Oide

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Supporting the Professional Learning of School Leaders and Teachers

Supporting a Continuum of Learning in Mathematics at Post-Primary Level

Mathematics Professional Learning Experience (PLE) 2025 – 2026

Schedule

09:30 – 11:00	**Session 1** – Making the Transition: Primary to Post Primary
11:00 – 11:20	Break
11:20 – 13:00	**Session 2** – Continuity in Pedagogical Practice - Supporting Students to Make Connections
13:00 – 14:00	Lunch
14:00 – 15:45	**Session 3** – Using Artificial Intelligence (AI) to Support Planning

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Supporting the Professional Learning of School Leaders and Teachers

Introduction

Meet the Team

- Applied Mathematics @OideAppliedMath
- Computer Science @Oide_CompSci
- Mathematics @Oide_PPMaths
- Numeracy

Email: postprimarymaths@oide.ie

Administrator: Seán Arthur

Keep in Touch

Join our Mailing List!

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https://tinyurl.com/oidemaillist

Key Message

Continuity of pedagogical approach and strengthening connections between mathematical concepts support a continuum of learning.

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Supporting the Professional Learning of School Leaders and Teachers

Session 1

Making the Transition

Primary to Post-Primary

Learning Intention

To support continuity of pedagogical approach through active engagement with key mathematical skills.

Success Criteria:
I have:

- considered the opportunities and challenges of teaching first year students
- gained an overview of the recent developments in the new Primary Mathematics Curriculum
- engaged with activities that support continuity of pedagogical approaches and engagement with key mathematical skills in first year

Student Voice: 6th Class

Discussion

What opportunities arise when teaching Mathematics in first year?

What challenges do you face when teaching Mathematics in first year?

10 mins

Student Voice: 1st Year

What are your thoughts after watching this video?

Did anything surprise you?

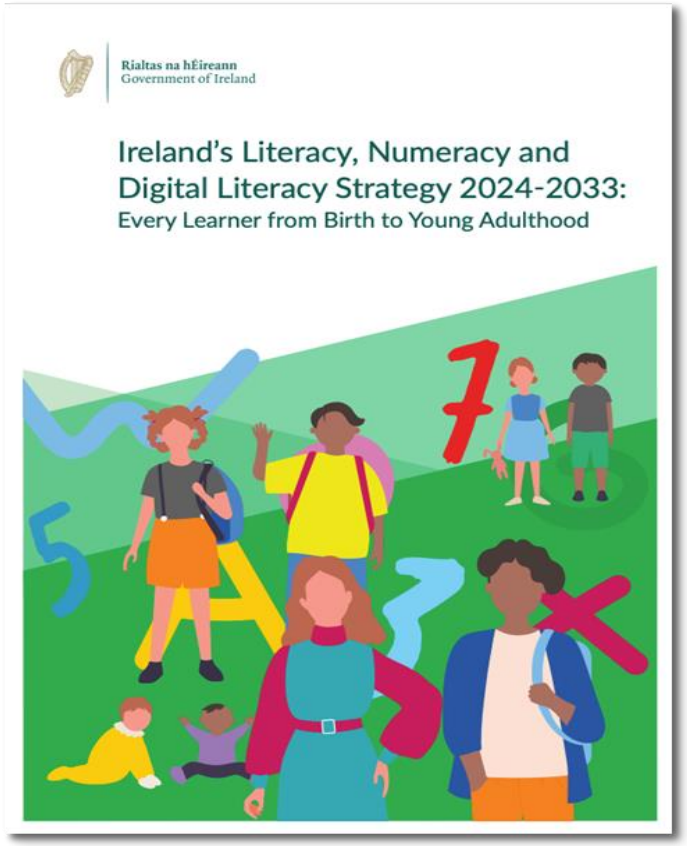
What the research says?

Highlights a statistically significant dip in student performance across the transition period

Suggests that there are a number of factors that have a significant negative impact on the transition in Ireland including:

