FAMILY MATH

Factors and Multiples

Dear Family,

Your student is learning to identify factors and multiples of numbers up to 100. They use the relationship between multiplication and division to find factors of numbers. Numbers with exactly 2 factors are called prime numbers. Numbers with more than 2 factors are called composite numbers. They learn that a number is divisible, or can be divided without a remainder, by each of its factors. Your student learns to find multiples of any number by using skip-counting or multiplication. Students use factors and multiples to find an unknown term in a pattern or sequence.

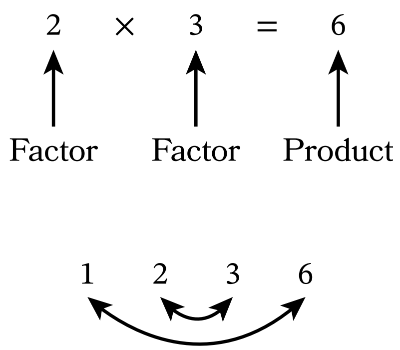
Key Terms

composite number

divisible

prime number

term



6 is a composite number because it has more than 2 factors.

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
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Multiples of 9 are identified when skip-counting by 3 on a hundreds chart. Some numbers are multiples of both 3 and 9.

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~~
31	~~32~~	~~33~~	~~34~~	~~35~~	~~36~~	37	~~38~~	~~39~~	~~40~~
41	~~42~~	43	~~44~~	~~45~~	~~46~~	47	~~48~~	~~49~~	~~50~~
~~51~~	~~52~~	53	~~54~~	~~55~~	~~56~~	~~57~~	~~58~~	59	~~60~~
61	~~62~~	~~63~~	~~64~~	~~65~~	~~66~~	67	~~68~~	~~69~~	~~70~~
71	~~72~~	73	~~74~~	~~75~~	~~76~~	~~77~~	~~78~~	79	~~80~~
~~81~~	~~82~~	83	~~84~~	~~85~~	~~86~~	~~87~~	~~88~~	89	~~90~~
~~91~~	~~92~~	~~93~~	~~94~~	~~95~~	~~96~~	97	~~98~~	~~99~~	~~100~~

The circled numbers are prime numbers. A prime number has only 2 factors, 1 and itself. A composite number has more than 2 factors. The number 1 is neither prime nor composite.

9, 18, 27, 36, 45

Every other term is divisible by 6.

$$9 \times 2 = 18$$
$$3 \times 3 \times 2 = 18$$
$$3 \times 6 = 18$$

$$9 \times 4 = 36$$
$$3 \times 3 \times 2 \times 2 = 36$$
$$6 \times 6 = 36$$

The sequence shows the first five terms when listing multiples of 9. Every other term is also divisible by 6. If the pattern continues, will the 7th term be divisible by 6? How do you know?

At-Home Activities

Factor Pairs Memory Game

Help your student list the factors of 90, which are $1, 2, 3, 5, 6, 9, 10, 15, 18, 30, 45$, and 90. Gather 12 small pieces of paper or index cards. Write 1 factor on each piece of paper until you have written all 12 factors. Mix up the 12 pieces of paper and arrange them in an array, facedown. Take turns with your student to turn over 1 piece of paper and try to find its factor pair. For example, if you turn over the number 3, try to find the number 30 because $3 \times 30 = 90$. When either you or your student finds a matching factor pair, leave both pieces of paper faceup. If you do not find a matching factor pair, then turn both pieces of paper facedown. Then have the next player begin the process again. Once all the factor pairs have been found, consider repeating the activity with the factors of 48, which are $1, 2, 3, 4, 6, 8, 12, 16, 24$, and 48. Also try the activity with the factors of 84, which are $1, 2, 3, 4, 6, 7, 12, 14, 21, 28, 42$, and 84.

Sorting by Prime or Composite

Gather the cards or papers that you and your student prepared for the Factor Pairs Memory Game. Ask your student to sort each number into piles that show whether the number is prime, composite, or neither. If your student is not sure whether a number is prime or composite, ask the following questions to guide their thinking.

- “Can the number be divided by a number other than 1 or itself without a remainder?”
- “If you draw the number as the area of a rectangle can it only be drawn 1 way, such as a 1 by 7 rectangle? Or can you draw more than 1 possible rectangle such as a 2 by 6, a 3 by 4, and a 1 by 12 to represent the number?