MA201M Implementing Expressions and Equations (Grades 6-8)

Course Outline

This course builds on *Getting Started with Expressions and Equations* and focuses on tasks and strategies for implementing this domain in the classroom. You will have an opportunity to revisit the mathematics tasks you worked on in the previous course and explore strategies for engaging students in the Expressions and Equations domain. You will hear from teachers, view video of classroom lessons, read about how current research in mathematics education, and reflect on how that research can help you implement the Expressions and Equations domain effectively.

Specifically, teachers learn: 1) how the common core shift of rigor is illustrated in the Expressions and Equations domain; 2) how the Standards for Mathematical Practice support students in deepening their understanding of the mathematical content; 3) how the clusters and standards differ from more traditional standards that address similar content and why it is important to think about mathematical content at the cluster level, rather than at the level of individual standards; and 4) how existing curricular materials can sometimes be modified to become rich, common core-aligned tasks.

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.

Goals & Purpose

Session 1 – Implementing Expressions and Equations

- Understand where you stand currently in terms of knowledge and confidence for implementing Expressions and Equations
- Learn the importance of thinking about mathematical content at the cluster level, rather than at the level of individual standards
- Assess your current knowledge and confidence about implementing the Expressions and Equations domain
- Reflect on your experiences

Session 2 – Expressions and Equations as Representations

- Learn how pattern tasks can address mathematical content in Expressions and Equations domain
- Develop an understanding of why it is important to think about mathematical content at the cluster level, rather than at the level of individual standards
- Revisit mathematical tasks and view and reflect on examples of student discussions and task work
- Reflect and read an articles from professional journals
- Reflect on your experiences

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Session 3 – Expressions and Equations, Standards for Mathematical Practice, and Rigor

- Learn about connections between the Expressions and Equations domain and the Common Core shift of rigor
- Discover how the Standards for Mathematical Practice can support students in learning the content of Expressions and Equations
- Understand the importance of attention to cognitive demand in selecting and adapting tasks for students
- Analyze tasks in terms of mathematical content and practices
- Learn from research about the cognitive demand of tasks
- Reflect on your experiences

Session 4 – Selecting and Modifying Tasks

- Learn key features to look for in selecting a task to use with an Expressions and Equations cluster
- Discover strategies and considerations for modifying an existing task to align with an Expressions and Equations cluster for a given grade level
- Understand considerations for selecting tasks that can help students make connections across content domains
- Reflect on teacher discussions of how existing tasks may be modified to align with an Expressions and Equations cluster
- Observe and respond to a classroom lesson
- Reflect on your experiences

Session 5 – Expressions and Equations Summary

- Review of how the common core shift of rigor is illustrated in the Expressions and Equations domain
- Reflection of how the SMPs support students in deepening their understanding of the mathematical content
- Reflection of how the clusters and standards differ from more traditional standards that address similar content and why it is important to think about mathematical content at the cluster level, rather than at the level of individual standards
- Review of how existing curricular materials can sometimes be modified to become rich, common core-aligned tasks.
- Reflection on strategies for supporting students in developing proficiency in the content standards and SMPs
- Assessment of confidence in Expressions and Equations and how comfortable you feel with implementing this domain in your classroom