



## Course Outline

In this course, middle school mathematics teachers will receive an introduction to the Common Core's eight Standards for Mathematical Practice.

The Standards for Mathematical Practice (SMPs) describe varieties of expertise that teachers should aim to develop in their students. These practices describe what it means to do mathematics and what students are doing as they engage in learning the Common Core Mathematics Content Standards. The SMPs should permeate mathematics instruction across grade levels and content domains.

Teachers will learn about each of the eight SMPs and gain strategies for implementing them in their classrooms. Course activities include "unpacking" the SMPs, using them in solving mathematics tasks, looking for evidence of their use in classroom video and student work, learning from research, and applying to practice.

## Goals & Purpose

### *Session 1 – Introduction to the Standards of Mathematical Practice*

- Understand how the Common Core State Standards were developed
- Recognize the difference between the Mathematical Content Standards and the Standards for Mathematical Practice
- Learn how the Standards for Mathematical Practice help students develop understanding of mathematics content
- Identify current level of comfort with implementing the Common Core
- Learn from authors of the Common Core
- Begin to consider strategies for supporting students in developing proficiency with the SMPs

### *Session 2 – Overarching Habits of Mind (Practice Standards 1 and 6)*

- Understand the importance of students being able to make sense of problems and persevere in solving them
- Learn what it means for students to attend to precision
- Recognize why these two practices are called "Overarching Habits of Mind" for doing mathematics
- See SMPs 1 and 6 in action through a classroom video and student work
- Explore strategies for supporting students in developing proficiency with SMPs 1 and 6

***Session 3 – Reasoning and Explaining (Practice Standards 2 and 3)***

- Identify what to look for as students reason abstractly and quantitatively
- Learn strategies for helping students learn to construct viable arguments and critique the reasoning of others
- Recognize why it is important for students to be able to reason mathematically and explain their reasoning
- See SMPs 2 and 3 in action through a classroom video and student work
- Explore strategies for supporting students in developing proficiency with SMPs 2 and 3

***Session 4 – Modeling and Using Tools (Practice Standards 4 and 5)***

- Learn what to look for as students model with mathematics
- Acquire strategies for helping students learn to use appropriate tools strategically
- Understand why it is important for students to be able to model with mathematics and use appropriate tools
- See SMPs 4 and 5 in action through a classroom video and student work
- Explore strategies for supporting students in developing proficiency with modeling and using tools

***Session 5 – Seeing Structure and Generalizing (Practice Standards 7 and 8)***

- Understand what to look for as students explore regularity and repeated reasoning in mathematics
- Learn some strategies for helping students learn to see and make use of mathematical structure
- Recognize the importance of students being able to see mathematical structure and generalize about it
- See SMPs 7 and 8 in action through a classroom video and student work
- Explore strategies for supporting students in developing proficiency with SMPs 7 and 8

***Session 6 – Standards for Mathematical Practice Summary***

- Describe how the Mathematics Content Standards and the Standards for Mathematical Practice are different and how they complement each other
- Explain how the SMPs define how students engage in doing and learning mathematics
- Describe why, to be successful in mathematics, all students need to develop proficiency with the SMPs
- Read a classroom lesson vignette and consider where the Standards for Mathematical Practice are being developed or illustrated
- Review the math tasks you completed in earlier sessions
- Reflect on strategies for supporting students in developing proficiency with the SMPs
- Take stock of what you've learned about the Common Core Standards for Mathematical Practice and how comfortable you feel with implementing them in your classroom

Throughout the course, opportunities are provided for teachers to connect their learning across sessions and to explicitly consider the implications of that learning for classroom practice. Teachers will also be able to revisit their work and reflections by viewing their individual Course Portfolios.