Math for All: Supporting Your Child with Disabilities in Math

Rachel Tabron, Math Accessibility Specialist
Alt+Shift

Michigan Alliance for Families
information, support, and education

Math for All

Supporting Your Child with Disabilities in Math

Alt + Shift

Rethink the possible. Realize potential.

Rachel Tabron, Math Accessibility Specialist

Alt+Shift is an *Individuals with Disabilities Education Act* (IDEA) Grant Funded Initiative through the Michigan Department of Education, Office of Special Education

MICHIGAN Department of Education

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We take the following steps to ensure this presentation is accessible:

- Use Grackle Slides and/or Microsoft Accessibility Checker to perform an automated accessibility check.
- Ensure a clear reading order for screen reader users.
- Provide access to the deck for a personalized experience.
- Utilize closed captioning.

We welcome any feedback for improving the experience.

Please Note

In this webinar, Alt+Shift will provide information and resources regarding assistive technology best practices.

Student specific solutions, including the use of specific tools, are determined by your learner's IEP team. For assistance navigating IEP meetings, contact Michigan Alliance for Families. For assistance with disagreement resolution or complex meetings, contact Special Education Mediation Services (https://www.mikids1st.org/).

Nice to Meet You!

Rachel Tabron

- Math Accessibility Specialist with Alt+Shift
- Special Education Teacher for 7 years
- Special Education Supervisor for 8 years
- Mom of two boys, both with IEPs
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Workshop Description

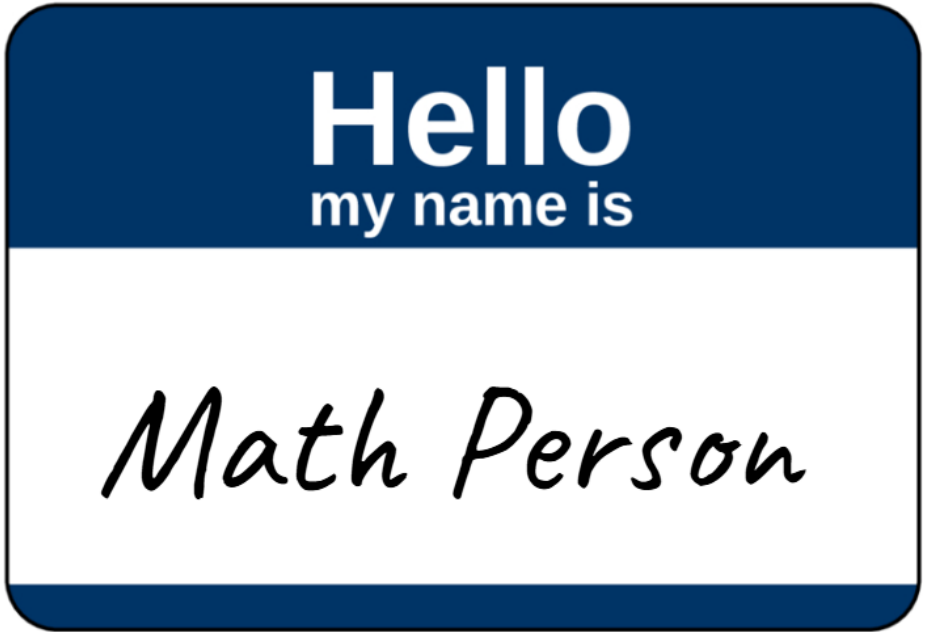
Supporting your child in math can feel overwhelming for many parents of students with disabilities. This webinar aims to provide families with an understanding of math practices for students with disabilities and offer practical strategies they can use to support their child's mathematical learning.

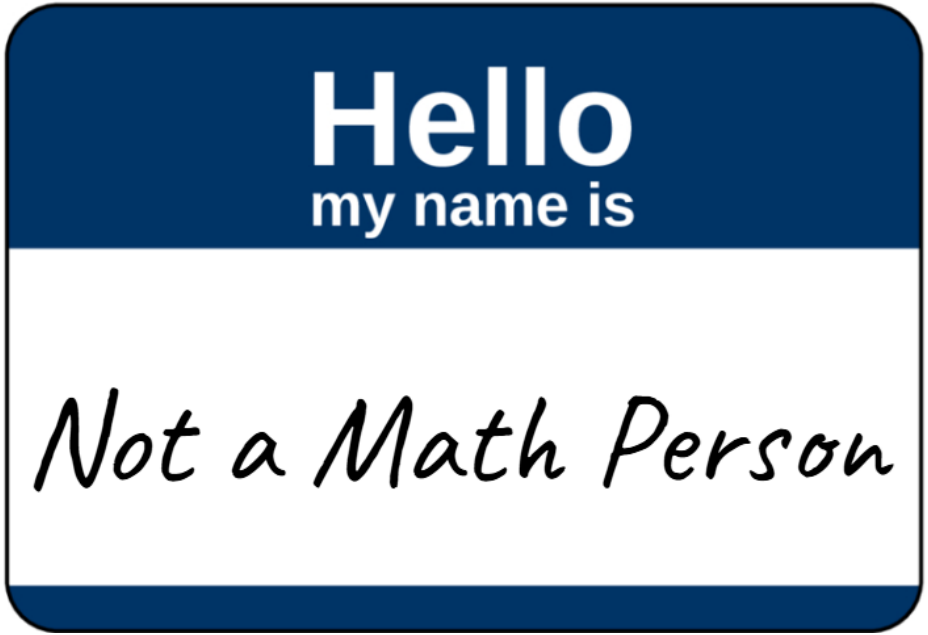
Learning Objectives

Participants will:

