

Math for All: Supporting Your Child with Disabilities in Math

Rachel Tabron, Math Accessibility Specialist
Alt+Shift



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Supporting Your Child with Disabilities in Math



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



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Accessibility Commitments

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 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/) (<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
- Contact information:
Rachel.Tabron@AltShift.Education



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

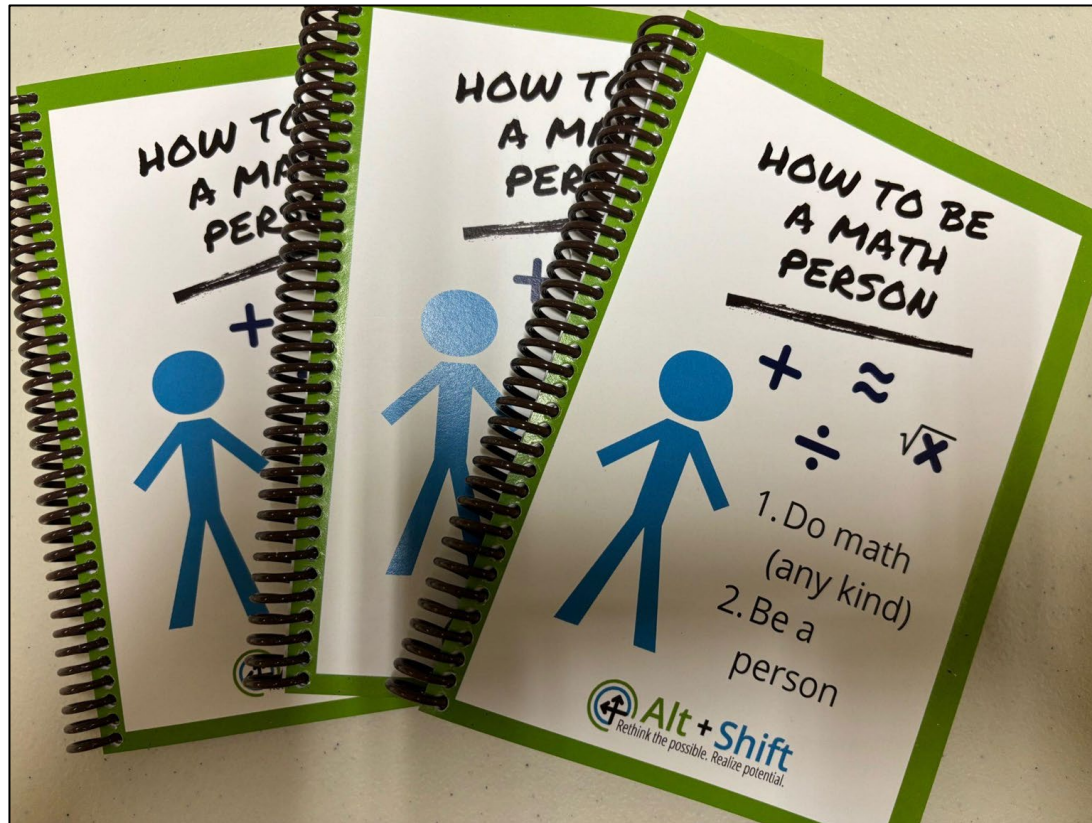
Hello
my name is

Math Person

Hello
my name is

Not a Math Person

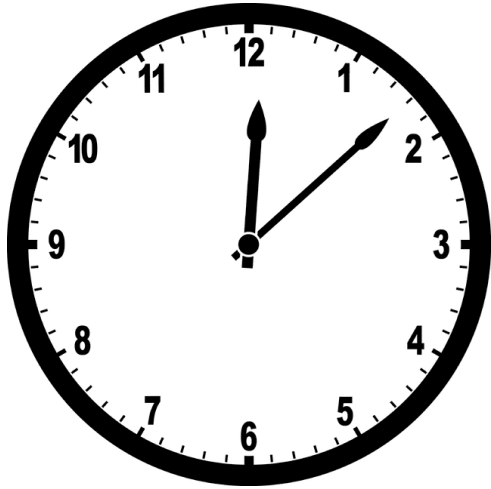
"Math Person" Truth



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



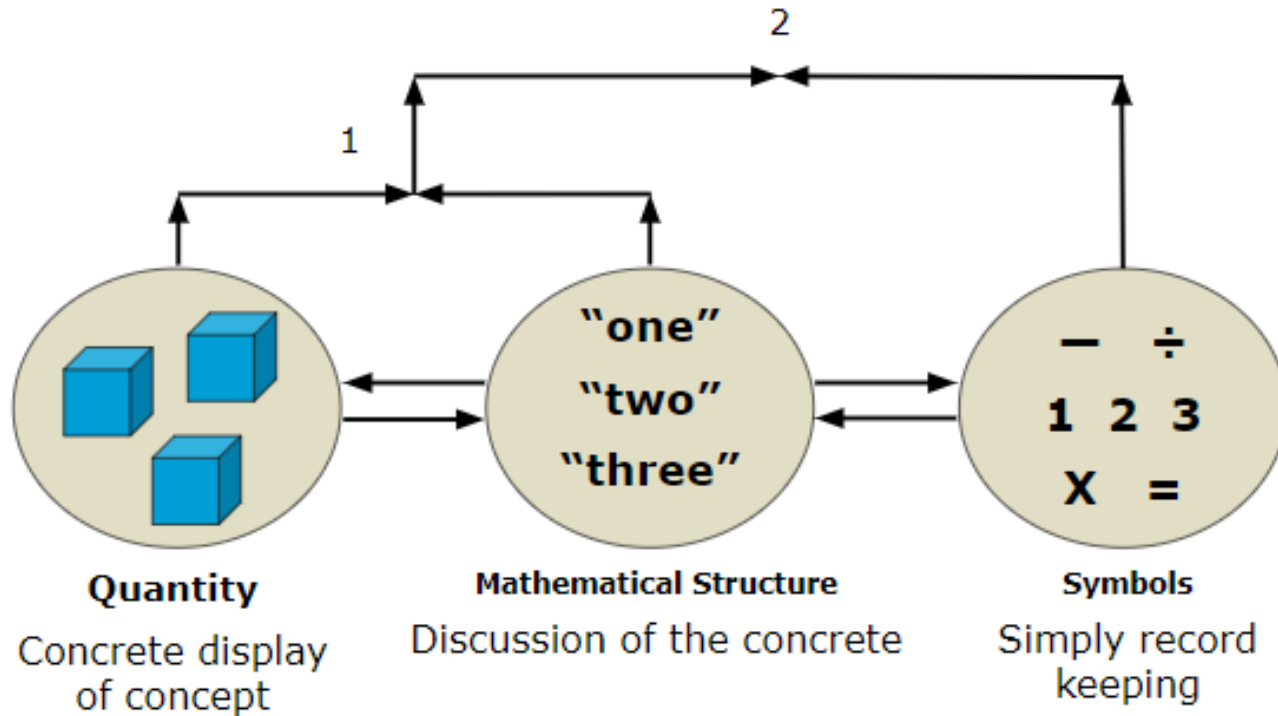
4.125	3.67	8.00
00.48	7.185	2.895
36,482	1400	9
32	1.75	

(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)

Traditional Subtraction

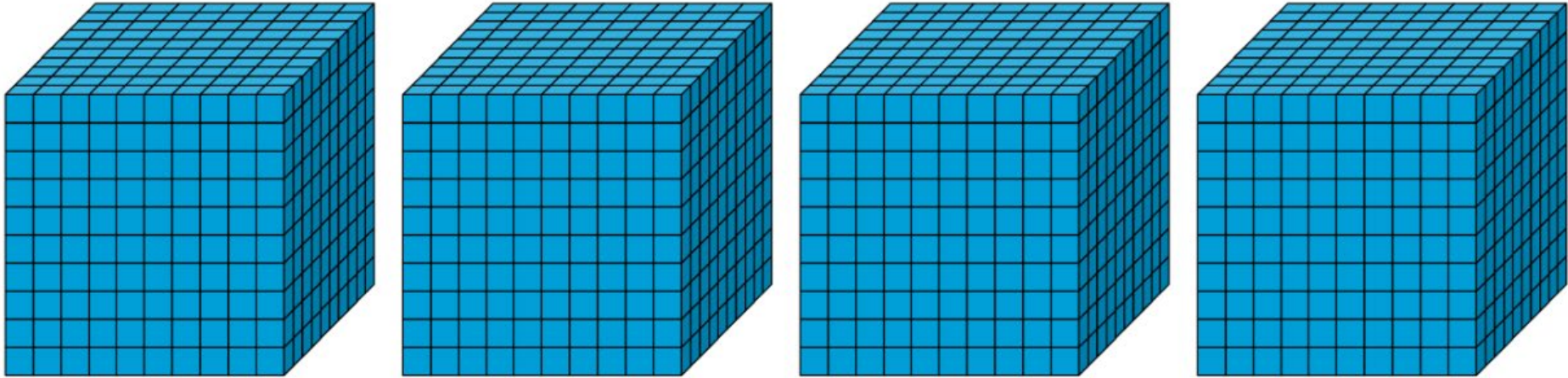
$$\begin{array}{r} \\ \cancel{4} \cancel{0} \cancel{8} \\ - \\ \hline 3999 \end{array}$$

