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The Power of the Number Line: Building the Bridge from Mathematics to Symmetry

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This unit is designed to teach the foundational mathematics needed to understand the math students' encounter in middle school, high school and beyond. It is written for students in fourth grade; however, it could be taught to younger or older children depending on their needs. I believe the number line may be underutilized in the elementary classroom beyond teaching simple counting in the early primary grades. However, teaching students to understand how movement on the number line is a transformation can lay a strong foundation for the math that is to come in later years. The primary focus of this unit is to provide students with another model for understanding multiplication, namely the number line as a geometric interpretation of multiplication. This unit was developed from a seminar on symmetry because there exists a deep connection between symmetry and mathematics: doing one thing and then another to a geometric shape is a mathematical operation. The goal of this unit is to help students think of "number" as an adjective, no longer as a noun. It is the uniform stretching of intervals on the number line that provide the structure for understanding multiplication, and addition and subtraction as well.

(Developed for Mathematics, grade 4; recommended for Mathematics, grades 4-5)

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