- Academic Discontinuity
- Fresh Start Approach

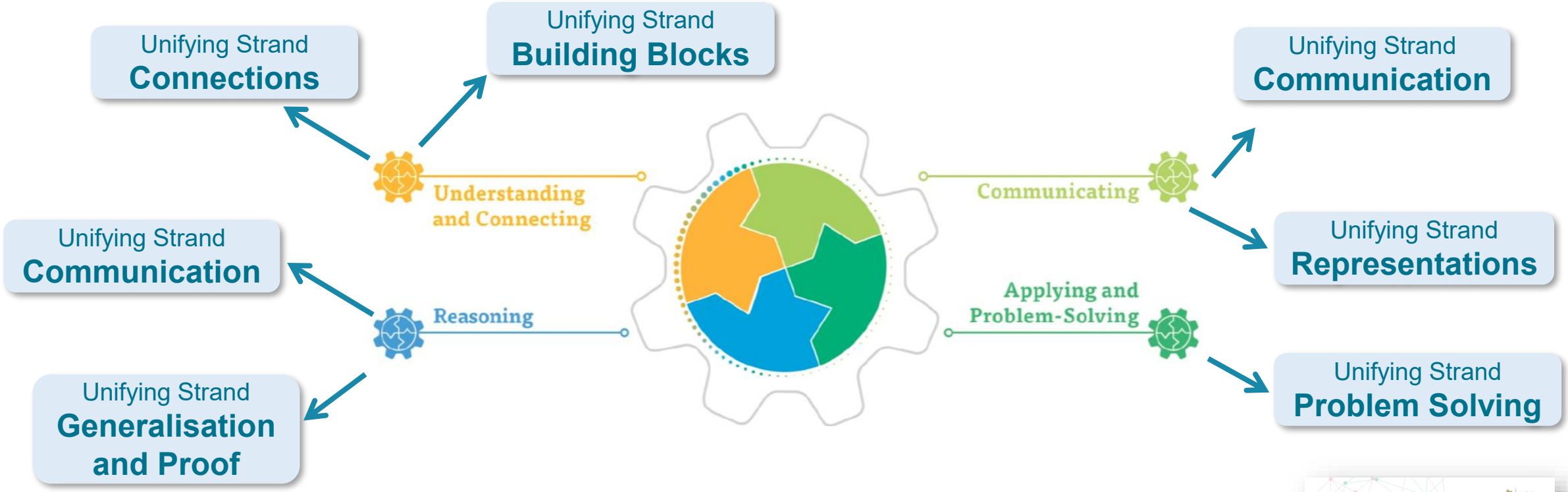
Literacy Numeracy and Digital Literacy Strategy 2024-2033



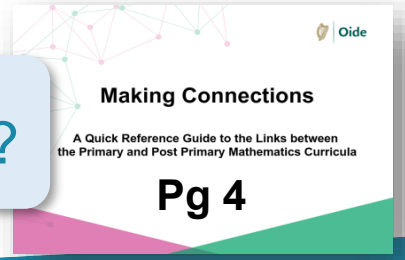
Highlights the importance of smooth transitions that support and promote learning in literacy, numeracy, and digital literacy and states that these are crucial for continuous progress of all learners.

Providing targeted support during these transitions helps learners navigate new challenges and supports learning across different contexts and settings.

Primary Mathematics: Elements



How are these elements reflected in the Junior Cycle specification?



5 mins

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Six children in a class recorded the number of minutes it took them to travel to school one day.

They found the average number of minutes was 17.

What might the six ... have bee...

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The price tag of a toy car is €2.75. What coins would I use to pay for this?

- How do these activities relate to the concepts we teach in first year?
- How could we build on these activities in first year?

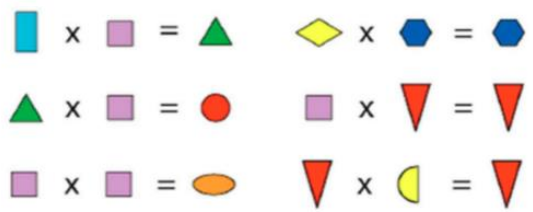
Oide

Shap...

The coloured shapes stand for eleven numbers from 0-12.

Each shape represents a different number.

Can you work out what they are?

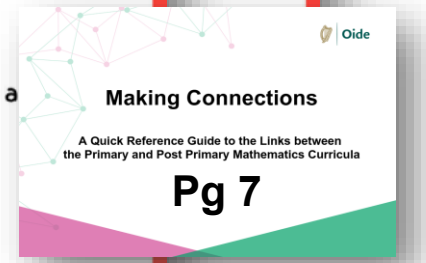


Adapted from: https://nrich.maths.org/6653/

...be?

...es

- Plot the following (1,1) (4,1) (1,3) (4,3) (2,4) (3,4) (2,5) (3,5) on a
- Describe what shape it makes
- Plot the co-ordinates of other familiar shapes
- Ask your friend to identify them