The diagram illustrates the traditional subtraction of 9 from 4008. The number 4008 is written in black, with a blue arrow pointing down from the 4 to the 3, and blue numbers 3, 9, and 9 written above the 0s. Blue diagonal lines with the number 1 are drawn through the 4, the first 0, and the 8. A horizontal line is drawn below the 4008, and the result 3999 is written in blue below the line.

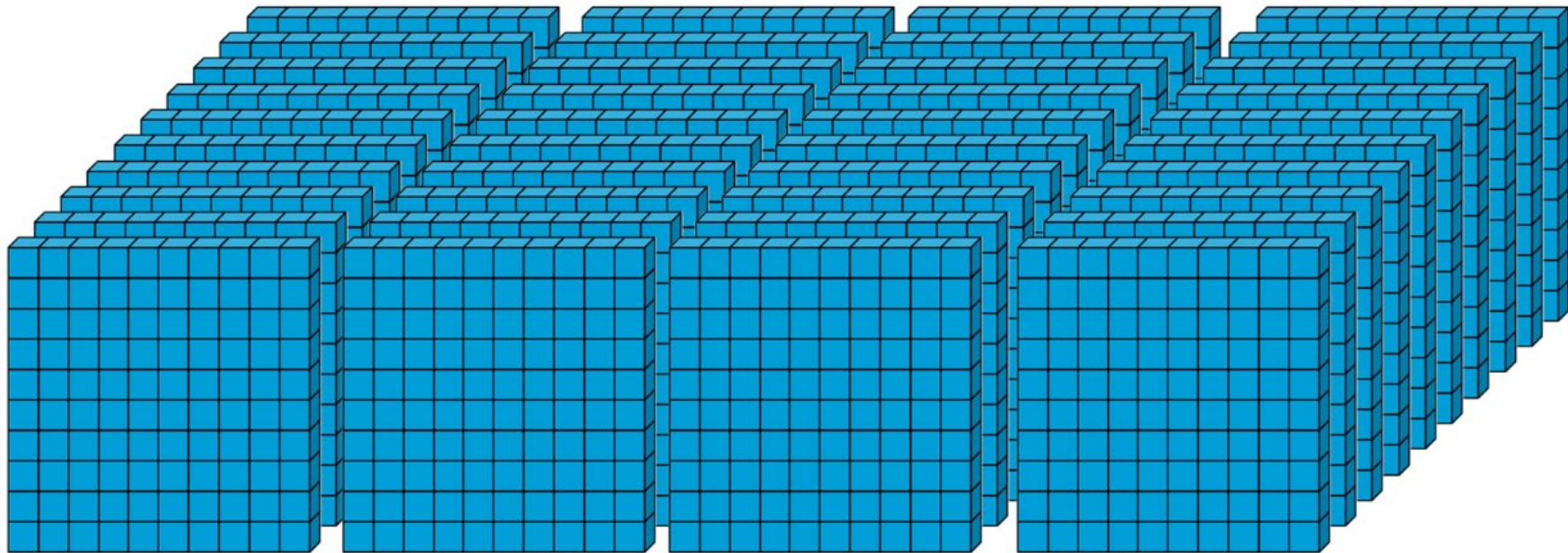
Shifted Approach to Subtraction

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

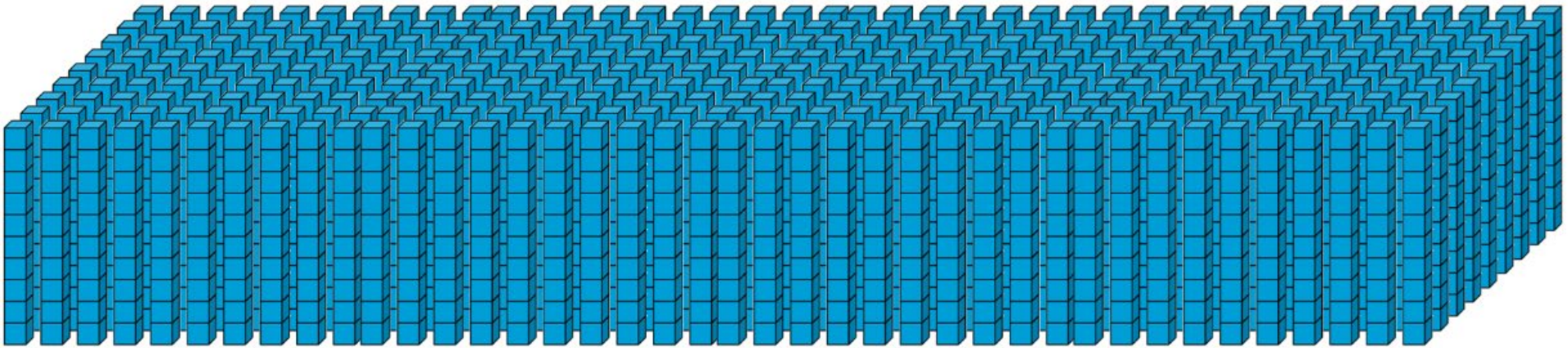
4 thousands, 8 ones



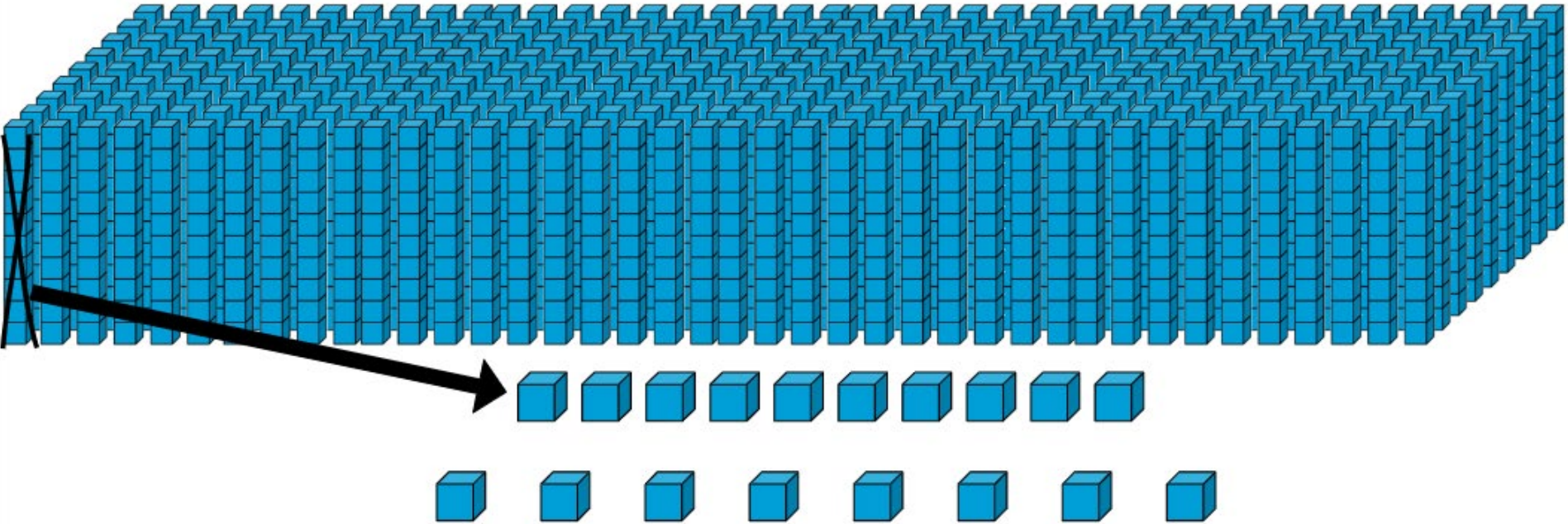
40 hundreds, 8 ones



400 tens, 8 ones



399 tens, 18 ones



Shifted Approach to Subtraction 1

$$\begin{array}{r} 399 \\ \cancel{4008} \\ - \quad 9 \\ \hline \end{array}$$

Shifted Approach to Subtraction 2

$$\begin{array}{r} 399 \\ \cancel{4008} \\ - \quad 9 \\ \hline \end{array}$$

Shifted Approach to Subtraction 3

$$\begin{array}{r} 399 \\ \cancel{400}8 \\ - 9 \\ \hline 3999 \end{array}$$

The diagram shows a subtraction problem where the number 4008 is crossed out with a blue diagonal line. A blue arrow points from the 0 in 4008 down to the 9 in the subtraction problem below. The subtraction problem is 4008 minus 9, with a horizontal line below it. The result 3999 is written in blue below the horizontal line.