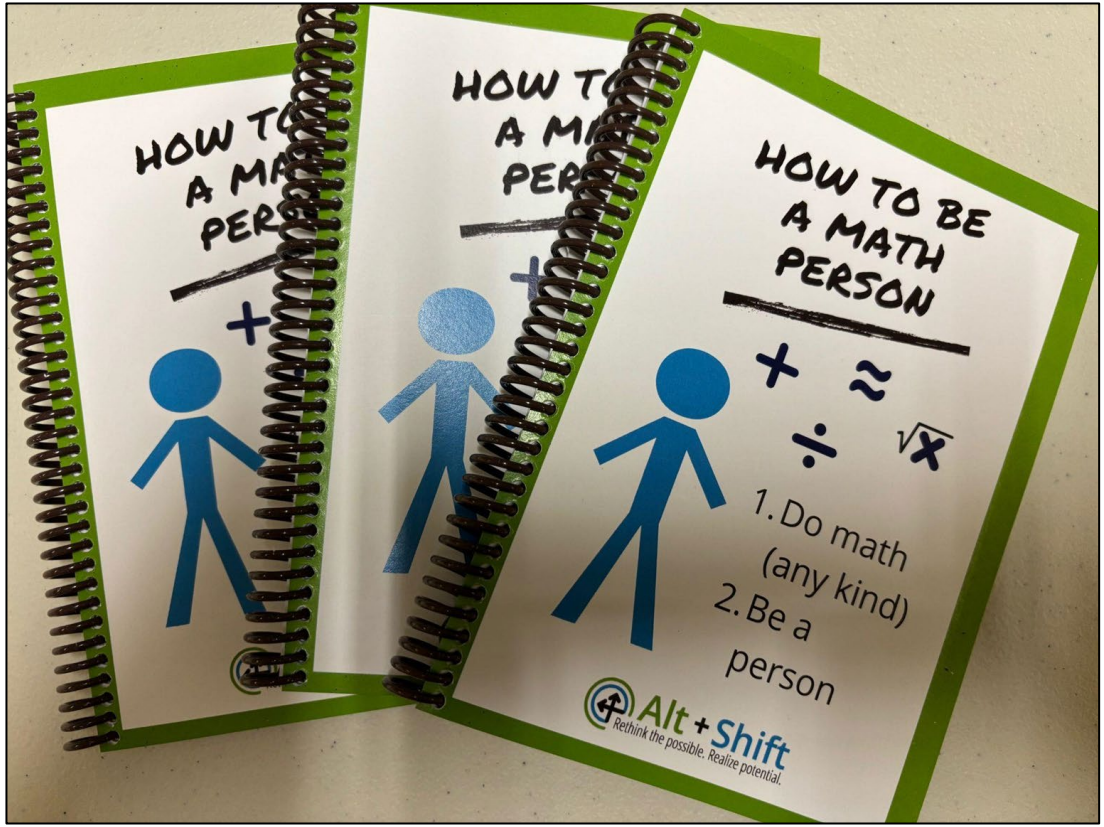
- learn about evidence-informed practices that make math accessible to all students
- discover strategies and techniques to support their child's mathematical learning
- increase confidence in their ability to support and advocate for their child's mathematical learning

“Math Person” Myth



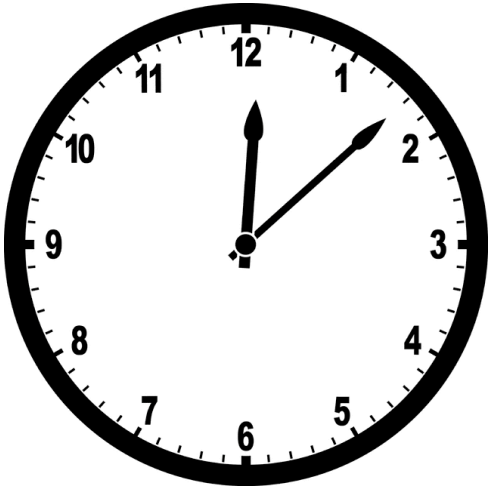


“Math Person” Truth



The Brain

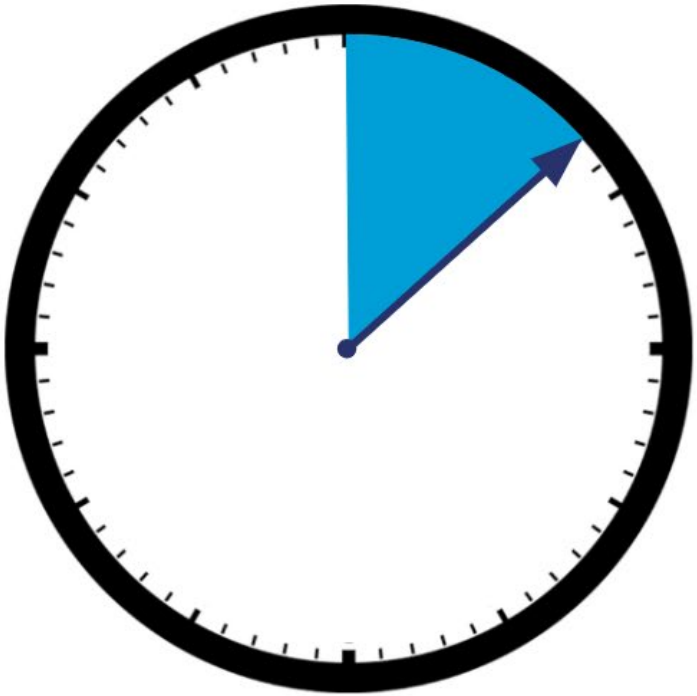
Analog vs. Digital



Analog is how full something is. It is based in quantity and amount.

Digital refers to the numerals or digits we assign to describe that quantity or fullness.

