Student Learning & Assessment Techniques

Perspectives from Ireland: assessment reform as a pathway to Computational Thinking/Data Science/AI in mathematics

Dr Keith Young

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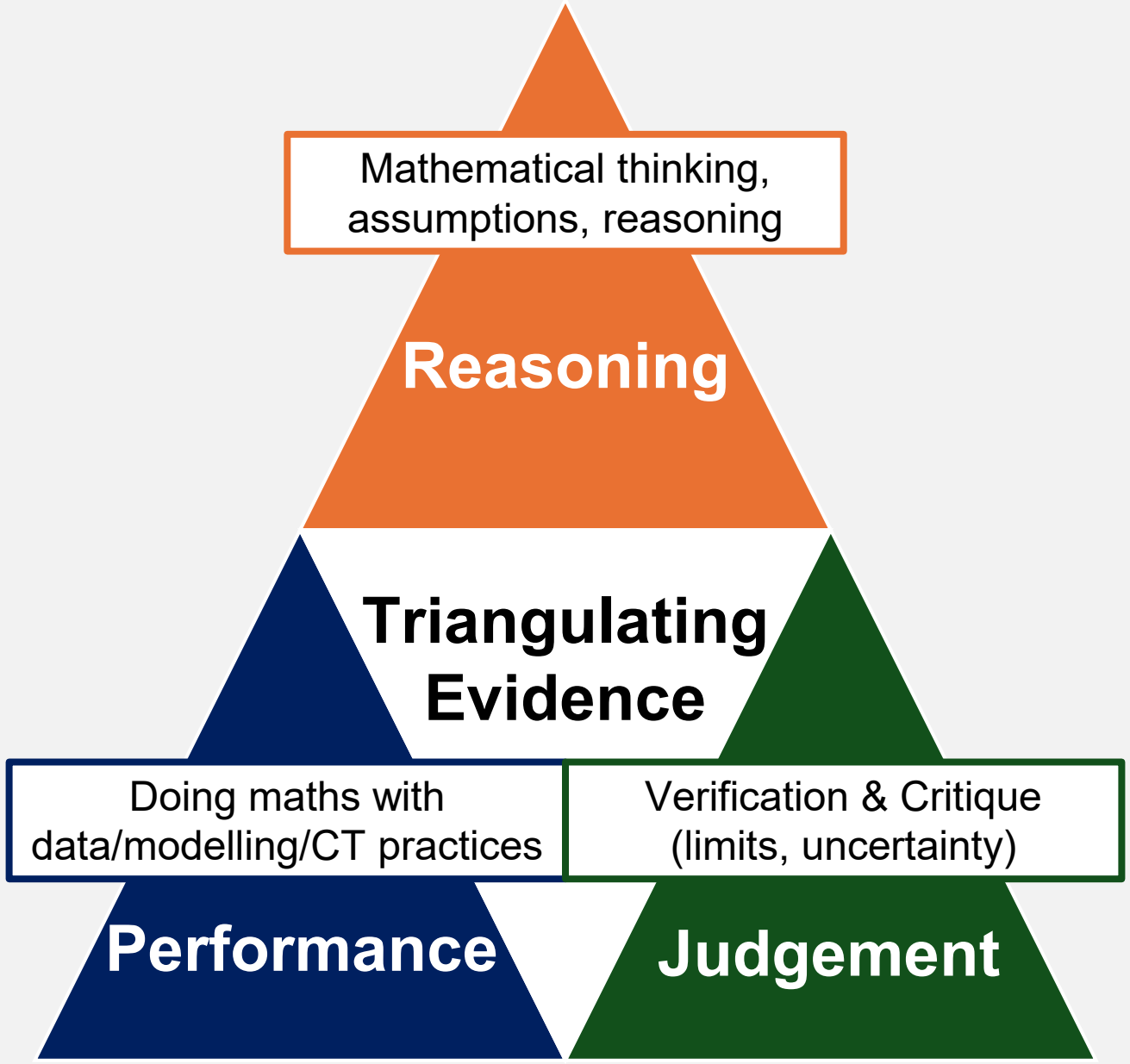
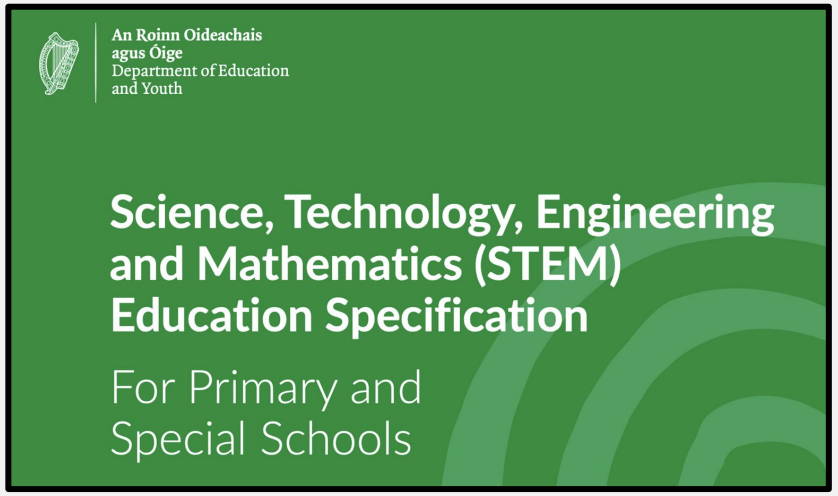
MIC COLÁISTE MHUIRE GAN SMÁL MARY IMMACULATE COLLEGE

