**Session Five: Primes and Composites**

**Common Core Standards Addressed**

#### This concept requires some knowledge of division and multiplication, which are themselves advanced for Grades 1 and 2. Students Grade 3 should refine their multiplication and division skills to prepare them for finding and applying divisors and multiples.

#### Grade 4

#### Gain familiarity with factors and multiples.

[CCSS.Math.Content.4.OA.B.4](http://www.corestandards.org/Math/Content/4/OA/B/4/)  
Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.

#### Use place value understanding and properties of operations to perform multi-digit arithmetic.

[CCSS.Math.Content.4.NBT.B.6](http://www.corestandards.org/Math/Content/4/NBT/B/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. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

#### Grade 5

#### Compute fluently with multi-digit numbers and find common factors and multiples.

[CCSS.Math.Content.6.NS.B.2](http://www.corestandards.org/Math/Content/6/NS/B/2/)  
Fluently divide multi-digit numbers using the standard algorithm.

[CCSS.Math.Content.6.NS.B.3](http://www.corestandards.org/Math/Content/6/NS/B/3/)  
Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

[CCSS.Math.Content.6.NS.B.4](http://www.corestandards.org/Math/Content/6/NS/B/4/)  
Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor. *For example, express 36 + 8 as 4 (9 + 2).*.

#### Perform operations with multi-digit whole numbers and with decimals to hundredths.

[CCSS.Math.Content.5.NBT.B.6](http://www.corestandards.org/Math/Content/5/NBT/B/6/)  
Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

#### Grades 6

#### Compute fluently with multi-digit numbers and find common factors and multiples.

[CCSS.Math.Content.6.NS.B.2](http://www.corestandards.org/Math/Content/6/NS/B/2/)  
Fluently divide multi-digit numbers using the standard algorithm.

[CCSS.Math.Content.6.NS.B.3](http://www.corestandards.org/Math/Content/6/NS/B/3/)  
Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

[CCSS.Math.Content.6.NS.B.4](http://www.corestandards.org/Math/Content/6/NS/B/4/)  
Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor. *For example, express 36 + 8 as 4 (9 + 2).*.

#### Students Grades 7 and 8 should demonstrate significant understanding of primes and composites and the underlying concepts of the divisors and multiples.