Math Solutions
FOUNDED BY MARILYN BURNS

AGENDA
Foundational Seminar for Do the Math Multiplication

GOALS

- Use content-scaffolded, sequenced lessons to develop students' computation skills, number sense, and problem-solving abilities
- Pace instruction for student success
- Facilitate student interactions using the think-pair-share strategy to deepen student learning and assess understanding
- Integrate vocabulary development into intervention instruction

OVERVIEW

This foundational seminar helps teachers gain a deeper understanding of instructional strategies and underlying mathematics content embedded in the Do the Math/Do the Math Now! programs. Teachers learn alternative teaching approaches that engage and motivate struggling students, pace students for success, and bolster their confidence and competence. Teachers learn how to make informed choices about the instruction they provide to students who need more time and support to learn math.

DAY 1

OPENING

This introduction presents the course goals, an explanation of the structure and layout of the resource Do the Math, and pertinent logistical information.

PERSPECTIVE ON INTERVENTION

Having a common understanding of what intervention means sets the foundation for the instructional strategies specific to intervention instruction that are introduced over the course of these days. Participants record their own definitions of intervention and indicate when intervention instruction should take place, and then compare and contrast these ideas with those described in the article "Nine Ways to Catch Kids Up."

GRADUAL RELEASE – CIRCLES AND STARS

Participants experience Circles and Stars as it might be presented to a class and then examine its four-phase pedagogy built on gradual release that supports and prepares struggling students to work independently.

BASIC CONCEPTS OF MULTIPLICATION – WRITING EQUATIONS AND SOLVING WORD PROBLEMS

In this session, teachers learn to pace lessons carefully using the gradual release model. They consider how to provide practice for students and the importance of making connections explicit.

LUNCH

BASIC CONCEPTS OF MULTIPLICATION – MEANINGFUL PRACTICE AND MULTIPLE STRATEGIES THROUGH GAMES
Games are an important part of giving students meaningful practice with math facts. In this session, participants play two games from Do the Math™ Multiplication Module A.

BASIC CONCEPTS OF MULTIPLICATION – BUILDING THE MULTIPLICATION CHART AND FINDING PATTERNS
In this session, participants focus on the multiplication chart and the connections between multiplication equations and rectangles. Additionally, they examine patterns on the multiplication chart and consider how these strategies support students' number sense and familiarity with products up to 12 × 12.

REFLECTION AND CLOSING

DAY 2
HOW STUDENTS LEARN
This session is designed to give participants insight into how children learn. It focuses on a view of learning in which people create or construct their own understanding of mathematical concepts and relationships through interactions between their minds and concrete experiences in the real world.

FACTS THROUGH 12 × 12
In this session, participants experience multiple strategies presented in *Do the Math* that support multiple ways of figuring out and remembering multiplication facts that students may not easily know.

LUNCH

SCAFFOLDING MULTIPLICATION PROBLEMS
The scaffolding that intervention students need to be successful and understand mathematics calls for educators to carefully consider the complexity and layers of the math we are teaching. In this section, participants work collaboratively to scaffold a series of multiplication problems.

FACTORS GREATER THAN 12
In this section, participants use the strategy of splitting a factor into numbers that are easier to multiply in order to multiply two- and three-digit numbers by one- or two-digit multipliers. A focus on understanding and efficiency is maintained as computation routines are practiced.

CLOSING
Participants take time to reflect on the experiences of the day and ways that these experiences will affect their classroom instruction.

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.