Analog Clock at 8 Minutes



Digital Clock at 8 Minutes

Analog Brain

- Humans have analog brains
- Our memory is not designed for digits
- Our memory is designed for stories and impressions

Fuel Level

.70

(Dehaene, 1997)

Pilot Example

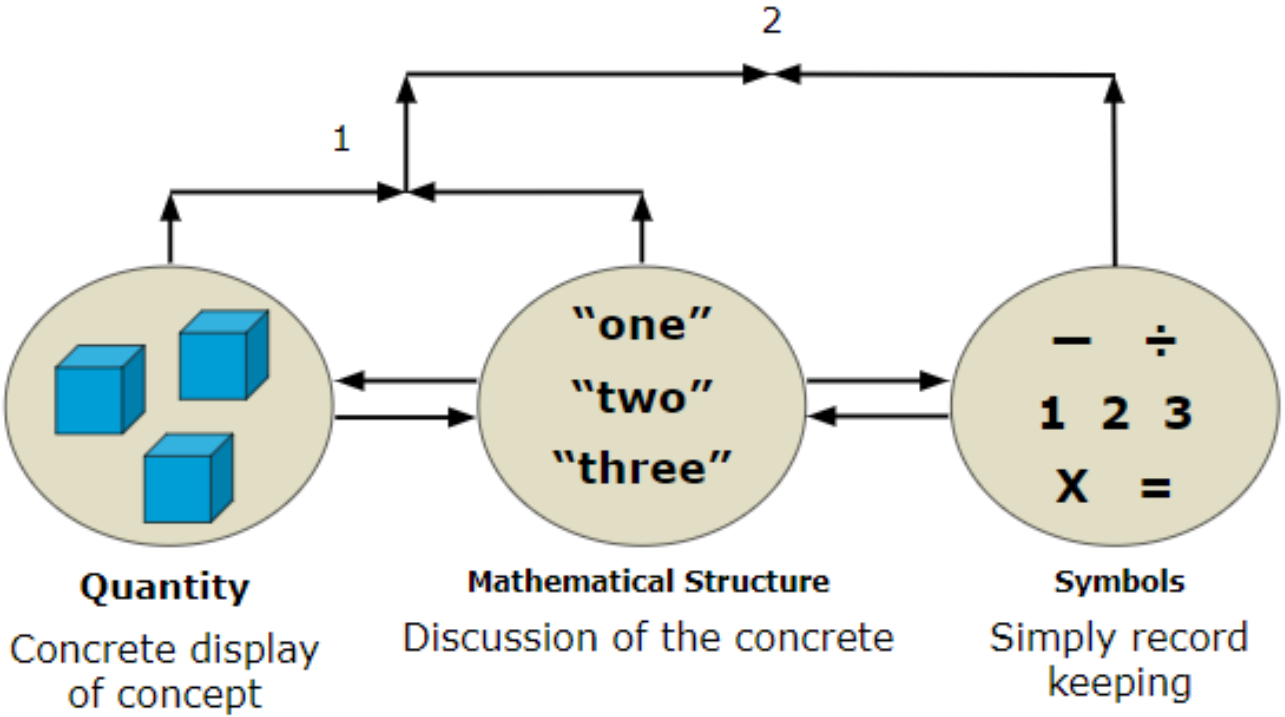
4.125	3.67	8.00
00.48	7.185	2.895
36,482	1400	9
32	1.75	

(Dehaene, 1997)

How Does This Impact Learning?

Students need to understand math from an analog, or physical, perspective in order to build understanding.

Sharon Griffin



(V. Faulkner and DPI Task Force adapted from Griffin, 2003)

