Factors and Multiples

Each whole number is made up of other numbers which are its **factors**. These numbers divide evenly into the number. For example, six can be divided by one, two, three, and six. There are a finite number of factors for each number.

List the factors of 6: 1, 2, 3, 6.

Each factor has a partner which forms the multiplication fact family for six.

Fact family for six: 1x6 6x1 3x2 2x3

Only some of the factors of six are prime numbers themselves. These are the **prime factors** of six. We can decompose, or break six down into its prime factorization, which will be the multiplication of a series of prime numbers that together equal six.

Prime factorization of six: 6 = 2●3

Each whole number also has multiples of itself. This LIST of multiples is formed by multiplying six by the natural numbers, beginning with 1 (1x6, 2x6, 3x6, 4x6, and so forth). The list of multiples is infinitely long, so it will always end with "…"

Multiples of six: 6, 12, 18, 24, 30, ….

1. List the factors of 36: _____

2. Prime factor 36: _____

3. Observe the differences between factors and multiples of 16. The factors are always _____ than or equal to 16. The multiples are always _____ than or equal to 16.

4. How many ways are there to prime factor 9?