

NS7-9 Factors and Multiples

The **multiples** of a number are the numbers you say when counting by that number.

$$\underbrace{3 \times 5}_{\text{3 and 5 are both factors of 15}} = 15 \leftarrow 15 \text{ is a multiple of both 3 and 5}$$

$$\underbrace{0 \times 4}_{\text{0 and 4 are both factors of 0}} = 0 \leftarrow 0 \text{ is a multiple of both 0 and 4}$$

1. List the first few multiples of these numbers.

a) 3: 0, 3, 6, 9, _____, _____, _____ b) 4: _____, _____, _____, _____, _____, _____, _____

c) 5: _____, _____, _____, _____, _____, _____, _____

2. Look at the lists you made in Question 1.

a) Is 12 a multiple of 4? _____ b) Is 17 a multiple of 5? _____ c) Is 0 a multiple of 3? _____
Of 4? _____ Of 5? _____

3. a) Write 0 as a multiple of 17. $0 = 17 \times$ _____

b) Which whole numbers is 0 a multiple of? Explain. _____

4. Rewrite each statement in a way that means the same thing but uses the word "factor."

a) 20 is a multiple of 5. 5 is a factor of 20. b) 9 is a multiple of 1. _____

c) 0 is a multiple of 8. _____ d) 11 is not a multiple of 4. _____

INVESTIGATION ► What are the factors of 12?

A. Count by each number until you either reach 12 or pass it.

a) by 1s: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 b) by 2s: 0, 2, 4, _____

c) by 3s: 0, 3, 6, _____ d) by 4s: 0, 4, _____

e) by 5s: 0, 5, _____ f) by 6s: 0, 6, _____

g) by 7s: 0, 7, _____ h) by 8s: 0, 8, _____

i) by 9s: 0, 9, _____ j) by 10s: 0, 10, _____

k) by 11s: 0, 11, _____ l) by 12s: 0, 12, _____

m) by 13s: 0, _____

B. How do you know that any number greater than 12 cannot be a factor of 12?

C. a) List all the factors of 12. _____ b) Is 12 a factor of 12? _____

5. a) Count by 0s from 0. 0, 0, 0, _____, _____, _____.
- b) Is 8 a multiple of 0? _____
- c) Is 0 a factor of 8? _____
- d) What is the only number that is a multiple of 0? _____
- e) What is the only number that has 0 as a factor? _____
6. a) Show that 13 is a factor of 13 by counting by 13s starting at 0.
- b) Which whole numbers are factors of themselves? Explain. _____

7. a) Show that 1 is a factor of 8 by counting by 1s starting at 0.
- b) Which whole numbers have 1 as a factor? Explain. _____

8. a) Fill in the blanks:
 $0 \times 1 =$ _____ $0 \times 2 =$ _____ $0 \times 3 =$ _____ $0 \times 4 =$ _____
- b) What numbers will fit in the blank here: $0 \times$ _____ $= 0$?
 Can you find a number that does not fit? _____
- c) We know that 0 is a factor of 0. What are the other factors of 0? Explain. _____

9. Rewrite each statement in a way that means the same thing but uses the word "factor."
- a) 5 is a multiple of 1. _____
- b) Every number is a multiple of 1. _____
- c) 8 is a multiple of 8. _____
- d) Every number is a multiple of itself. _____
- e) 0 is a multiple of 7. _____
- f) 0 is a multiple of any number. _____
10. Rewrite each statement in a way that means the same thing but uses the word "multiple."
- a) 5 is a factor of 15. b) 3 is a factor of 0. c) Any factor of 12 is at most 12.
- d) Any factor of a number (except 0) is at most the number. e) 6 is a factor of 6. f) Any number is a factor of itself.