Discovery EDUCATION

Welcome!

Who's Doing the Thinking? A Framework for AI in Math Education

Who's Doing the Thinking?
A Framework for AI in Math Education

Dr. Debbie Thompson
Member of NCSM & NCTM
Sr. Partner Success, Discovery Education
dthompson@discoveryed.com

"AI can discover exactly what a student knows. It can even tell them what they need to know next. If this is all AI does, students will not learn."

Dr. Chadd McGlone, co-author of Educational Technology & AI Guidance for Math Leaders (NCSM)

AI can be a partner to place math in **context**.

Let’s Try it Out!

Use ChatGPT, MS CoPilot, etc.

I am in San Antonio. Please suggest one thing I should do while I am here.

Talk at your table. What do you notice about the answer?

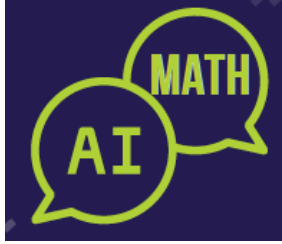
Is it targeted to your interests? What information could you provide that would change it?

Now let's look at a GPT with the Guide as an Agent

What is the Educational Technology & AI Guidance for Math Leaders document, and why might it matter to math educators?

- What do you need to explore more through the GPT or the guide itself?
- What aligns with your current practice?
- What challenges your view of math technology?

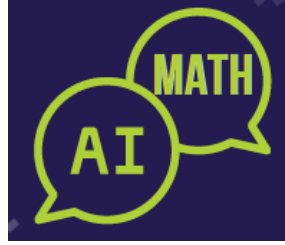
https://bit.ly/NCSMAIGuide



Two resources were most likely mentioned in the response from the NCSMAIGuide GPT:

- ✓ ***Spectrum of Tech Integration***
- ✓ ***Guidance Rubric***

Technology Integration Spectrum



AUTOMATION
May limit reasoning and discourse

AI = Delivers & Corrects

Teacher = Monitor

Student = Responder

Use when paired with teacher insight for practice and intervention

GUIDED USE
Supports planning & responsiveness

AI = Suggests to Teacher

Teacher = Decision-maker

Student = Reflective Participant

Use when the tech can guide but the teacher will drive instruction

AMPLIFICATION
Promotes reasoning, agency, & identity

AI = Promotes Reasoning

Teacher = Designer

Student = Thinker & Creator

Use when rigor, deep learning, and discourse are the goal

Spectrum Sort

AUTOMATION | **GUIDED USE** | **AMPLIFICATION**

Look at the scenarios below. Where would they fall on the spectrum?

A student uses a generative AI tool to check their reasoning after attempting to solve the problem independently. The AI tool provides an explanation that the student compares to their own strategy.

Teacher uses an AI-powered platform that autogenerates problems, then selectively chooses one or two to launch a discussion around common misconceptions identified by the platform.

Teacher uses a generative AI tool to create a 20 procedural problems on multiplying decimals. It is printed and handed out without review or modification.

Educational Technology & AI Guidance Rubric

When you evaluate a tech tool, which of these do you discuss? Which get overlooked?

Learning & Thinking

Who's doing the reasoning – the tool or the learner?

Teacher Autonomy

Does this tool support or constrain teacher judgement?

Equity & Identity

Whose experiences and ways of knowing represented?

Transparency & Ethics

Do we know what data, logic, or bias shaped this tool?

Amplification of Practice

Does it help students and teachers think more deeply?

Crafting Inquiry from Your Context

- Think of one real math-ed tension with AI.
- Craft a GPT prompt about it.
- Half the table use the NCSMAIGuide GPT and the other half use an Open GPT. Compare & discuss.

https://bit.ly/NCSMAIGuide

https://chatgpt.com/

Crafting Inquiry from Your Context

Use one of these if needed!

How might AI support productive struggle in Algebra?

What risks does AI pose for building conceptual understanding?

How is math fluency impacted by using AI?

https://bit.ly/NCSMAIGuide

https://chatgpt.com/

If a math leader asks, what advice would you give about using AI wisely in mathematics classrooms?

Pause & Reflect

Z-Chart graphic organizer

from Discovery Education *Experience*'s **Instructional Strategies Center**

Key ideas on this side.

On the left-side of the diagonal line of the Z, list key ideas you want to remember from this session.

On the right-side of the diagonal line, draw a visual or graphic that represents what you want to remember about AI in the mathematics classroom.

Draw a visual or graphic on this side.

EDUCATION

Students thinking deeply.

Teachers leading with integrity.

Technology used in the service of learning.

Log In to Discovery Education!

1. Scan the QR Code or visit **app.discoveryeducation.com**
2. **Log In** using the credentials below!

EXPERIENCE

Username: **TCEA2026**
Password: **Discovery**

*Scroll to Curriculum Packs to access Mystery Science, *Science Techbook,* and Career Connect.

Discovery EDUCATION

Who's Doing the Thinking?
A Framework for AI in Math Education

Dr. Debbie Thompson
Member of NCSM & NCTM
Sr. Partner Success, Discovery Education
dthompson@discoveryed.com