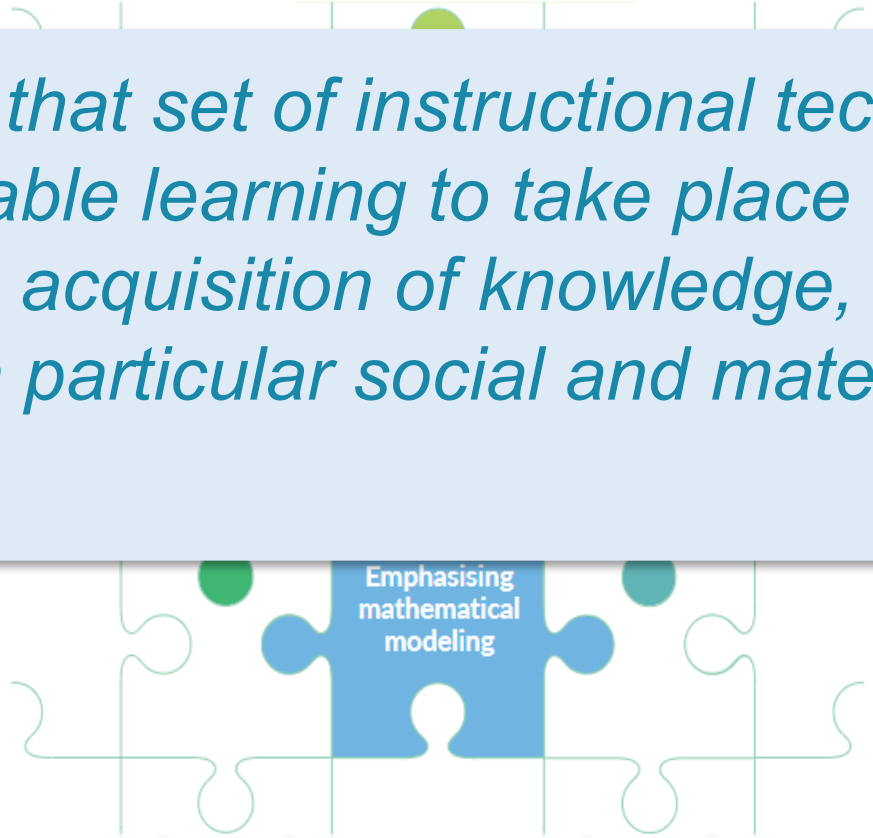


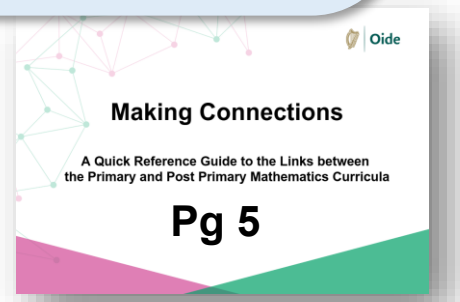
10 mins

Primary Mathematics: Pedagogies

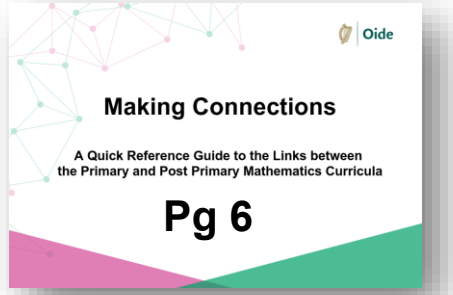
'Pedagogy refers to that set of instructional techniques and strategies which enable learning to take place and provide opportunities for the acquisition of knowledge, skills, attitudes and dispositions within a particular social and material context'

Siraj-Blatchford et al (2002)



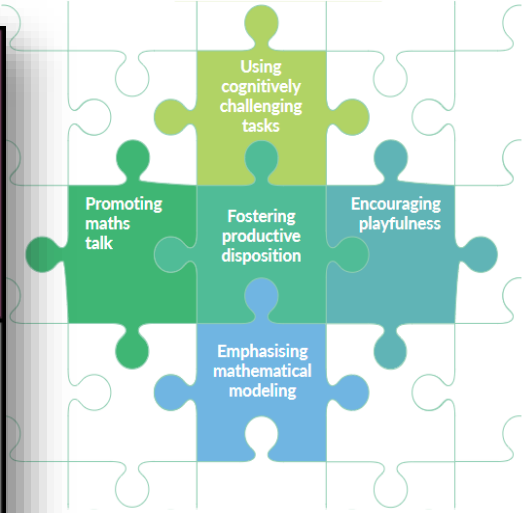


The Primary Context - Perimeter



Checkpoint - Perimeter

Junior Cycle Mathematics Specification Learning outcome Students should be able to:	Primary Mathematics Curriculum Learning Outcome Through appropriately playful and engaging learning experiences, children should be able to:
GT.2 investigate 2D shapes and 3D solids so that they can: c. find the perimeter and area of plane figures made from combinations of discs, triangles, and rectangles, including relevant operations involving pi.	• compare, estimate and measure length, weight, capacity, area and volume using appropriate instruments and record and communicate appropriately. Measures Stage 3: Measuring • find, interpret and deduce measures experimentally with increasing precision. Measures Stage 4: Measuring • represent shapes with drawings and models, and calculate dimensions of shapes. Shape and space Stage 3: Shape • construct 2-D and 3-D models or structures given defined measurements and/or specific conditions. Shape and space Stage 4: Shape



a)

he same size is
ieces has the

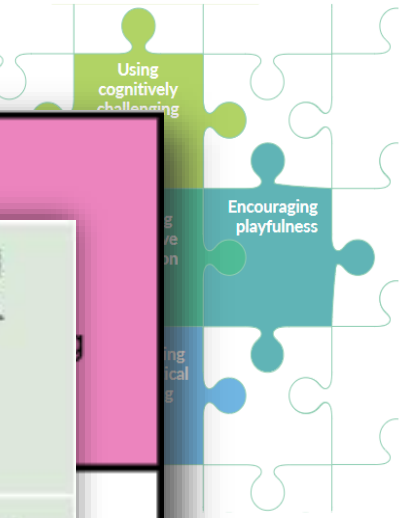
erimeter?

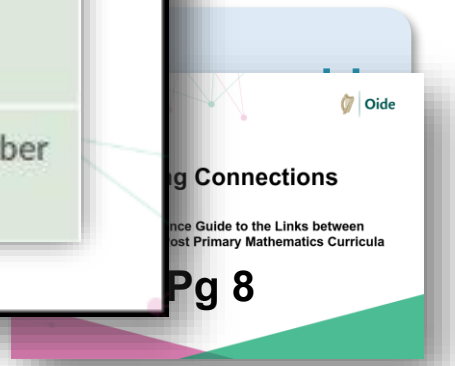
?

