



# Developing Mathematical Mindsets Module Overview

## School-based Instructional Leaders

### Module Overview

A positive Mathematical Mindset includes someone's beliefs about their own ability and about the meaning of struggle and effort with regard to mathematics<sup>1</sup>. This module is a collection of tasks designed to support school-based instructional leaders to develop and promote a positive mathematical mindset and identity within themselves and with the teachers and colleagues with whom they work. The ultimate goal is that by supporting instructional leaders and teachers in this way, the result will be more opportunities in classrooms for middle grades students to develop their own positive mathematical mindsets.

Before beginning the tasks, please read the following overview of each one and then choose the one(s) you think will be most beneficial for you. The tasks do not need to be completed in any particular order or in their entirety. This module is designed to support each participant in the best course of action for their own professional growth with regards to their individual mathematical mindset.

### Task One: Self-Assessment of Mathematical Mindset

This task is designed to allow individual participants to explore their own mathematical mindset. The task includes a 10-item self-assessment “quiz” that participants score themselves. After completing the quiz, participants are asked to consider the results and reflect on what it may indicate about their mathematical mindset.

This task may be completed by an individual working alone, or within a collective group for professional development. Ideally, participants will complete the task with others in order to benefit from sharing and exchanging ideas with colleagues.

To complete the task, participants will need the task description, a computer with internet connectivity, a printed copy of the quiz, and a pencil or pen.

### Task Two: *Math Mindset: Transforming the Middle School Math Experience* Documentary

This task is designed to allow participants to gain an insight into how one school transformed their math program to focus instruction on developing a positive mathematical mindset within their middle grades students. The video was created by the Regional Educational Laboratory (REL) Midwest in collaboration with WTTW – Chicago Public Broadcasting Station to highlight the importance and impact of engaging middle school students in high quality equitable math instruction based on the belief that all students and adults are capable of engaging with challenging and rigorous mathematics.

This task may be completed by an individual working alone, or within a collective group for professional development. Ideally, participants will complete the task with others in order to benefit from sharing and exchanging ideas with colleagues.

To complete the task, participants will need the task description and a computer with internet connectivity.

### **Task Three: Trace Your Path to Becoming a Mathematician**

This task is designed to allow participants to experience math without focusing on skills. The task includes several problems to be solved individually and then discussed as a group. Possible solutions and question prompts are included. After completing a task, participants will reflect on the virtues of mathematics and the work completed during the task.

Each task should be completed within a collective group for professional development. Participants will benefit from the sharing and exchanging of ideas with colleagues.

Multiple tasks are included to allow for continued discussion and growth.

### **Task Four: Growing Your Mindset by Reviewing Student Work**

#### **General Audience Task**

#### **Mathematics Educators Tasks**

These tasks are designed to support participants in making sense of various solutions to a mathematical task. There is one option for a professional learning setting involving a general audience and another option for an audience of mathematics teachers. Both start by engaging participants in a mathematics task. By solving the task on their own and reviewing student solutions with a lens of understanding rather than evaluating, participants will open up their thinking about the mathematics topic and value various ways of thinking. Making sense of students' mathematical thinking involves mathematical thinking on the participants' part. Participants will engage in reflective thinking to build upon their own mathematical thinking and grow their mindset.

This task should be completed with a group of participants. The mathematical task should be completed individually followed by a discussion and sharing of solution strategies. Next, participants are placed in small groups to review student solutions to the task.

To complete the task, participants will need a copy of the task and the selected student work samples you choose.