



Another strategy that you may or may not want to teach 3rd and 4th graders is the factorial operation. When I have the gave the four 4's task to 6th graders I did not show this initially. Instead I waited for them to become stuck on some numbers (11, 13, 19) that they could not find and used that as a teach-able moment to introduce factorial.

Factorial is something that younger children can understand so it may be appropriate to introduce it to your students after they have found some of the solutions.

Factorial

$$2! = 2 \times 1 = 2$$
$$3! = 3 \times 2 \times 1 = 6$$
$$4! = 4 \times 3 \times 2 \times 1 = 24$$

This activity has many extensions. If students have found the 20 numbers and you have more lesson time, ask them if they can think of other questions to try. Or pose other questions, such as, extending beyond 20, extending into negative numbers, or five 5's.

Extensions:

- Can you continue using Four 4's to find numbers greater than 20?
- Make a number challenge of your own that is similar to Four 4's
- Can you use Four 4's to make negative numbers?
- How many numbers can you make with Five 5's?