6 m

Checkpoint – Variables and Number

Junior Cycle Mathematics Specification Learning outcome Students should be able to:	Primary Mathematics Curriculum
N.1 investigate the representation and arithmetic operations so that they can: d. calculate and interpret factors (including the highest common factor), multiples (including the lowest common factor) and prime numbers.	A prime number has exactly two factors – itself and one, a composite number has three or more factors. The number one is neither prime nor composite. Factors are numbers that multiply together to give a product. Multiples are the result of multiplying a whole number by a whole number (or an integer by an integer).





What if……

Adapted from: [Checkpoints | NCETM]

Reflection

How will my learning goals for my students change based on what I have experienced in this session?

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Supporting the Professional Learning of School Leaders and Teachers

Session 2

Continuity in Pedagogical Practice -

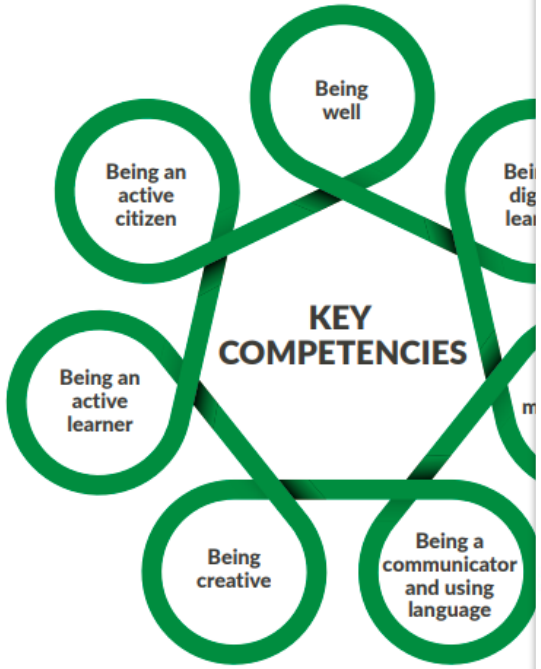
Supporting Students to Make Connections at Post-Primary

