median or modal hand size for a student within the class group?

Statistical Enquiry Cycle

Consider the following:

- How can we **measure** everyone's hands?
- How can we **collect** this data?
- How can we **compare** the data we collect?
- How can we **analyse** the data we collect?

8

Group Work

How are you going to take the measurement(s)?
How are you going to record the data?

What is your group's statistical question?
What measurement(s) are you going to take?



What calculations are you going to perform?
How are you going to display the data?

Does my calculations and display help me answer the question?
Is there another calculation that could help or possibly change my answer?

Don't forget to check the success criteria!

9

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What do you know about the words below?

Do my calculations and display help me answer the question?
Is there another calculation that could help or possibly change my answer?

10

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1. What is the **modal** hand size in your data?
2. What is the **median** hand size in your data?
3. What is the **mean** hand size in your data?

11

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12

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I've got to hand it to you, you have been a wonderful class!

Hands down you are the best of the bunch, on the other hand....

GOODBYE
Wave hand near side of head.

THANK YOU
Flat hand starts with fingertips on chin. Hand moves down and away from signer.

13

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Possible Activity

Write a Report

Using the information you have found out, write a report for the **Hand in Glove Company** (which makes children gloves) advising them what size gloves they should manufacture for children of your age. Include any information they may find relevant.

Outline the following:

- How you obtained the data.
- Discuss how reliable you think your findings are.
- Graphs and tables can be included.

14

Use this space to record your thoughts

Universal Design for Learning Guidelines

www.cast.org provides an overview of Universal Design for Learning. As you view the video you may wish to note points of information or discussion points.

Multiple means of Engagement

Multiple means of Representation

Multiple means of Action and Expression

Universal Design for Learning Guidelines

What is working well in my classroom currently?

How could I incorporate UDL into my classroom practice?

How could I incorporate UDL into my assessment practices?

Notes: