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.*		
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
Doubles	Facts that have 2 as a **factor** are equivalent to the addition doubles.	2 x 7 is double 7
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
Fives	Facts with 5 as a **factor** (numbers multiplied together to get another number)	6 x 5 Or 12 x 5
Fours (Double Double)	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
Add one more set	Can be used with any fact.	6x7 5 sevens are 35. One more set of 7 is 42
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
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 $3^2 = 9$ So, when color tiles are placed in a 3 by 3 configuration a square is formed.

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 ÷ 7 =0
Ones	Any number divided by 1 is equal to the **divisor** *(a number by which another number is to be divided)*	6 ÷ 1 = 6 Or 12 ÷ 1 =12
Two	Any number divided by 2 is half the **divisor**.	6 ÷ 2 = 3 46 ÷ 2 = 23
Fours	Halving and Halving. Any number divided by 4 can be found by halving it twice.	16 ÷ 4 16 ÷ 2 = 8 8 ÷ 2 = 4
Tens	When dividing by 10 the **quotient** *(the result when numbers are divided)* decreases the place value.	30 ÷ 10 = 3 or 160 ÷ 10= 16

Bolded Words are Critical Mathematical Vocabulary.