FOURTH GRADE CURRICULUM

WHAT MATH SKILL NEEDS MORE PRACTICE?

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.

*THIS SKILL REQUIRES STUDENTS TO KNOW THEIR MULTIPLICATION FACTS FLUENTLY. *

WHAT DOES MY CHILD NEED TO DO?

In this standard, the students demonstrate understanding of factors and multiples of whole numbers. This standard also refers to prime and composite numbers.

Prime numbers have exactly two factors, the number one and the number itself. For example, the number 17 has the factors of 1 and 17 thus making it a prime number.

Composite numbers have more than two factors. For example, 8 has the factors 1, 2, 4, and 8.

Fluency in multiplication facts is a must in order for students to be able to master this skill. Students who are not fluent with their multiplication facts will struggle with these concepts and others such as multiplication, division, and fractions.

What are factors and multiples? What is a prime number and what is a composite number? How does my child determine if a number is prime or composite?

Factors are the small numbers that are multiplied together to get bigger numbers. Students should understand the process of finding factor pairs so they can do this for any number 1-100.

Example: Factor pairs for 96: 1 and 96, 2 and 48, 3 and 32, 4 and 24, 6 and 16, 8 and 12.

Multiples can be thought of as the result of skip counting by each of the factors.

Example: When skip counting, students should be able to identify the number of factors counted e.g., 5, 10, 15, 20 (there are 4 fives in 20).

A prime number is a number greater than 1 that has only 2 factors, 1 and itself.

Example: 17 is a prime number because the factors are 1 and 17. There are only two factors that make up the number 17.

Composite numbers have more than 2 factors.

Example: 12 is a composite number because it has the factors of 1, 2,3,4,6, and 12. It has more than 2 factors thereby making it a composite number.

Students can determine whether numbers are prime or composite by doing the following:

• Building rectangles (arrays) with the given area and finding which numbers have more than two rectangles (e.g., 7 can be made into only 2 rectangles, 1 × 7 and 7 × 1, therefore it is a prime number).

• Finding factors of the number- creating a factor rainbow
Students create a factor rainbow by listing and matching all of the factor pairs. This should be done with any number 1-100.

Example: 12   Students would list the factors of 12 like so-
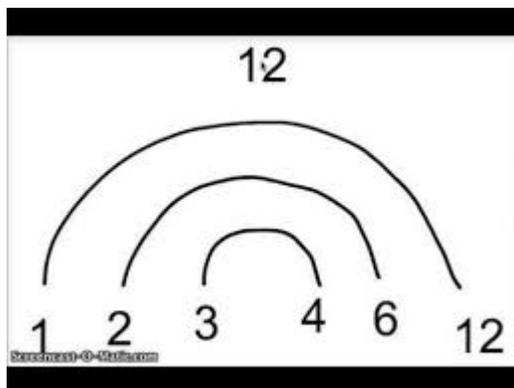
Common Misconceptions

A common misconception is that the number 1 is prime, when in fact; it is neither prime nor composite.

Another common misconception is that all prime numbers are odd numbers. This is not true, since the number 2 has only 2 factors, 1 and 2, and is also an even number.

When listing multiples of numbers, students may not list the number itself. Emphasize that the smallest multiple is the number itself.

Some students may think that larger numbers have more factors. Having students share all factor pairs and how they found them will clear up this misconception.