

WHAT WE ARE LEARNING

Number Theory

VOCABULARY

Here are some of the vocabulary words we use in class:

Prime number A whole number greater than 1 whose only factors are itself and 1

Composite number A whole number greater than 1 that has more than 2 factors

Prime factorization A composite number expressed as the product of prime factors

Least common multiple (LCM) The smallest of the common multiples of two or more numbers

Greatest common factor (GCF) The largest of the common factors of two or more numbers

Dear Family,

Your child is working on divisibility rules, finding prime factors, and determining the least common multiple (LCM) and the greatest common factor (GCF) of whole numbers.

Find the prime factors of 120.

Step 1

Repeatedly divide by the smallest possible prime factor until the quotient is 1.

$$\frac{120}{2} = 60 \quad \frac{60}{2} = 30 \quad \frac{30}{2} = 15 \quad \frac{15}{3} = 5 \quad \frac{5}{5} = 1$$

Step 2

List the prime numbers you divided by. These are the prime factors.

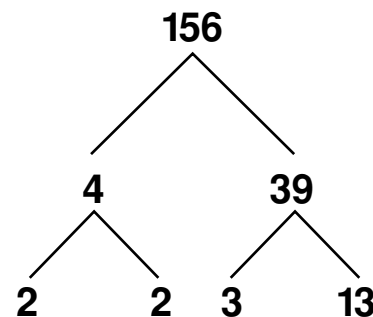
2, 2, 2, 3, 5

So, the prime factorization of 120 is $2 \times 2 \times 2 \times 3 \times 5$ or $2^3 \times 3 \times 5$.

Use a factor tree to find the prime factors of 156.

Step 1

Choose any two factors of 156. Continue factoring until only prime factors are left.



So, the prime factorization of 156 is $2 \times 2 \times 3 \times 13$.

This is how your child is learning to find the least common multiple of numbers.

Find the LCM of 3 and 4.

Step 1

List multiples of each number.
 3: 3, 6, 9, 12, 15, 18, 21, 24
 4: 4, 8, 12, 16, 20, 24

Step 2

Find the common multiples.
 12, 24

Step 3

Find the LCM.
 12

Ask questions such as these as you work together.

What is the first step in finding the LCM of 3 and 5?

Your child might reply: First I list multiples of each number. 3: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30 and 5: 5, 10, 15, 20, 25, 30.

What is your next step? Your child might explain:

Then I find the common multiples, 15 and 30.

What is the final step? Your child might respond:

Since 15 is less than 30, 15 is the LCM.

This is how your child is learning to find the greatest common factor of numbers.

Find the GCF of 36 and 48.

Step 1	Step 2	Step 3
List all the factors of each number.	Find the common factors.	Identify the GCF.
36: 1, 2, 3, 4, 6, 9, 12, 18, 36	1, 2, 3, 4, 6, 12	12
48: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48		

As you work with your child, talk about math to help build confidence and understanding.

Sincerely,

Number Theory

Determine whether each number is divisible by 2, 3, 4, 5, 6, 8, 9, or 10.

- | | | | |
|----------------|------------------|--------------|----------------|
| 1. 44 _____ | 2. 300 _____ | 3. 842 _____ | 4. 2,645 _____ |
| 5. 6,009 _____ | 6. 1,072 _____ | 7. 459 _____ | 8. 550 _____ |
| 9. 225 _____ | 10. 15,000 _____ | | |

11. Without dividing, how would you know that 11,322 is divisible by 9?

12. Without dividing, how would you know that 32,644 is divisible by 4?

Find the LCM of each set of numbers.

- | | |
|--------------------|--------------------|
| 13. 2, 5 _____ | 14. 3, 4 _____ |
| 15. 4, 6 _____ | 16. 4, 5, 10 _____ |
| 17. 6, 8, 12 _____ | 18. 6, 9, 12 _____ |
| 19. 4, 8, 10 _____ | 20. 25, 115 _____ |
| 21. 27, 12 _____ | 22. 24, 48 _____ |

Find the GCF of each set of numbers.

- | | |
|---------------------|--------------------|
| 23. 48, 20 _____ | 24. 72, 54 _____ |
| 25. 13, 24 _____ | 26. 355, 300 _____ |
| 27. 12, 8, 20 _____ | 28. 40, 24 _____ |
| 29. 303, 21 _____ | 30. 27, 189 _____ |
| 31. 8, 16, 20 _____ | 32. 33, 25 _____ |

Answers: 1. 2, 4; 2. 2, 3, 4, 5, 6, 10; 3. 2; 4. 5; 5. 3; 6. 2, 4, 8; 7. 3, 9; 8. 2, 5, 10; 9. 3, 5, 9; 10. 2, 3, 4, 5, 6, 8, 10; 11. The digits add up to 9; 12. The last two digits are divisible by 4; 13. 10; 14. 12; 15. 12; 16. 20; 17. 24; 18. 36; 19. 40; 20. 575; 21. 108; 22. 48; 23. 4; 24. 18; 25. 1; 26. 5; 27. 4; 28. 8; 29. 3; 30. 27; 31. 4; 32. 1

Directions:

- If a number is divisible by 3, color the square red.
- If a number is divisible by 4, color the square black.

15	16	153	56	60
48	99	64	621	100
276	28	3	52	368
92	243	444	726	40
324	624	531	76	810

Create your own puzzle.
