

## Multiplication Fact Strategies

Strategy	Strategy Description	Examples
For the strategies below, start with pictures & objects before moving to algorithms (number sentences). 4 <sup>th</sup> grade students should know multiplication facts through 12 x 12 & Square number up through 15 x 15.		
<b>Doubles</b>	Facts that have 2 as a <b>factor</b> are equivalent to the addition doubles.	2 x 7 is double 7
<b>Fives</b>	Facts with 5 as a <b>factor</b> (numbers multiplied together to get another number)	6 x 5 Or 12 x 5
<b>Zeroes</b>	Any number multiplied by zero is equal to zero	6 x 0 = 0 11 x 0 = 0
<b>Ones</b>	Any number multiplied by one is equal to the original factor.	5 x 1 = 5 or 34 x 1 = 34
<b>Tens</b>	When multiplying by 10 the place value of the <b>product</b> increases. (product- the result when two or more factors are multiplied together)	3 x 1 = 30 or 16 x 10 = 160
<b>Nines</b>	When multiplying by 9 multiply by 10 and subtract the factor other than 9.	7 x 9 7x 10 = 70-7 = 63
<b>Square Numbers</b>	<b>Square Numbers</b> (facts where both factors are the same digit) can be written in an expression or with an <b>exponent</b> (quantity representing the number of times a given number is used in a multiplication problem). A concrete representation can be made with color tiles. The shape that appears is a square - hence the name square numbers.	3 x 3 = 9 or 3 <sup>2</sup> = 9 Therefore, when color tiles are placed in a 3 by 3 configuration a square is formed.
<b>Fours</b>	Applicable to all facts with 4 as one of the <b>factors</b> . Double and double again.	4 x 6 Double 6 is 12. Double again is 24
<b>Threes</b>	Applicable to all facts with 3 as one of the <b>factors</b> . Double and one more set.	3 x 7 Double 7 is 14. One more set of 7 is 21
<b>Add one more set</b>	Can be used with any fact.	6x7 5 sevens are 35. One more set of 7 is 42

Bolded Words are Critical Mathematical Vocabulary.

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## Division Fact Strategies

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<p>For the strategies below, start with pictures &amp; objects before moving to algorithms (number sentences). When dividing think multiplication. Division process relies heavily on multiplication skill.</p>		
<b>Zeros</b>	Zero divided by any number is equal to zero	$0 \div 7 = 0$
<b>Ones</b>	Any number divided by 1 is equal to the <b>divisor</b> (a number by which another number is to be divided)	$6 \div 1 = 6$ Or $12 \div 1 = 12$
<b>Two</b>	Any number divided by 2 is half the <b>divisor</b> .	$6 \div 2 = 3$ $46 \div 2 = 23$
<b>Fours</b>	Halving and Halving. Any number divided by 4 can be found by halving it twice.	$16 \div 4$ $16 \div 2 = 8$ $8 \div 2 = 4$
<b>Tens</b>	When dividing by 10 the <b>quotient</b> (the result when numbers are divided) decreases the place value.	$30 \div 10 = 3$ or $160 \div 10 = 16$

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