Addition Strategies

addend addend sum

$$8 + 7 = 15$$

Count On	Start with the larger number and count up. *Use when adding 1, 2, or 3.*	+1 +2 +3
Making Ten *Ten Partners*	There are number pairs that make 10.	
Doubles *+1 and +2* *Near Doubles*	Adding a number to itself makes a double. Double the number and add one or two more.	
Plus 10	When 10 is added to a number, the tens-place digit increases by one.	
Plus 9 *See 9. Make 10.*	Decompose the other addend to add one to the 9. *("Need one more, look next door")*	
Plus 8 *See 8. Make 10.*	Decompose the other addend to add two to the 8. *("Need two more, look next door")*	
Add in Small Steps	Decompose the smaller number into parts so that you can add up to create a 10.	
Commutative Property *Turn Arounds*	Order doesn't matter when adding.	
Traditional Algorithm	Stack the numbers lining up the digits according to place value. Add the 1s first, regroup if needed, continue with the 10s and so on.	

Subtraction Strategies

minuend   subtrahend   difference

$$9 - 7 = 2$$

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Count Back	Start with the larger number and count back. *Use when subtracting 1, 2, or 3*	- 1 - 2 - 3
Count Up	Count the steps from the subtrahend to the minuend to get the difference.	
Think Addition	To subtract, think of the related addition fact.	
Ten Partners	If you know the addition Ten Partners, then you know the related subtraction facts.	
Half	If you know the double fact then you know the related subtraction fact.	
Minus 10	When 10 is subtracted from a number, the tens-place digit decreases by one.	
Minus 9 *See 9. Think 10.*	Think of the number as a 10 and then add one.	
Minus 8 *See 8. Think 10.*	Think of the number as a 10 and then add two.	
Subtract in Small Steps	Decompose the subtrahend into smaller parts so that you can subtract to a 10 or a multiple of 10.	
Constant Difference *Compensation*	Add or subtract the same amount to both the minuend and the subtrahend to make the problem easier to solve.	
Traditional Algorithm	Stack the numbers lining up the digits according to place value. Subtract the 1s first, regroup if needed, continue with the 10s and so on.	

Multiplication Strategies

factor   factor   product

8 x 4 = 32

FOUNDATIONAL FACTS	**Twos** Doubles	Multiplying by 2 is doubling the number.
	Tens	Multiplying by 10 increases a number tenfold. *Think ten-frames and base ten blocks.*
	Fives	Think **skip counting** by 5's or think half of multiplying by 10.
	Ones	Multiplying by 1 equals the number because it is 1 group.
	Zeros	If you multiply a number by 0 the product is always 0.
BUILDING ON THE FOUNDATION	**Threes**	Multiplying by 3 can be thought of as doubling the number and then adding 1 more group, or as tripling the number.
	Fours *Double Double*	Double the number, and then double it again.
	Sixes	Multiplying by 6 can be thought of as doubling a multiple of 3.
	Nines *See 9.* *Think 10.*	Think of the 9 as a 10, then subtract one group.
	Eights Double Double Double	Multiplying by 8 is double multiplying by 4.
	Sevens Multiplying Small Steps	Decompose the 7 and multiply in smaller steps (Distributive Property)
Commutative Property		Order doesn't matter when multiplying.
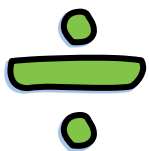
Division Strategies

dividend   divisor   quotient

$$8 \div 4 = 2$$

Division by 0	0 divided by any number is 0. If there are no groups there is nothing to divide.
A Number Divided by Itself	A number divided by itself is 1.
Division by 1	A dividend divided by 1 equals the number.
Half *Divided by 2*	A dividend divided by 2 is half. Use double facts to solve.
Think Multiplication	Use multiplication to solve division problems.
Half and Double	Halve the dividend, double the quotient.
Divide in Small Steps *Factor the Divisor*	Decompose the divisor into smaller parts (factors) so that you can make the problem easier to solve.
Compensation	Multiply or divide the dividend and the divisor by the same number to make the problem easier to solve.
Cancel Zeros *Dividing by a* *Multiple of 10 First*	Remove the same number of zeroes from the end of both the dividend and the divisor.