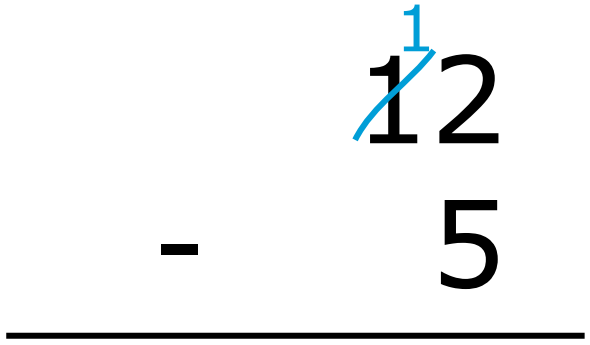
Teaching Digitally

$$\begin{array}{r} 12 \\ -\ \ 5 \\ \hline \end{array}$$

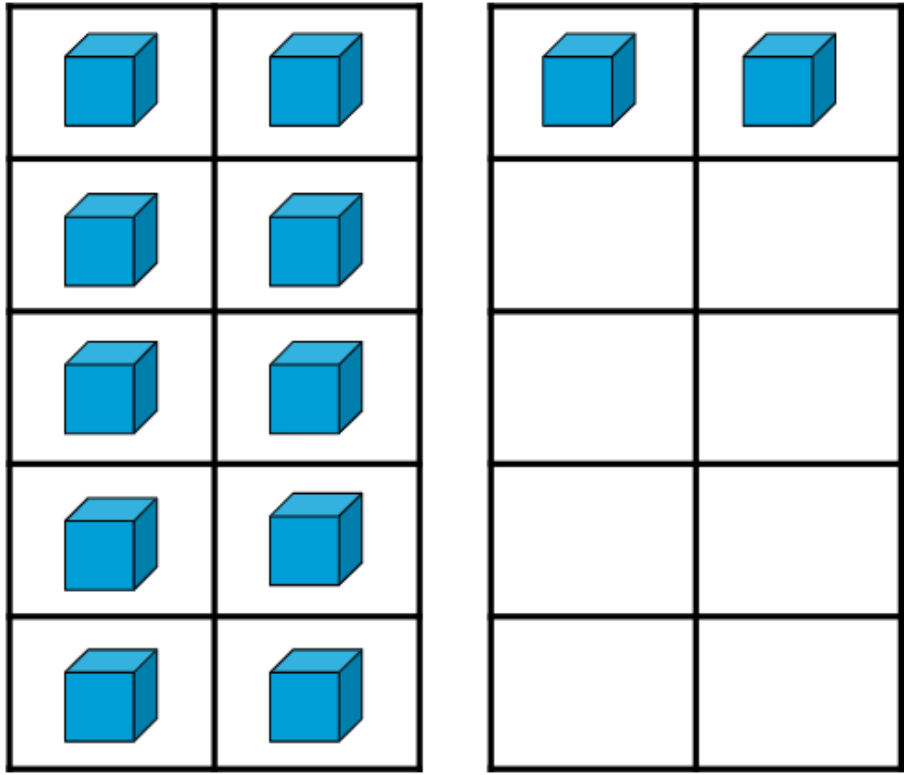
Teaching Digitally

$$\begin{array}{r} 12 \\ -\ \ 5 \\ \hline \end{array}$$

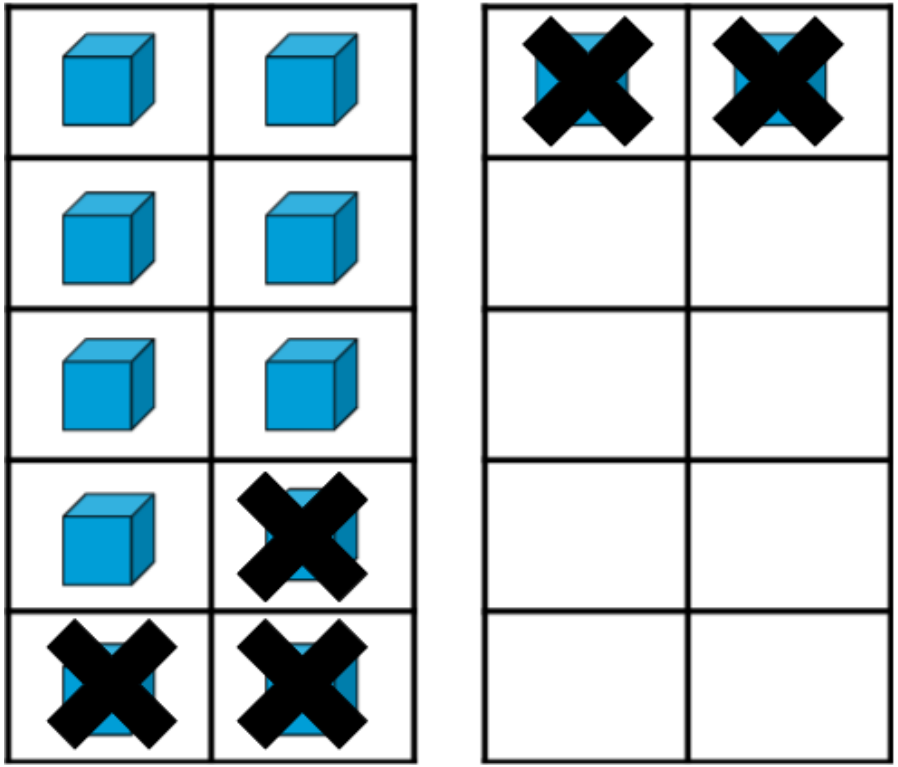
Teaching Digitally



Teaching to the Analog Brain 1



Teaching to the Analog Brain 2



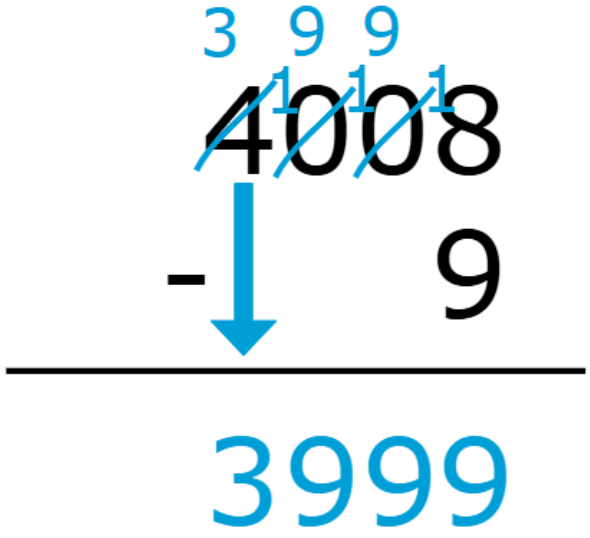
Try This

$$\begin{array}{r} 4008 \\ -\quad 9 \\ \hline \end{array}$$

Traditional Subtraction

$$\begin{array}{r} \overset{3}{\cancel{4}}\overset{9}{\cancel{\overset{1}{0}}}08 \\ - \quad\quad 9 \\ \hline \end{array}$$