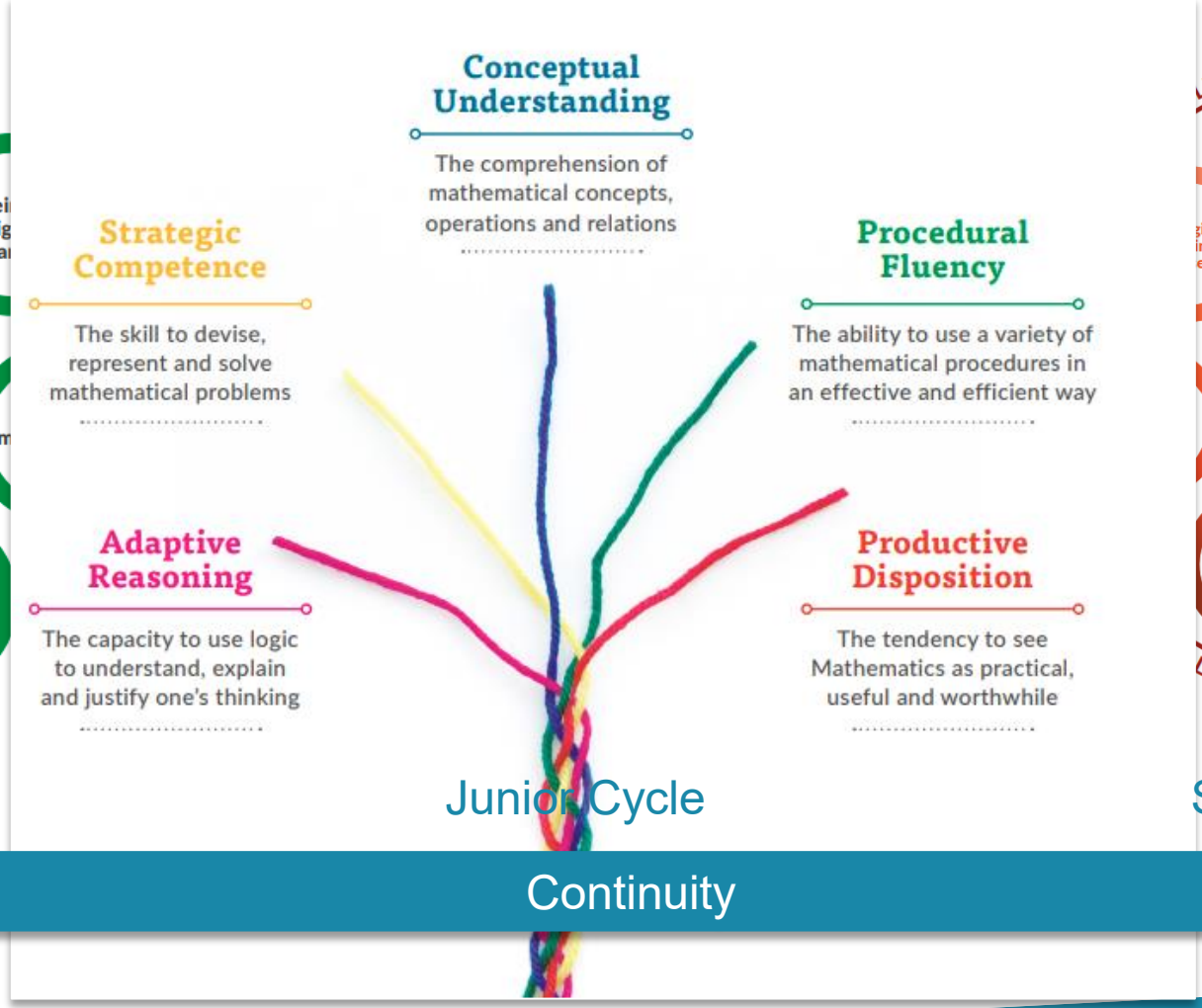
Learning Intentions

- To explore activities that support continuity of pedagogical practice in the development of students' mathematical learning, skills and competencies as they progress through Junior Cycle and onto Senior Cycle

- To consider how these pedagogical practices can support students in making connections within the curriculum

A Continuum of Learning





Primary Years

Junior Cycle

Senior Cycle

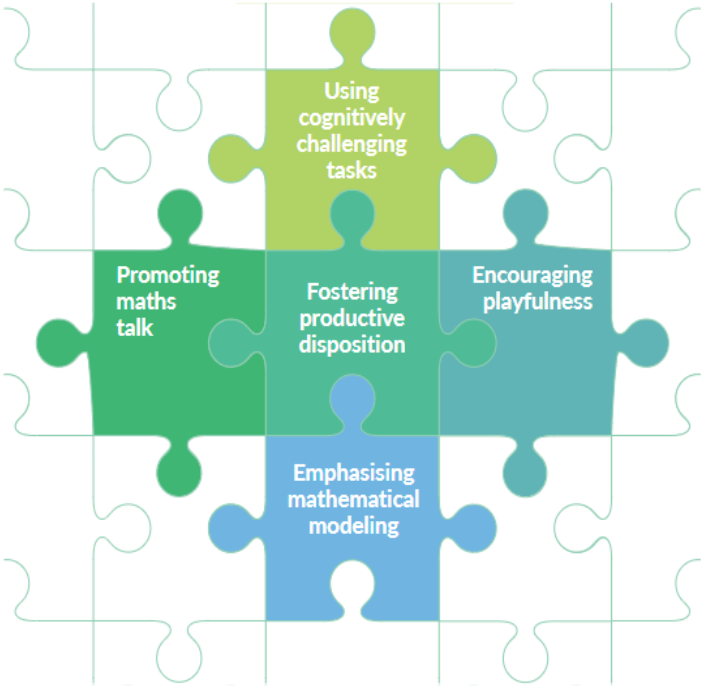
Continuity

Pedagogical Continuity

Use of Digital Technologies

Access and Challenge

Formative Assessment



Scaffolding

are built on these

Cross-Curricular Integration

post-primary?

Flipped Classroom

Inquiry Based Learning

Mathematical Modelling

Real Life Applications

Primary Years

Project Based Learning

5 mins

Activity 2A

Three photos are arranged in a collage to make a **square.**
Dasha, Oisin and Niamh want to find the area of the square.

Dasha did (4 + 3) × 7

Oisín did 4 × 2 + 3 × 7 + 4 × 5

Niamh did 4 × 7 + 3 × 7

? Is each method correct? Explain your reasoning.

5 mins

Adapted from: Checkpoints | NCETM

Access and Challenge
Formative Assessment
Inquiry Based Learning
Real life Applications

Activity 2B

Three photos are arranged to make a collage in the shape of a square.

What questions can we pose using this image to ensure access and/or challenge for all students?

5 mins

Adapted from: Checkpoints | NCETM

Activity 2B – An Approach

a) Which lengths or areas are given by:

$a + b$

$b + c$

$a \times d$

$c - d$

$a \times d + b \times c$

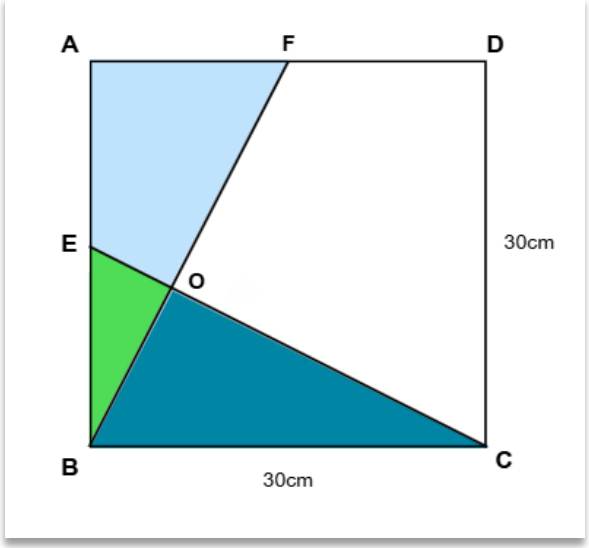
b) How many ways can you write the total **perimeter** of the square?

