

## **AGENDA**

### ***FASTT Math Foundational Seminar***

#### **OVERVIEW**

This full-day foundational seminar helps teachers gain a deeper understanding of a number of aspects of student learning: number sense and the relationship between student reasoning and the development of fact automaticity; how FASTT Math supports fluency and accuracy; how to adjust instruction for struggling students; and how to make use of the assessment, instructional models, and patterns to promote number sense and mental math.

#### **WELCOME, INTRODUCTIONS, AND GOALS**

The introduction includes session goals, a mathematical experience, a discussion of the importance of developing number sense and fact fluency, and logistical information pertinent to the day.

#### **COMPOSING AND DECOMPOSING NUMBERS**

In this session, participants use two-color counters and interlocking cubes to explore number decomposition. Using a target number of items, participants explore all of the number combinations that result. The Number Strings activity focuses on strategies for adding several numbers and encouraging students to look for combinations such as doubles and number pairs that add up to 10.

#### **TELL ME ALL YOU CAN**

Participants are given calculation problems and asked to tell what they know about the answer without computing the answer. This activity provides an opportunity to discuss a variety of ways to think about a calculation, estimation, mental calculations, and being flexible with numbers. In this activity, participants will not seek an exact answer but will rely on estimation and what they know about numbers to respond to the questions.

#### **UNDERSTANDING MULTIPLICATION**

The focus for the first part of this session is assessment. This lesson sets the stage and gives participants a common reference point for thinking together as a group about what is important for multiplication understanding. Through the second experience of the session, participants are able to relate multiplication to a geometric model, which they then relate to the multiplication fact table. The activity provides an opportunity for participants to continue exploring patterns as they experience mathematical understanding from a problem-solving perspective, emphasizing underlying concepts while linking different areas of mathematics.

### **GAMES TO DEVELOP NUMBER SENSE**

In this session, participants play games that can be used to develop students' number sense. Games are an important part of giving students meaningful practice with math facts and provide an engaging context in which to learn the addition and multiplication facts and begin committing them to memory.

### **CLOSING**

In wrapping up the day, this session reviews the connections between today's tasks, FASTT Math, and the learning outcomes for the day.

### **MATH SOLUTIONS GUIDING PRINCIPLES**

Drawing upon academic work and our own classroom-grounded research and experience, Math Solutions has identified the following four instructional needs as absolutely essential to improving instruction and student outcomes:

- Robust Content Knowledge
- Understanding of How Students Learn
- Insight into Individual Learners through Formative Assessment
- Effective Instructional Strategies

These four instructional needs drive the design of all Math Solutions courses, consulting and coaching. We consider them our guiding principles and strive to ensure that all educators:

- Know the math they need to teach—know it deeply and flexibly enough to understand various solution paths and students' reasoning.
- Understand the conditions necessary for learning, what they need to provide, and what students must make sense of for themselves.
- Recognize each student's strengths and weaknesses, content knowledge, reasoning strategies, and misconceptions.
- Have the expertise to make math accessible for all students, to ask questions that reveal and build understanding, and help students make sense of and solve problems.