

Family Math Newsletter

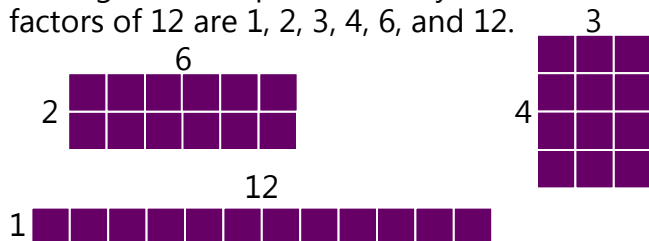
Grade 4

Unit 1 – Exploring Multiples and Factors

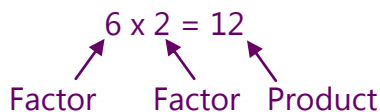
The Mathematics Involved

In third grade your child focused on multiplication as repeated addition, arrays, and area models. This unit focuses on factors and multiples. Later your child will be building on their understanding of multiplication and division, as well as place value understanding, to multiply/divide larger numbers and to multiply fractions.

Students will study the following vocabulary by creating arrays and looking at patterns. For example, the arrays for 12 are shown below. By making all of the possible arrays we know the factors of 12 are 1, 2, 3, 4, 6, and 12.



- **Factor** – a whole number that can divide into another number with no remainder



- **Product** – the result when two numbers are multiplied
- **Multiple** – the product of a factor and any whole number, **12 is a multiple of 6**
- **Prime Number** – a natural number that is greater than 1 and can be divided only by 1 and itself; has two factors
 - 0 and 1 are NOT prime
 - 2 is the only even prime number
 - The first five prime numbers are 2, 3, 5, 7, 11, 13, 17, 19, 23, 29
 - To see a list of prime numbers generated by a sieve of Eratosthenes go to: <http://bit.ly/1d45v7b>
- **Composite Number** – a number that has more than two factors
 - 12 is a composite number because it has the following factors: 1, 2, 3, 4, 6, 8, and 12 (e.g. $12 = 1 \times 12$; $12 = 2 \times 6$, etc.)

Resources

Books

- * *Multiplying Menace: The Revenge of Rumpelstiltskin (a math adventure)*, by Pam Calvert
- * *Sea squares*, by Joy Hulme
- * *Cheetah Math: Learning About Division From Baby Cheetahs*, by Ann Whitehead Nagda
- * *One Hundred Hungry Ants*, by Elinor Pinczes
- * *A Remainder of One*, by Elinor Pinczes
- * *Ten Times Better*, by Richard Michelson
- * *Minnie's Diner: A Multiplication Menu*, by Dayle Ann Dodds
- * *The best of times*, by Greg Tang

Many of these books are available at the CES library.

Helping Your Child at Home

When playing games or discussing your child's math work, "**encourage your child to explain his or her strategies to you.** Ask questions, such as 'How did you figure that out?' and 'Tell me your thinking about this problem,' **but don't provide answers or methods.** Show that you are interested in how your child is thinking and reasoning about these problems" (Economopoulos, 2006, p. 68).

Factor Game

Use a chart of the numbers 1-30 like the one

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30

shown. Player A chooses a number and marks it with a color. If player A chooses 12, she receives 12 points. Player B gets points for any factor of 12 that is not already taken. So player B marks each factor of 12 (that is not already colored) with a different color. Player B gets 16 points ($1 + 2 + 3 + 4 + 6$) for the factors of 12. Player B then chooses an uncolored number and receives that many points. Player A receives the points for any uncolored factors of the number. Play continues until there are no numbers remaining with uncolored factors. The player, with the greater total when the game ends, is the winner.