What other concepts could we connect this activity or visual representation to?

How can pedagogical practices support students in making these connections?

10 mins

Activity 2C



As part of a national youth arts festival, a team of student designers is creating a square banner ($30cm$ by $30cm$). The visual design includes two intersecting lines segments:

- One from the midpoint E of $[AB]$ to the corner C
- One from the midpoint F of $[AD]$ to corner B

$[EC] \perp [BF]$ and meet at the point O forming a triangle that will be highlighted on the banner using reflective material.

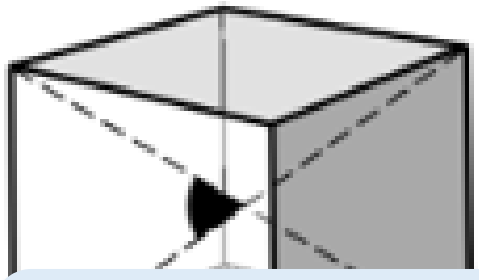
Calculate the length $|EO|$, in the form $a\sqrt{b}, where\ a, b \in N$.

How could you adapt this task to:

- encourage discussion and reveal student thinking?
- provide access and challenge for learners?
- support students in making connections across strands?

15 mins

Activity 2D



A cube shaped lighting rig with $10m$ sides is installed above the main stage at the festival. Two laser beams are stretched from opposite corners of the cube to form a dramatic light effect. The diagram shows the lasers forming an X shape inside the cube crossing at the cube's centre.

a) Calculate the angle where the beams cross.

b) The designer wants the beams to meet at exactly 90°.
Is this possible in a cube? Justify your answer.

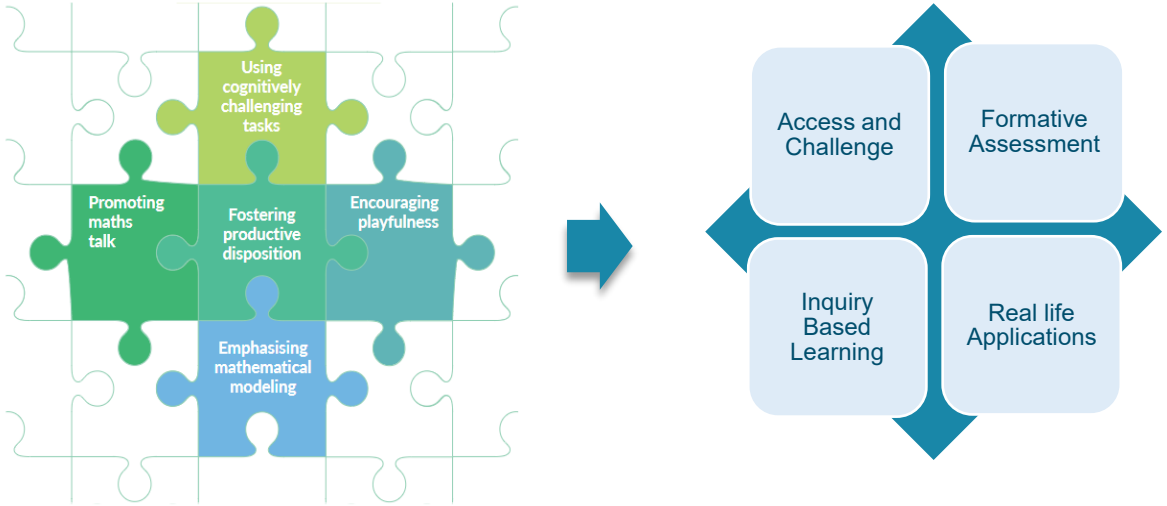
The designers want to increase the length of the cube's side

- What adjustments would you make to this question for your context?
- How could it be adapted to support students in making connections across strands?

15 mins

Activity 2E Making Connections

Checkpoints → Junior Cycle → Senior Cycle



- Select a checkpoint
- Select a Senior Cycle style question
- How could the checkpoint activity be extended to lay the conceptual groundwork for tackling the problem at Senior Cycle?
- Record the pathway you would take to make the connections between the two
- How would continuity of pedagogical practices support students in making connections on this pathway?

20 mins

Pathways

Checkpoint: Averages

Adapted from: Checkpoints | NCETM

The average age of a class of 1st Year students is 12.5.
The average age of their teacher's family is 12.5.

a) Does this mean that the teacher's family are the same age as the 1st year students? Why or why not?

Here are the ages of the teacher's family:

0 3 2 5 32 33

b) Explain how the class of 1st year students has the same average age as the family.

? A smaller family also have an average age of 12.5. What might their ages be?

The Growing Balloon

A spherical weather balloon with volume V has a adius r. As the balloon is filled with helium, the radius r ncreases at 0.2m/s. Find the rate at which the volume is increasing with respect to time when r = 2m.

The amount of helium required to fill the balloon is irectly proportional to its volume. If the cost of helium s €5 per cubic metre, find the rate at which the cost of illing the balloon is increasing (€/s) when the radius is 2m.

average swimming speed.

Spectators can only stay within the area of the course. How much space do the spectators have?

