



Basic Math Facts in Focus

Course Syllabus

Course Description

This course is designed to equip educators with a deep understanding of how students develop fluency with basic math facts and how to support that development effectively. Participants will explore the key stages of fact mastery—counting, reasoning, and automaticity—while learning to distinguish between rote memorization and conceptual fluency. Through interactive modules, educators will discover research-based strategies, including pattern recognition, reasoning strategies, and targeted games, to foster long-term retention and student confidence. By the end of the course, learners will be able to apply developmentally appropriate techniques for teaching addition, subtraction, multiplication, and division facts, assess student progress meaningfully, and design engaging instruction that moves beyond speed-based measures of success.

This course enhances classroom teaching effectiveness and supports improved student outcomes by introducing new knowledge in the developmental progression and reasoning strategies for mastering basic addition and multiplication facts.

Course Objectives

1. Identify key stages in the developmental progression of basic fact mastery and describe effective strategies for supporting students.
2. Identify effective strategies that support basic fact mastery, including appropriate practice, fluency-building activities, and concept-based assessment.
3. Identify and apply reasoning strategies to support addition and subtraction fact mastery.
4. Identify and apply reasoning strategies to support mastery of multiplication and division facts.

Modules

- Module 1: The Developmental Nature of Fact Mastery, Quiz 1
- Module 2: Mastering Basic Facts, Quiz 2
- Module 3: Reasoning Strategies of Addition/Subtraction Facts, Quiz 3
- Module 4: Reasoning Strategies for Multiplication / Division Facts and Remediation / Assessment, Quiz 4

Grading

Each quiz must be passed at an 80% or higher (three attempts allowed).

Format

This is a self-paced, asynchronous (no required live meetings) course. Throughout the PD course, you will find it helpful to take notes along the way to assist with the quizzes. Within each module, you will find reflection assessments that are not graded but will help in your journey through the course. There is an interactive forum in the course to help you connect with peers



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and instructors, share ideas, and collaborate on best practices throughout your learning journey.