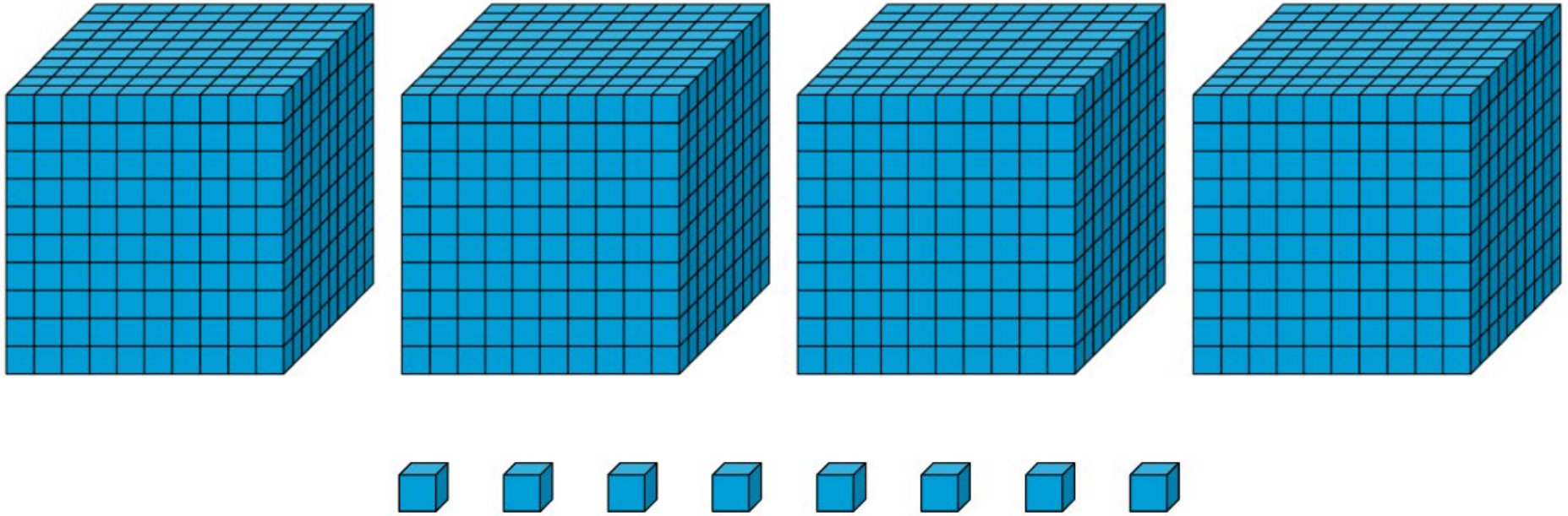
Traditional Subtraction



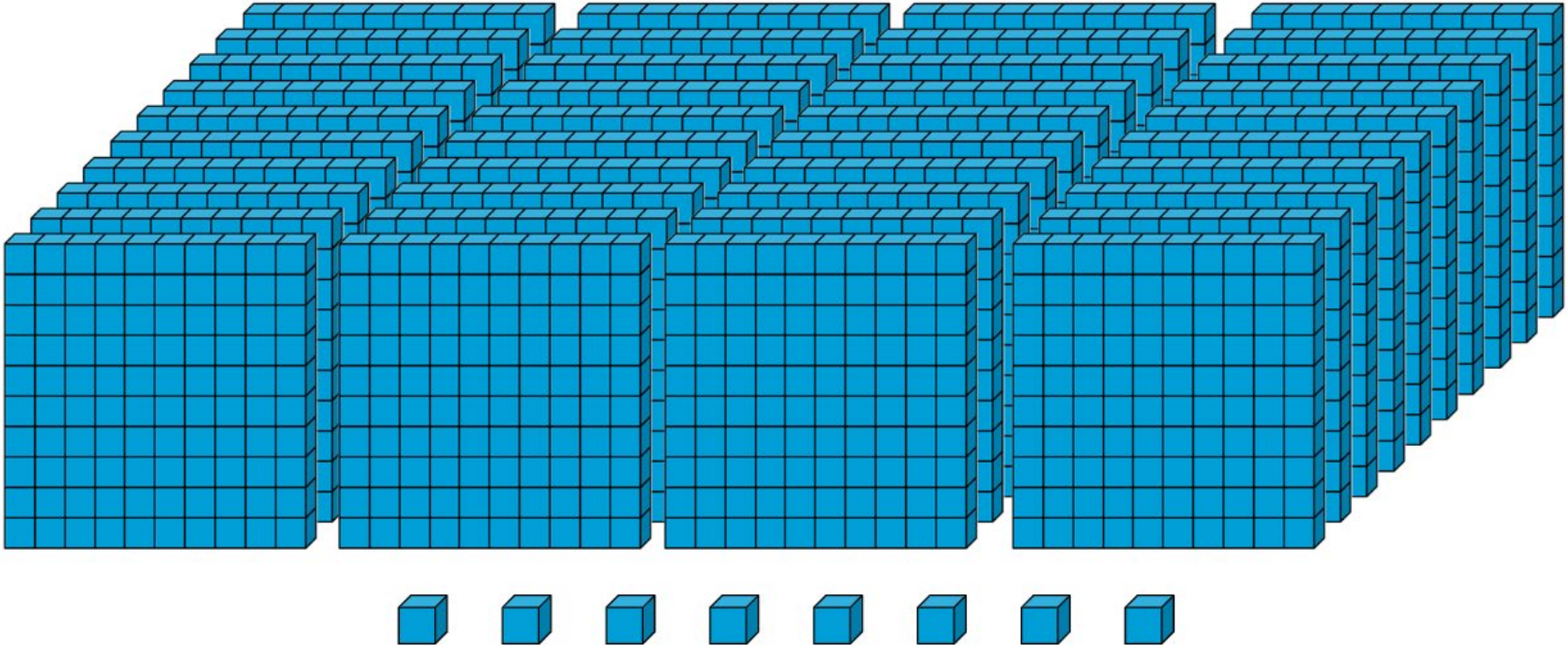
Subtraction is Also...