Sharing your thinking

10 mins

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Session 3

Using Artificial Intelligence (AI) to Support Planning

Session 3 Learning Intention

To explore how AI can be harnessed to support continuity in pedagogical practices and making connections within the curriculum to inform individual and collaborative planning and enhance student learning.

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Success Criteria

By the end of today we will have:

- Used the RASE framework as a tool to engineer prompts.
- Tested an AI tool, identifying benefits and challenges.
- Examined how AI can support pedagogy and make connections within the curriculum.
- Reflected on how AI could be used to support planning.

What is AI?

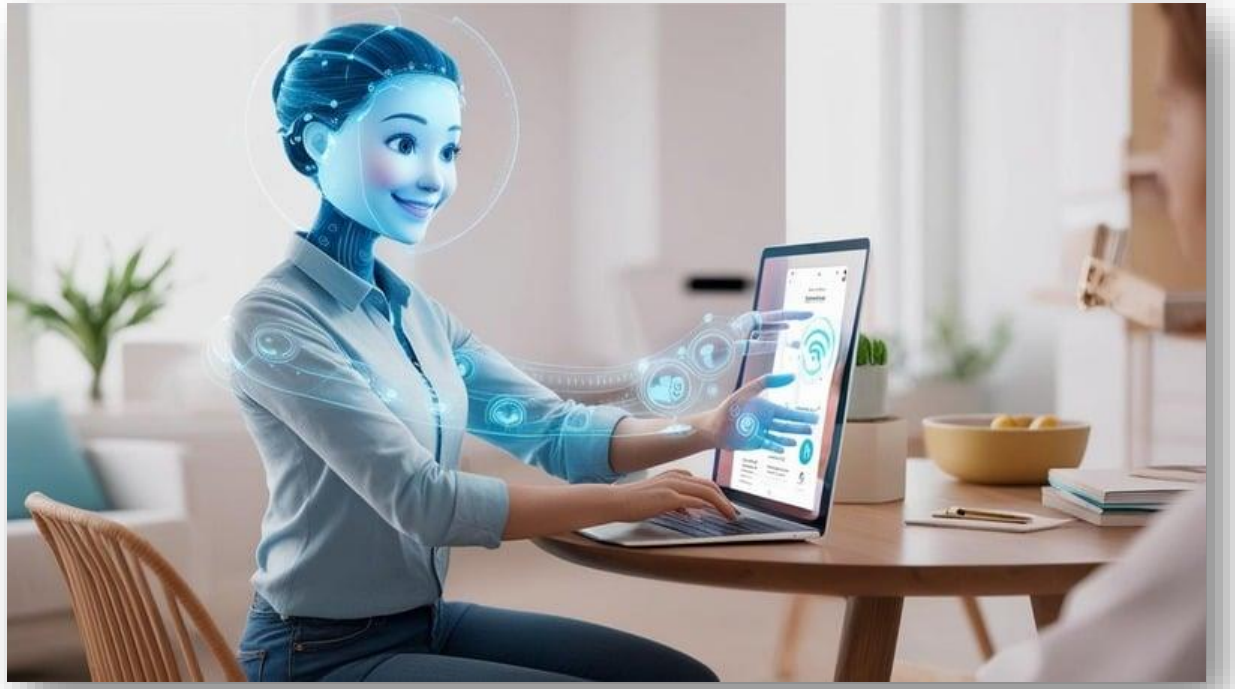
AI refers to machine-based systems that can, given a set of human-defined objectives, make predictions, recommendations, or decisions.

AI systems interact with us and act on our environment, either directly or indirectly. Often, they appear to operate autonomously and can adapt their behaviour by learning about the context.

UNICEF, 2021 p. 16

Discussion – AI in our Lives

How does AI support your everyday life?



5 mins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Generative AI

Generative AI creates new original content, including text, images, audio and beyond.

Large Language Models (LLMs) are a type of generative AI that understand and generate human like text

Benefits and Limitations

Benefits	Limitations
Generating resources	Bias: computational and human
Supporting administrative tasks	Hallucinations
Data analysis and insights	Explainability
	Inability to think critically
	Lack of personal experience

AI Tools to Support Planning

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MAGIC SCHOOL

Diffit For Teachers

NotebookLM

Canva

Copilot

Gemini

Quizizz

MathGPT

Khanmigo

Prompting using the RASE Framework

R ROLE — Give the GenAI/LLM a role and provide a context

A ASK — Clearly define the task that you want it to perform

S SPECIFIC — Be specific about format, length, style etc required

E EXPERIMENT — Refine your prompt. Ask the GenAI/LLM for suggestions

ALWAYS CHECK FOR ACCURACY OF OUTPUT AND SUITABILITY.


