Multiplication Fact Strategies

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

Bolded Words are Critical Mathematical Vocabulary.

Division Fact Strategies

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

Bolded Words are Critical Mathematical Vocabulary.