

Packet 2: Whole Number Applications

Dear Parents/Guardians,

Packet 2 continues the work from Packet 1, using multiplication and division to find factors and multiples of numbers, review prime and composite numbers, and use the greatest common factor (GCF) to factor sums of whole numbers.

Students will review prime factorization using factor trees. They will use a variety of strategies to find the greatest common factor and lowest common multiple of two whole numbers. Encourage your student to explain their strategies and visuals to you, as this helps reinforce understanding.

Prime Factorization

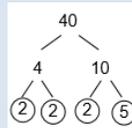
Composite Number A number is **composite** if it has more than two factors or divisors.

Example: 12 is **composite** since its factors are 1, 2, 3, 4, 6, and 12.

Prime Number A number is **prime** if it has exactly two factors or divisors.

Example: The number 11 is **prime**, since its only factors (or divisors) are 1 and 11.

Prime Factorization The **prime factorization** of a number is an expression of that number as a product of primes. A factor tree is useful for finding the prime factorization of a number.



Greatest Common Factor (GCF)

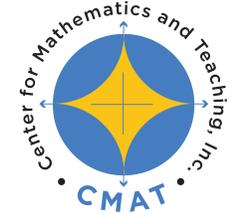
The GCF numbers is the greatest factor that **divides** the two numbers.

Strategy	In Words	Find the GCF of 18 and 12.
Listing Factors	List all of the factors for each number. The GCF is the greatest factor they have in common.	Factors of 18: 1, 2, 3, 6, 9, 18 Factors of 12: 1, 2, 3, 4, 6, 12 Greatest factor they share: 6 GCF (18,12) = 6
Venn Diagram	Find the prime factorization (using factor trees) for each number. Identify the prime factors the two numbers share. The GCF is the product of those prime factors.	$18 = 2 \times 3 \times 3$ $12 = 2 \times 2 \times 3$ GCF = $2 \times 3 = 6$
"Upside Down Ladder"	Divide the two numbers by a common divisor greater than 1. Continue dividing until the only common divisor is 1. The GCF is the product of those common divisors.	$18 \quad 12$ $2 \mid 9 \quad 6$ $3 \mid 3 \quad 2$ GCF = $2 \times 3 = 6$

Lowest Common Multiple (LCM)

The LCM of two numbers is the least number that is a **multiple** of both numbers.

Strategy	In Words	Find the LCM of 8 and 10.
Listing Multiples	List the first 5-6 multiples for each number. The LCM is the least multiple they have in common.	Multiples of 8: 8, 16, 24, 32, 40, 48 Multiples of 10: 10, 20, 30, 40, 50, 60 First multiple they share: 40 LCM (8, 10) = 40
Venn Diagram	Find the prime factorization (using factor trees) for each number. Identify the prime factors the two numbers share. The LCM is the product of all factors within the Venn Diagram.	$8 = 2 \times 2 \times 2$ $10 = 2 \times 5$ LCM = $2 \times 2 \times 2 \times 5$ LCM (8, 10) = 40
"Upside Down Ladder"	Divide the two numbers by a common divisor greater than 1. Continue dividing until the only common divisor is 1. The LCM is the product of those common divisors with the quotients along the side.	$8 \quad 10$ $2 \mid 4 \quad 5$ LCM = $2 \times 4 \times 5 = 40$



By the end of the packet, your student should know...

How to find the **prime factorization** of a number using a factor tree *Lesson 2.1*

How to find the **GCF** and **LCM** of two natural numbers *Lesson 2.2*

How to use GCF to **factor** sums *Lesson 2.3*

Additional Resources

Resource Guide (RG)
Part 1, pages 23-26

<https://youtu.be/S2sDm7UQ208>

<https://youtu.be/3S1GblmUPo>