How is this Different?

Shifted approach focuses on:

- reasoning
- sense making
- problem-solving

Traditional approach focuses on:

- speed
- following step-by-step procedures
- finding the answer to a problem

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



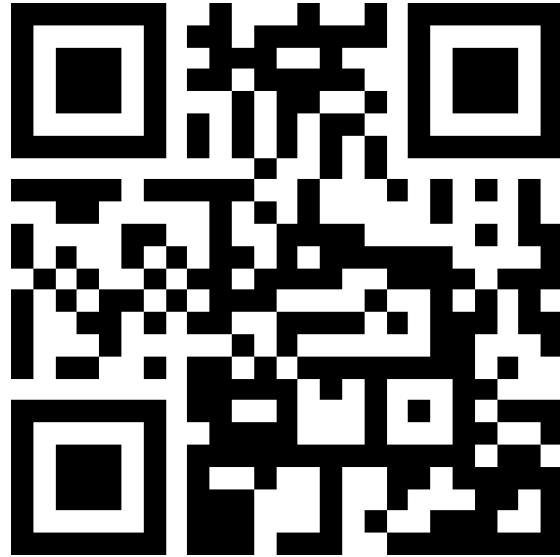
Where to Learn More

- Online Modules
- Statewide Training



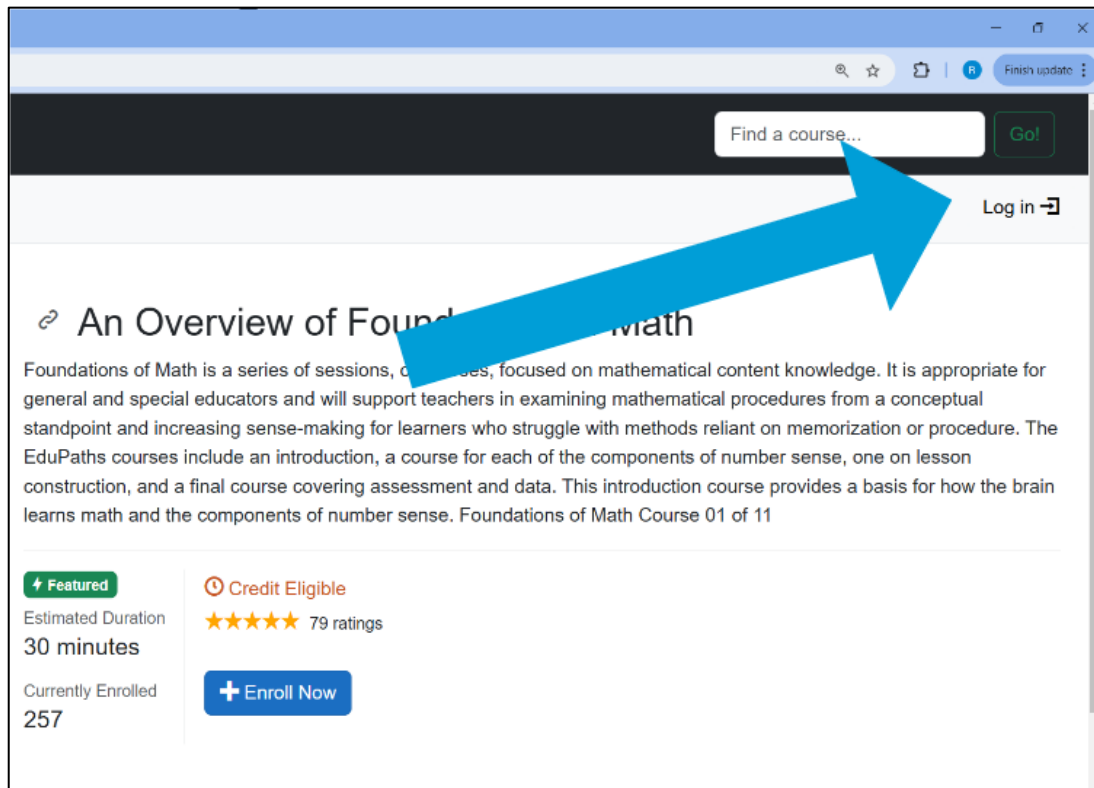
Online Modules

info.altshift.education/OnlineModules



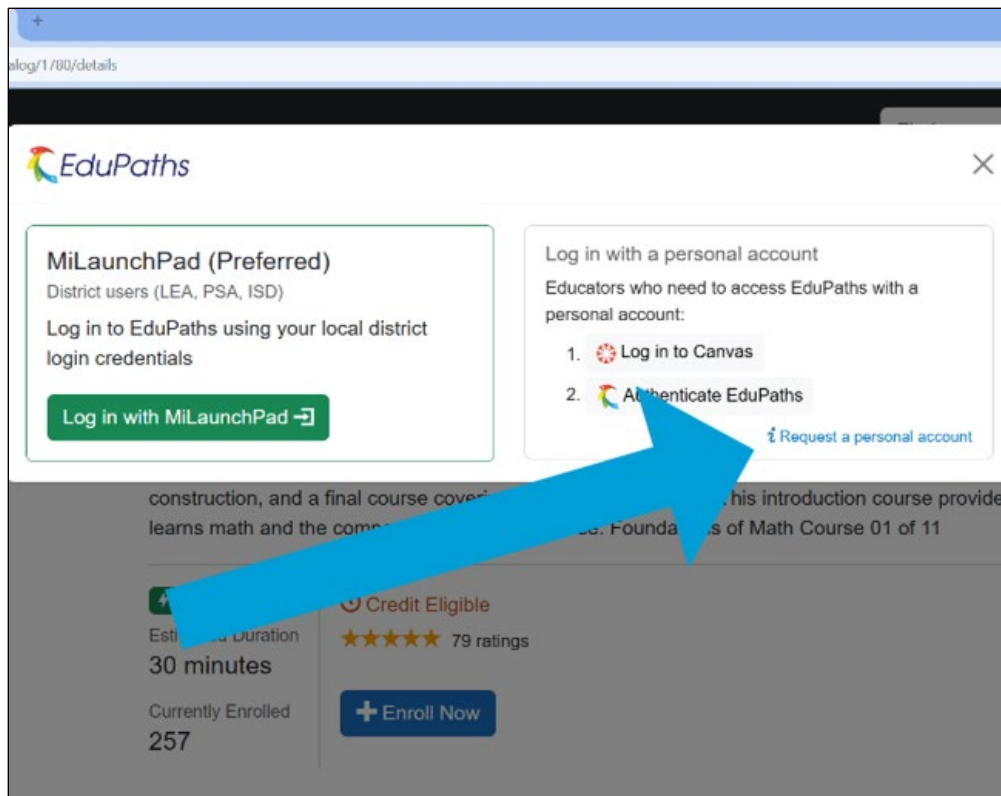
Step 1

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



Step 2

- Request a personal account
- Enter relevant information



The screenshot shows the EduPaths login page. At the top, there is a browser address bar with the URL 'alog/1/80/details'. Below the browser, the EduPaths logo is visible. The main content area is divided into two columns. The left column is titled 'MiLaunchPad (Preferred)' and includes the text 'District users (LEA, PSA, ISD)', 'Log in to EduPaths using your local district login credentials', and a green button labeled 'Log in with MiLaunchPad →'. The right column is titled 'Log in with a personal account' and includes the text 'Educators who need to access EduPaths with a personal account:'. Below this text is a numbered list: '1. Log in to Canvas' and '2. Authenticate EduPaths'. A blue arrow points from the 'Authenticate EduPaths' step to a link labeled 'Request a personal account' at the bottom right of the right column. Below the login options, there is a greyed-out section showing course details, including 'construction, and a final course cover...', 'his introduction course provide...', 'learns math and the comp...', 'Foundations of Math Course 01 of 11', 'Credit Eligible', 'Estimated Duration 30 minutes', '79 ratings', 'Currently Enrolled 257', and an 'Enroll Now' button.

Statewide Training

Dates: January 9, 10 & February 12, 13

Location: Clinton County RESA

Target Audience: PK-12th grade educators (or those working from birth through transition) who are involved in math instruction.

- general & special education classroom teachers
- paraprofessionals
- ancillary staff
- administrators
- families

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Michigan Alliance for Families

Michigan Alliance for Families is an IDEA Grant Funded Initiative of the Michigan Department of Education, Office of Special Education, and Michigan's federal Parent-Training and Information Center (PTIC) funded by U.S. Department of Education, Office of Special Education Programs (OSEP).

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