

## Big Ideas Math Response to EdReports' Review of Grade 4 Gateway 1 (Indicator 1e)

The key to 4.NBT.5\* is using various strategies. Strategies for multiplication include place value, area models, Distributive Property, partial products, and regrouping. As curriculum developers, we believe that exposing students to the vertical algorithm while they develop a deep conceptual understanding provides an important foundation for its formal use in later grades. In Grade 4, the vertical algorithm is introduced as a method of recording their work with place value and the Distributive Property. In the Teaching Edition, there is a constant emphasis on the conceptual understanding and not rushing students to using the algorithm.



The key to 5.NBT.5<sup>\*\*</sup> is fluency. We introduce the algorithm in Grade 4, to provide students an opportunity to become familiar with it before fluency with multi-digit numbers is expected in Grade 5.

\*4.NBT.5: Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations.

\*\*5.NBT.5: Fluently multiply multi-digit whole numbers using the standard algorithm.

their time.



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The key to 4.NBT.6\* is using various strategies. Strategies for division include place value, models, and partial quotients. As curriculum developers, we believe that exposing students to the vertical algorithm while they develop a deep conceptual understanding provides an important foundation for its formal use in later grades. In Grade 4 the algorithm is introduced as a method of recording their work with place value and partial quotients. In the Teaching Edition, there is a constant emphasis on the conceptual understanding students to using the algorithm.



The key to 6.NBT.6<sup>\*\*</sup> is fluency. We introduce the algorithm in Grade 4, to provide students an opportunity to become familiar with it, and they use it again in Grade 5, before fluency with multi-digit numbers is expected in Grade 6.

\*4.NBT.6: Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. \*\*6.NBT.6: Fluently divide multi-digit numbers using the standard algorithm.



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Students learn to write a mixed number as a fraction in Grade 4 Lesson 8.6. In Lesson 9.3, students multiply fractions and whole numbers (4.NF.4\*). Asking students to multiply mixed numbers and whole numbers in Lesson 9.4 is a natural progression in a coherent curriculum that incorporates previously-learned material into later topics within a grade. This also helps bridge the gap to Grade 5, where the standards (5.NF.6\*\*) require students to solve real-world problems with this skill.

\*4.NF.4: "Apply and extend previous understandings of multiplication to multiply a fraction by a whole number." \*\*5.NF.6: "Solve real-world problems involving multiplication of fractions and mixed numbers."