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Activity 3A: Supporting Inclusion

1. Choose an LLM
2. Use the prompt template or create your own prompt using the RASE framework to reflect your own context
3. Check your response – is it accurate?
4. Refine if necessary

(15 + 5) mins

Ac

📘 Context:

A group of Transition Year students is developing a **drone obstacle course** inside a cube-

🎪 Festival Light Cube – A Real-Life Geometry Challenge

💬 Formative Assessme

- Draw or label the triangle [illegible] he line connecting their starting points.
- What trigonometric rule a[illegible]
- What connections can yo[illegible], art, engineering)?
- Could you build a physica[illegible]

in a cube? Justify your answe[illegible]

The diagram shows the laser beams stretching from:

- One corner of the cube to the opposite corner (space diagonals)

(15 + 5) mins

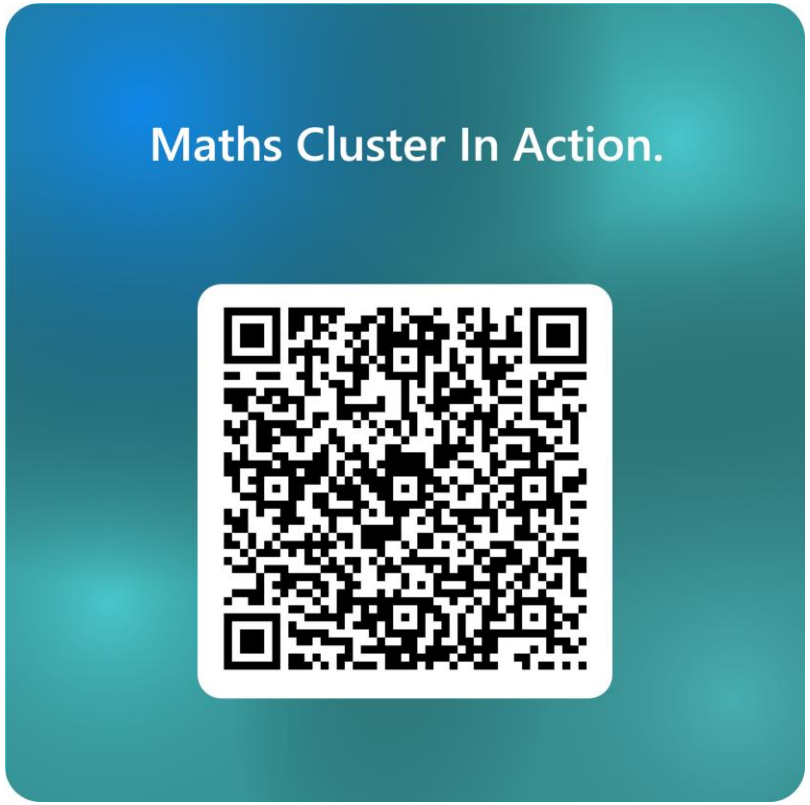
Activity 3C: Making Connections

Junior Cycle Specification
PDF

You are an experienced mathe … context. Can you give examples of connections with… …mes to the following question x + y = 20. Can you …

+ Tools

Expression of Interest

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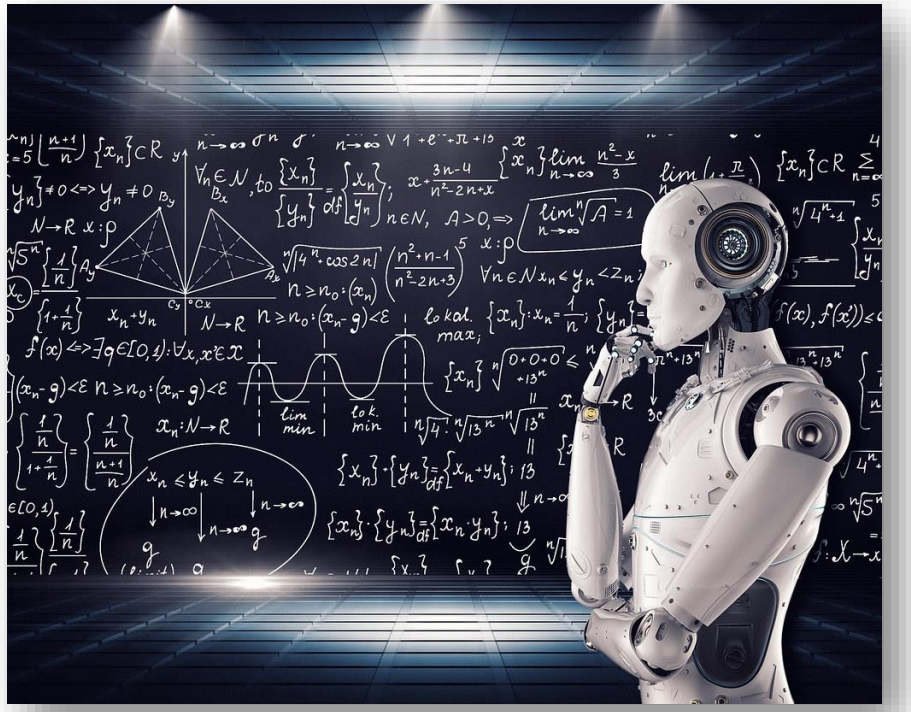
Reflection Session 3

In what ways could AI support you as part of your planning?

In what way could AI support planning at a departmental level?

What limitations or biases did you notice in AI-generated resources, and how would you address them?



5 mins

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Conclusion

Travel Expenses

Travel Claim – 16/10/2025

St Columba's - Glenties

https://edcentretravelclaim.ie/links/yfghe

Feedback

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Sitting ID: 15736

https://registration.oide.ie/feedback