$$\begin{array}{r} 4008 \\ -\quad 9 \\ \hline \end{array}$$

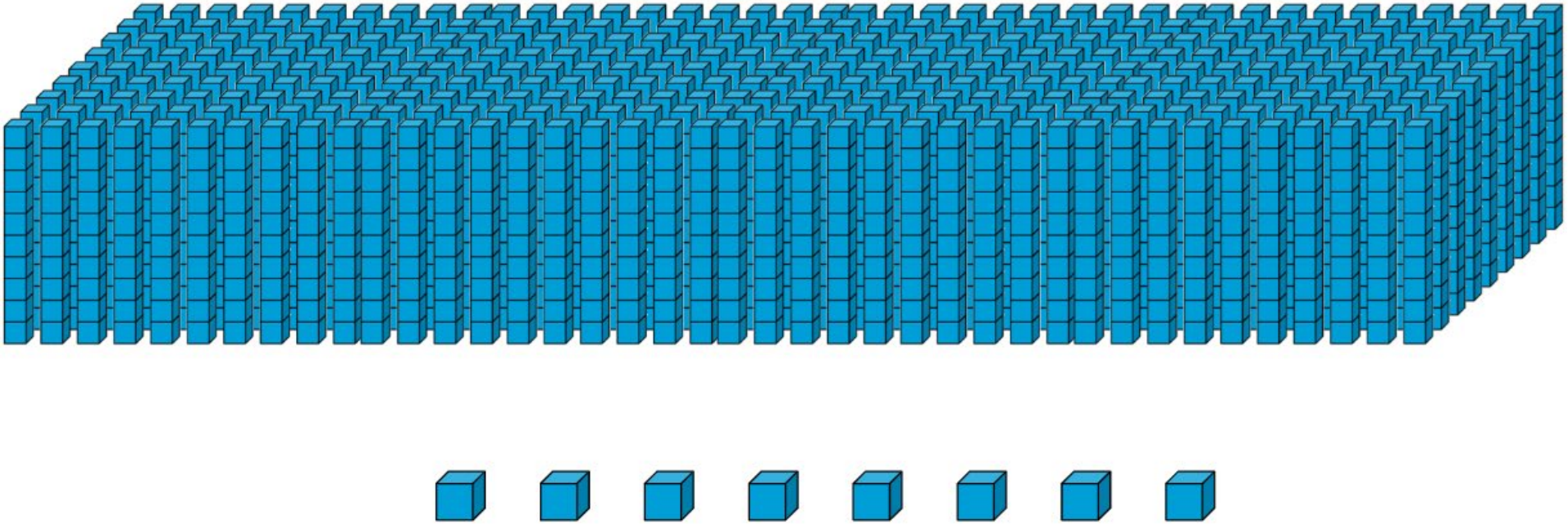
4 thousands, 8 ones



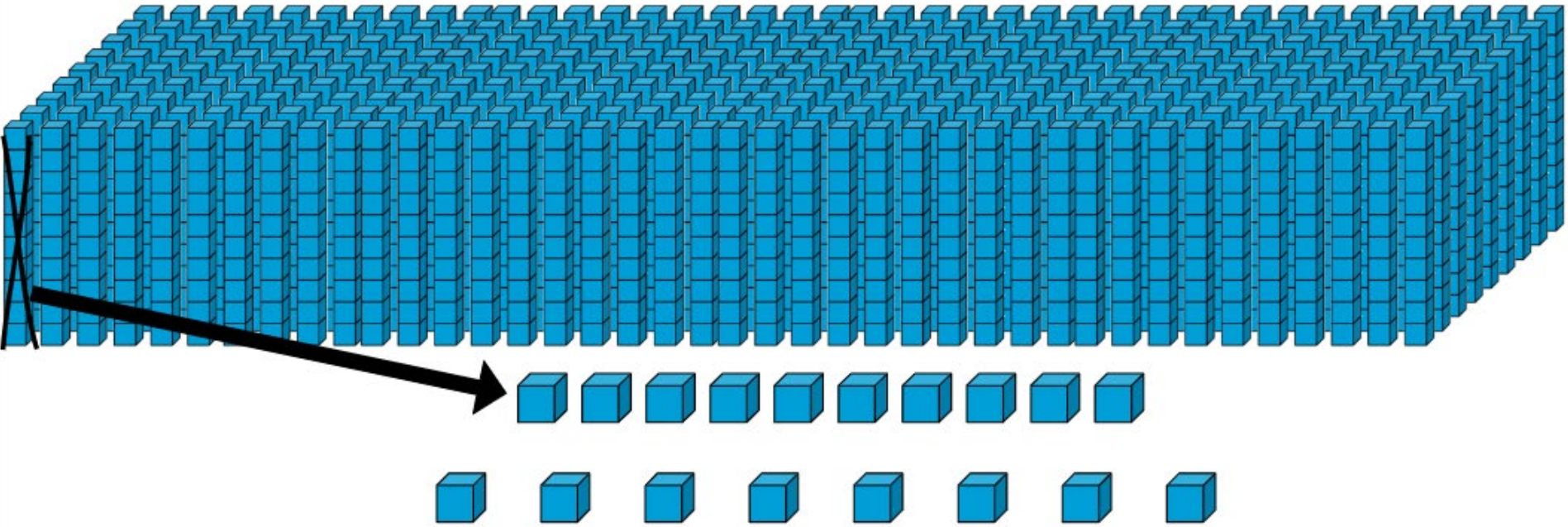
40 hundreds, 8 ones



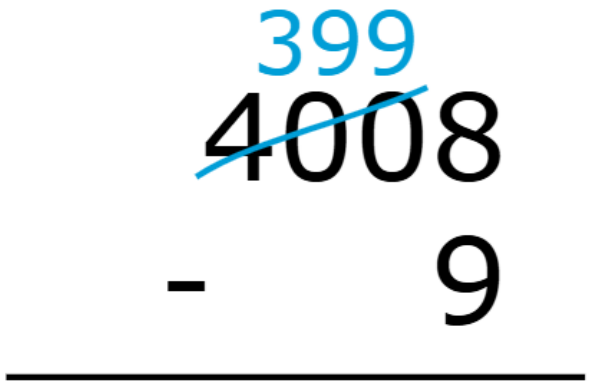
400 tens, 8 ones



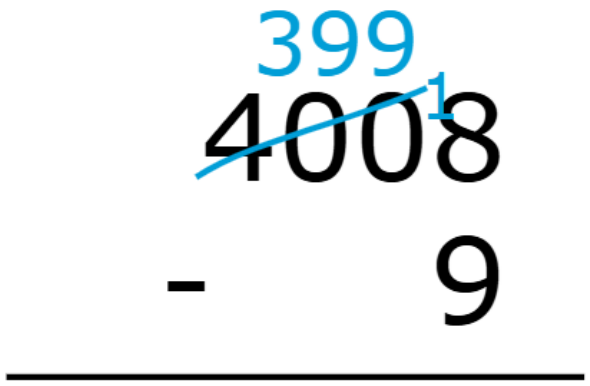
399 tens, 18 ones



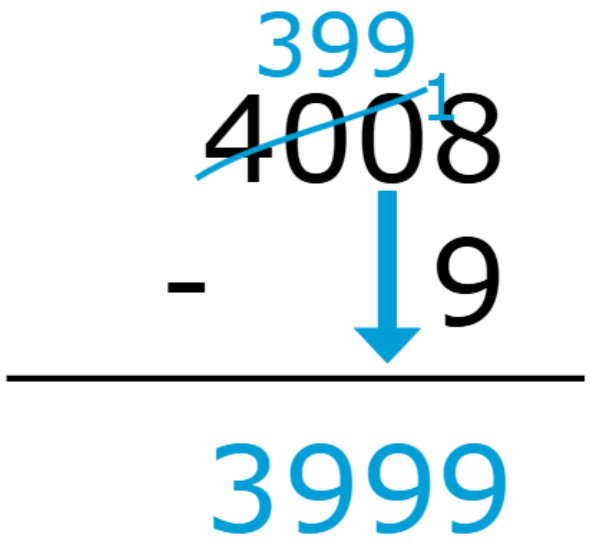
Subtraction is Also... 1



Subtraction is Also... 2



Subtraction is Also... 3



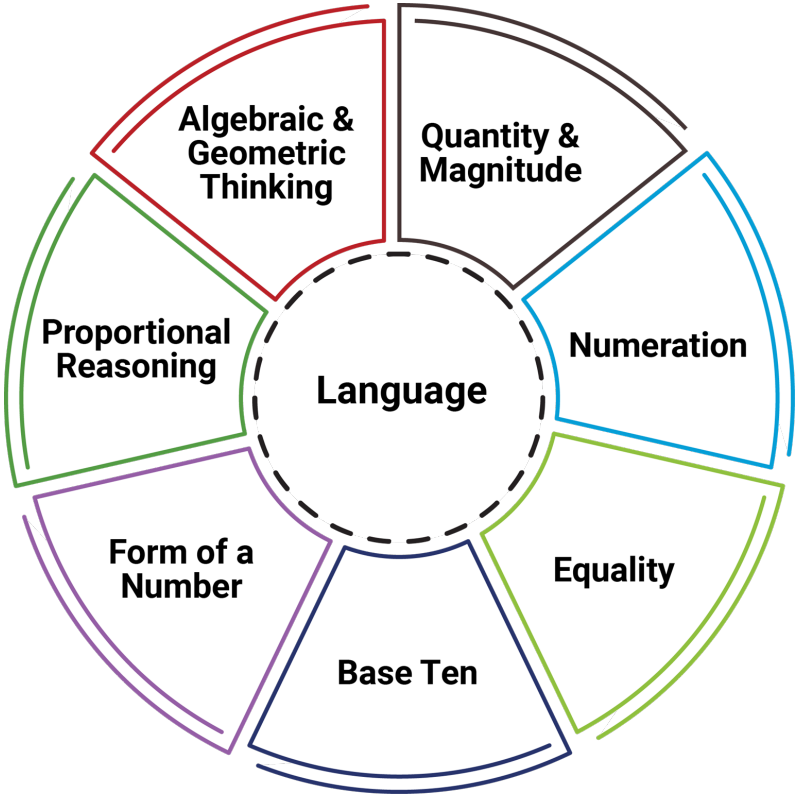
How is this Different?

Number Sense

Number Sense - a good intuition about numbers and their relationships

It develops over time as children:

- Explore and play with numbers
- See numbers in different situations
- Make connections between numbers beyond just memorizing rules or steps



Play with Math

- How many fingers?
- How many do we need?
- What's one more? What's one less?
- What's ten more? What's ten less?
- Make 5, Make 10, Make 100
- What's another way you could say _____?
- What if…

Highlight Math in Everyday Life

- Grocery shopping
- Cooking and baking
- Scheduling
- Sports and activities
- Games & play

Access to a Supportive Adult

- Allow for ample processing time (be quiet)
- Ask a question to support their understanding
  - What do you already know?
  - Could you make a drawing to help you think about the problem?
  - How do you know?

Provide Choice

Provide structured choices to increase child's sense of control

- Determine what is non-negotiable
- Determine what is negotiable
  - Offer choices on negotiable

Negotiable Examples

Would you like to:

- Practice your math facts on the couch or at the table?
- Use flashcards or play a math fact game on your computer?
- Quiz me first, or would you like me to quiz you first?
- Type your answers or write them?
- Write on lined paper or graph paper?
- Write with a pencil or a marker?