ICAiRE The Irish Centre for AI Research in Education


Mathematical thinking, assumptions, reasoning
Reasoning
Triangulating Evidence
Doing maths with data/modelling/CT practices
Verification & Critique (limits, uncertainty)
Performance
Judgement

Ireland: reform creating assessment spaces at multiple levels

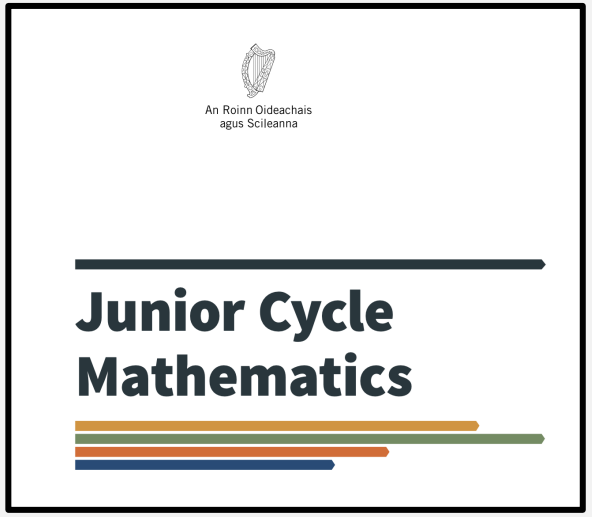
Primary: K-7



(Department of Education & Youth 2025)

Integrated STEM direction → room to build data science/CT habits in maths learning

Lower Secondary: 8-10

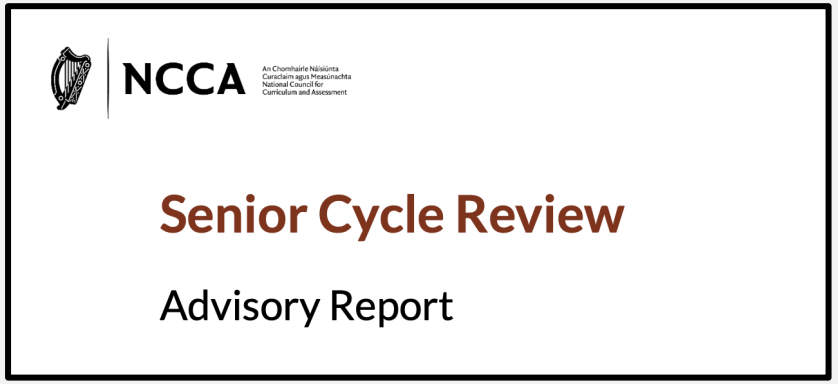


(Department of Education & Skills 2017)

CBAs (class-based assessments) → evidence beyond a written exam

Data science included - CT influence

Upper Secondary: 11-12



(National Council for Curriculum & Assessment 2022)

