

Lynchburg Mathathon



Factors: Kindergarten - Second Grade

When you try to split a whole number into equal groups, some numbers can be split up in many different arrangements (composite) and others have no equal arrangements (prime).

Working together as a class:

1. Give the class an example of a composite number like 4 and use classroom objects or math manipulatives to show how it can be divided into one group of four, two groups of two, and four groups of one. Then give an example of a number like 5, which can only be divided into one group and its own number of groups (five), and since all numbers share this ability, the numbers that can only be divided in these two ways are called prime.
2. Have students guess which number below 20 will divide into the greatest number of groups.
3. Starting with one student, have students stand at the front of the class and arrange themselves into as many equal groups as they can discover. For example, with six students, they can make one group of six, two groups of three, three groups of two, and six groups of one. Work together to make a chart of the factors for each number, similar to the one shown.
4. Circle the numbers whose only factors are 1 and the number itself, these are the prime numbers.
5. For discussion:
 - a. Which number had the most factors? Three cheers for whoever guessed one of the right answers.
 - b. Are there any patterns between primes and composites that the students notice? Do they notice that two is the only even prime number?
 - c. Does it get more difficult or easier to find the factors as the number gets larger?
 - d. Do you think after a certain number the primes run out or do they continue forever?
 - e. Can you predict what the next prime number will be? No! No one can, at least you can't be sure until you've checked it by dividing first by two, then three, then four, and so on.

N	Factors
1	1
2	1, 2
3	1, 3
4	1, 2, 4
5	1, 5
6	1, 2, 3, 6
7	1, 7
8	1, 2, 4, 8
9	1, 3, 9
10	1, 2, 5, 10
11	1, 11
12	1, 2, 3, 4, 6, 12
13	1, 13
14	1, 2, 7, 14
15	1, 3, 5, 15
16	1, 2, 4, 8, 16
17	1, 17
18	1, 2, 3, 6, 9, 18
19	1, 19
20	1, 2, 4, 5, 10, 20