Use Existing Resources

- Online textbook
- Google Classroom resources
- Student notes
- Worked examples

Use Generally Available Resources

- Search the skill (multiply double-digit numbers)
- Use information from the assignment/lesson in your search “Go Math” or “Bridges Grade 5 Unit 2”
- Keep looking until you find a video that explains it in a way that make sense

Where to Learn More

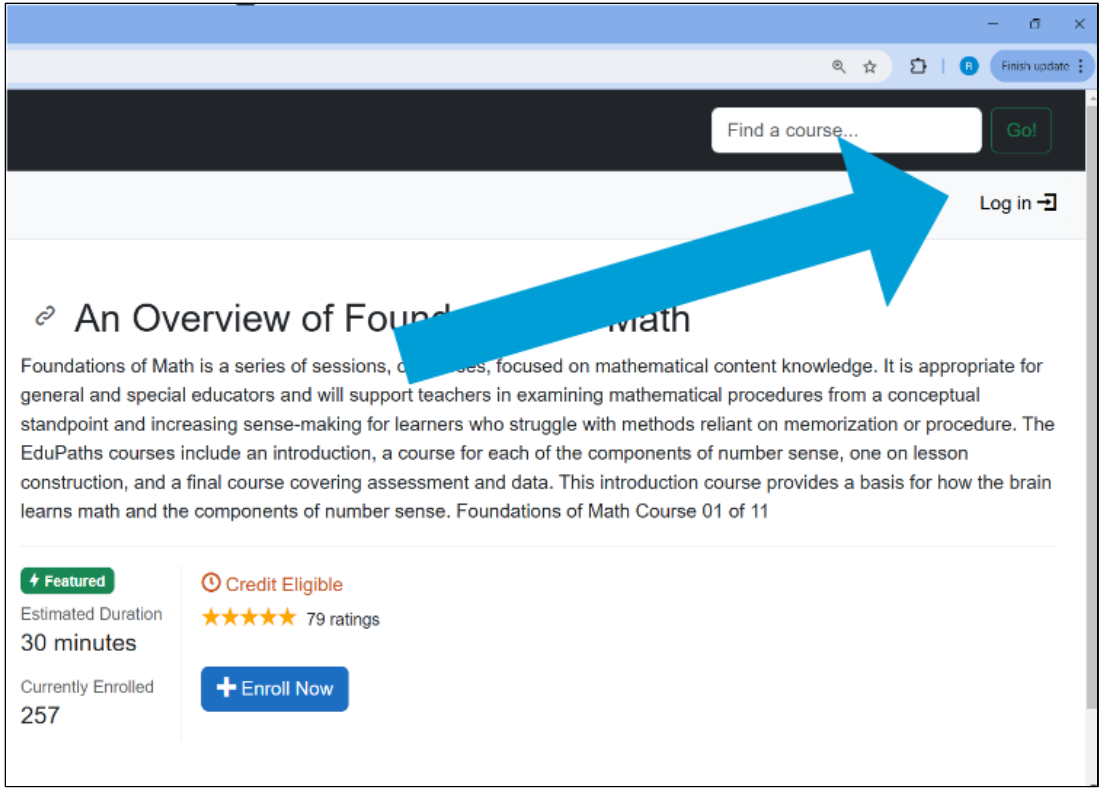
- Online Modules
- Statewide Training

Online Modules

info.altshift.education/OnlineModules

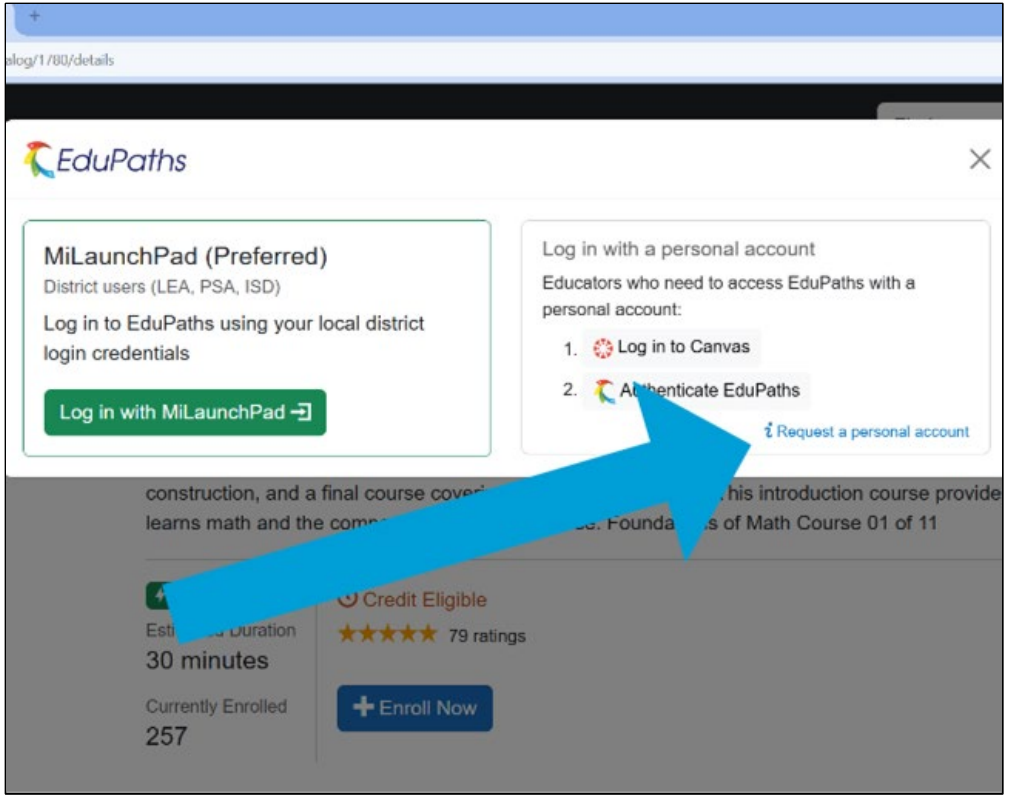
Step 1

- Click “Log in” in the upper right-hand corner



Step 2

- Request a personal account
- Enter relevant information



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Michigan Alliance for Families

In collaboration with The Arc Michigan

Michigan Alliance for Families is an IDEA Grant Funded Initiative of the Michigan Department of Education, Office of Special Education (MDE-OSE); the Michigan Department of Lifelong Education, Advancement, and Potential (MiLEAP); and Michigan's Federal Parent-Training and Information Center (PTIC) funded by the U.S. Department of Education, Office of Special Education Programs(OSEP).

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MiLEAP Michigan Department of Lifelong Education, Advancement, and Potential

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