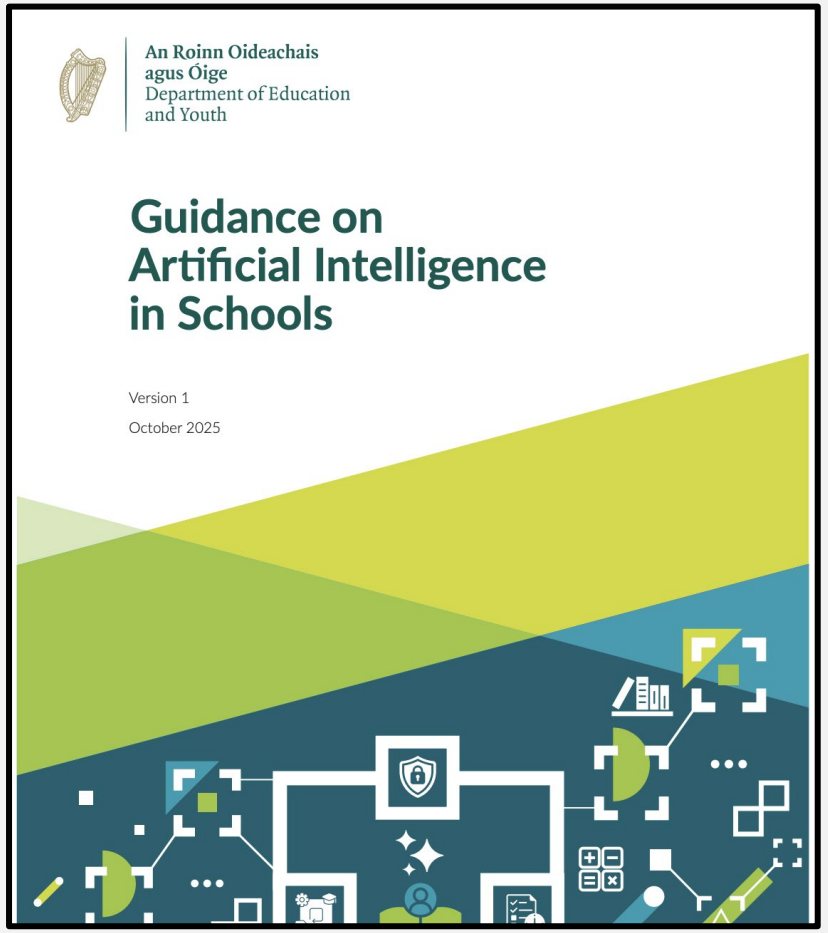
Redevelopment + additional assessment component in maths → design window for richer evidence

Ireland's AI Guidance: principles that shape assessment

Living Document: "initial step", will be reviewed/ updated as evidence and practice evolve

Human Oversight: AI should support, not replace human judgment; outputs require verification

Assessment Alignment: AI-generated material treated like other non-candidate material; reference/acknowledge appropriately



(Department of Education & Youth 2025)

From guidance to evidence: building the next iteration

The AI guidance is a **starting point** and will evolve

Ireland is part of **Futureproof Education: Supporting schools in the AI evolution**

Includes stakeholder engagement and an **“As Is” + gap analysis** to inform next steps

In a GenAI era, product matters - but it can't stand alone

Still assess the product

- Mathematical correctness
- Clarity of communication
- Appropriate representations (graphs, tables, notation)
- Quality of conclusion (answers the question in context)

But Now

Also require the evidence

- Key decisions (assumptions, approach, why this method)
- Verification (checks, alternative methods, test cases)
- Use of tools/GenAI (what was used for, what was changed)
- Limits & uncertainty (when it might fail; what's not resolved)

Two patterns that could work
(and two questions for discussion)

Pattern 1 **Critique an AI-Output**	Students audit an AI-generated output	**What's correct?** **What's missing/wrong?** **Fix it + justify the fix** **Show how you checked it**
Pattern 2 **Investigation with an evidence trail**	Students do a modelling/data investigation	**Explain choices (assumptions/representation)** **Include verification checks** **Note limits/uncertainty** **Transparent tool use (incl. GenAI)**

What evidence should count as learning in GenAI-rich assessment?
What safeguards protect equity while still allowing students to learn with these tools?