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Exploring Valuable Places: Extended Place Value Concepts into Operations

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Place value is a foundational mathematics concept that often does not get enough instructional time in intermediate elementary grades. The concepts of place value are often considered primary, but their importance can be seen in most levels of math. A weak understanding of place value can be magnified when students are presented with the task of performing basic operations (addition, subtraction, and multiplication) on multi-digit numbers. The goal of this unit is to integrate place value concepts, such as values of digits, relationship between place values, and exchange, into the teaching operations that are grade-level appropriate.

The unit will cover strategies to first unpack multi-digit numbers by expanding them according to their base 10 expansion, and then use this expansion to perform operations on numbers. These strategies also explore trades within addition, subtraction and multiplication. This unit offers teachers and students multiple ways to approach addition, subtraction, and multiplication problems, which will lead to a sense of flexibility in students.

The included activities provide experiences for students in game form. Activities also include real world math problems in order to connect mathematics to students' everyday lives. The activities in this unit can be modified and adapted to reach a wide variety of learners. This unit is intended for third- and fourth-grade students, but could be modified for fifth-grader in need of remediation.

(Developed for Mathematics, grade 4; recommended for Elementary Mathematics, grades 3-5)

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