

Resources Educators Can Use and Share with Families to Promote a Mathematical Mindset

A mathematical mindset includes a student’s attitudes about mathematics and their mathematical habits of mind. Developing positive attitudes about mathematics^{1,2,3} and strong mathematical habits of mind⁴ can lead to stronger academic engagement and performance.

Attitudes

Growth mindset

“Challenges are an opportunity to grow and learn.”

Self-efficacy

“I can succeed in mathematics.”

Sense of belonging

“I am welcomed and valued in my mathematics class.”

Habits of mind

Looking for patterns

“What do I expect to see next?”

Monitoring and reflecting on problem-solving

“Why did these steps work or not work?”

Using alternative representations

“Let me try drawing this equation out.”



Educators can promote students’ mathematical mindset by:



using evidence-based instructional strategies



cultivating and modeling positive mathematical attitudes



providing scaffolding and confidence-building activities



engaging families and communities as partners

Looking for resources to support educators in implementing these strategies in the classroom and with families? See the next page for free Regional Educational Laboratory (REL) videos, toolkits, and more.

¹ Blackwell, L. S., Trzesniewski, K. H., & Dweck, C. S. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an intervention. *Child Development, 78*(1), 246-263. <http://eric.ed.gov/?id=EJ754583>

² Juvonen, J. (2006). Sense of belonging, social bonds, and school functioning. In P. A. Alexander & P. H. Winne (Eds.), *Handbook of educational psychology* (2nd ed., pp. 655-674). Lawrence Erlbaum Associates.

³ Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research, 66*(4), 543-578. <http://eric.ed.gov/?id=EJ542078>

⁴ Cuoco, A., Goldenberg, E. P., & Mark, J. (2010). Contemporary curriculum issues: Organizing a curriculum around mathematical habits of mind. *The Mathematics Teacher, 103*(9), 682-688. <https://doi.org/10.5951/MT.103.9.0682>

To access this infographic and the linked resources digitally, follow this QR code.








REL Resources to Promote a Mathematical Mindset

For Educator Use

	What Works Clearinghouse Practice Guides (<i>Prekindergarten, Elementary, and Secondary</i>)	Discover effective mathematics teaching practices and recommendations for educators to address classroom challenges.
	Two Classroom Strategies to Reduce Students' Math Anxiety (<i>Elementary</i>)	Learn strategies to keep mathematics anxiety from developing.
 	Community Math Nights Facilitators' Toolkit & Introduction to Community Math Nights (<i>Elementary</i>)	Consider hosting a math night to engage families and other caring adults in activities that model positive mathematical attitudes.
	Algebra for All: Focus on Visual Representations (<i>Elementary</i>)	Consider research-based activities that focus on using visual representations in mathematics.
	Improving Students' Attitudes and Beliefs About Mathematics (<i>Elementary and Secondary</i>)	Find a summary of research and strategies for bolstering students' mathematical attitudes.
	The Sum Is Greater Than the Parts: Engaging Community to Promote Math Learning (<i>Elementary and Secondary</i>)	Identify the benefits of and strategies to support school-community partnerships for mathematics.
	Using the Practice Guide to Improve Mathematical Problem Solving in Grades 4-8 (<i>Elementary and Secondary</i>)	Learn evidence-based strategies to improve problem-solving.
	Functional Reasoning: Part of the Development of Mathematical Reasoning (<i>Secondary</i>)	Define functional reasoning and learn what it looks like in practice.

To Share with Families

	Teaching Math to Young Children for Families and Caregivers (<i>Prekindergarten and Elementary</i>)	Use activities and resources to help children learn mathematics through everyday routines and play.
	Two Strategies to Help Your Child Learn to Love Math (<i>Elementary</i>)	Discover two practical, evidence-based strategies for helping children love mathematics.
	Supporting Children's Early Math Instruction at Home (<i>Elementary</i>)	Learn ways to support children with early mathematics instruction at home or in a hybrid learning environment.
	Supporting Mathematical Problem Solving at Home (<i>Elementary and Secondary</i>)	Find resources and activities to support mathematical problem-solving for students at home.
	Supporting Your Child in Developing Math Skills for Future Success (<i>Elementary and Secondary</i>)	Learn how mathematics success opens doors to the future and how to support mathematical learning.

Icon Key:



= Video



= Document



= Toolkit



= Infographic



= Webinar

Learn more about REL Appalachia and find additional resources: <https://ies.ed.gov/ncee/rel/region/appalachia>

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