Addition Strategies

addend addend sum

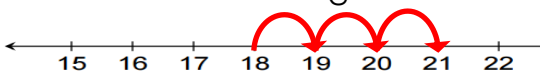
$8 + 7 = 15$

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. 10+0 9+1 8+2 7+3 6+4 5+5 
Doubles *+1 and +2* *Near Doubles*	Adding a number to itself makes a double. 5 + 5 = 10 Double the number and add one or two more. *If you know 5+5=10, then 5+7 is two more, or 12*
Plus 10	When 10 is added to a number, the tens-place digit increases by one. 23 + 10 = 33
Plus 9 *See 9. Make 10.*	Decompose the other addend to add one to the 9. *("Need one more, look next door")* 15 + 9. Think 14 + 10
Plus 8 *See 8. Make 10.*	Decompose the other addend to add two to the 8. *("Need two more, look next door")* 14 + 8. Think 12 + 10
Add in Small Steps	Decompose the smaller number into parts so that you can add up to create a 10. 28 + 6 = 28 + (2 + 4) = 30 + 4 = 34
Commutative Property *Turn Arounds*	Order doesn't matter when adding. 8 + 3 = 11 3 + 8 = 11
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. 1 35 +56 91

Subtraction Strategies

minuend subtrahend difference

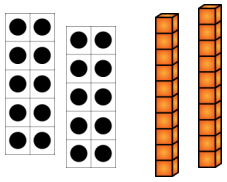
$9 - 7 = 2$

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. 21 - 18 = 
Think Addition	To subtract, think of the related addition fact. 15 - 8 = ? think 8 + ? = 15
Ten Partners	If you know the addition Ten Partners, then you know the related subtraction facts. 7 + 3 = 10 so 10 - 3 = 7
Half	If you know the double fact then you know the related subtraction fact. 6 + 6 = 12 so 12 - 6 = 6
Minus 10	When 10 is subtracted from a number, the tens-place digit decreases by one. 23 - 10 = 13
Minus 9 *See 9. Think 10.*	Think of the number as a 10 and then add one. 15 - 9. Think 15 - 10 + 1
Minus 8 *See 8. Think 10.*	Think of the number as a 10 and then add two. 27 - 8. Think 27 - 10 + 2
Subtract in Small Steps	Decompose the subtrahend into smaller parts so that you can subtract to a 10 or a multiple of 10. 24- 7. Think splitting 7 into 4 and 3 first. Then 24 - 4 = 20 then 20 - 3 = 17
Constant Difference *Compensation*	Add or subtract the same amount to both the minuend and the subtrahend to make the problem easier to solve. 43 - 25 = 43 (+5) - 25 (+5) = 48 - 30
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. 1 13 ~~23~~ −17 6

Multiplication Strategies

factor factor product

$8 \times 4 = 32$

FOUNDATIONAL FACTS	**Twos** Doubles	Multiplying by 2 is doubling the number. 2 x 7. Think double 7. Think 7 + 7
	Tens	Multiplying by 10 increases a number tenfold. *Think ten-frames and base ten blocks.* 10 x 2 = 20 
	Fives	Think **skip counting** by 5's or think half of multiplying by 10. 5 x 2 = 10
	Ones	Multiplying by 1 equals the number because it is 1 group. 6 x 1 = 6 
	Zeros	If you multiply a number by 0 the product is always 0. 9 x 0 = 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. 4 x 3. Think 4 x 2 and add one more group of 4.
	Fours *Double* *Double*	Double the number, and then double it again. 4 x 7. Think (2 x 7) + (2 x 7)
	Sixes	Multiplying by 6 can be thought of as doubling a multiple of 3. 6 x 7. Think (3 x7) + (3 x 7)
	Nines *See 9.* *Think 10.*	Think of the 9 as a 10, then subtract one group. 8 x 9. Think 8 x 10 - 8
	Eights Double Double Double	Multiplying by 8 is double multiplying by 4. 7 x 8. Think (7 x2) + (7 x 2) + (7 x 2) + (7x2) or (7x 4) + (7 x 4)
	Sevens Multiplying Small Steps	Decompose the 7 and multiply in smaller steps (Distributive Property) 4 x 7. Think (4 x2) + (4 x 5)
	Commutative Property	Order doesn't matter when multiplying. 4 x 6 = 24 and 6 x 4 = 24

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. $0 \div 9 = 0$
A Number Divided by Itself	A number divided by itself is 1. $5 \div 5 = 1$ $65 \div 65 = 1$
Division by 1	A dividend divided by 1 equals the number. $9 \div 1 = 9$ $204 \div 1 = 204$
Half *Divided by 2*	A dividend divided by 2 is half. Use double facts to solve. $8 \div 2 = 4$
Think Multiplication	Use multiplication to solve division problems. $27 \div 9 = \boxed{?}$ Think $9 \times \boxed{?} = 27$
Half and Double	Halve the dividend, double the quotient. $64 \div 4$. Think half of 64 is 32, So $32 \div 4 = 8$. Then double the quotient (8). $8 \times 2 = 16$.
Divide in Small Steps *Factor the Divisor*	Decompose the divisor into smaller parts (factors) so that you can make the problem easier to solve. $54 \div 18$. Think $54 \div 6 \div 3 = 9 \div 3 = 3$
Compensation	Multiply or divide the dividend and the divisor by the same number to make the problem easier to solve. $48 \div 12 = (48 \div 4) \div (12 \div 4) = 12 \div 3$
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. $360 \div 60$. Think $36 \div 6$