

Addition Strategies

Count Up	Count up from the larger number. Use when adding on 1, 2, 3, or 4.								
Tens Partners	There are six sets of number pairs that make 10: $10 + 0$ $9 + 1$ $8 + 2$ $7 + 3$ $6 + 4$ $5 + 5$ Tens Partners can be extended to the sums of 20. Make the ones-place digits Tens Partners. $12 + 8$, $16 + 4$								
Doubles	Add the number to itself and that number doubles. $2 + 2 = 4$ $6 + 6 = 12$								
Doubles Plus 1	Double the number and add one more. If you know $7 + 7 = 14$, then $7 + 8$ is one more, or 15.								
Doubles Plus 2	Double the number and add 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. Think 10.	Add 10 and subtract 1. Example: $18 + 9$ Think: $18 + 10 = 28$ so $18 + 9$ is one less, or 27. Plus 9 can be extended to Plus 19: Add 20 and subtract 1. Plus 9 can be extended to Plus 99: Add 100 and subtract 1.								
Plus 8 See 8. Think 10.	Add 10 and subtract 2.								
Add in Small Steps	Split the smaller number into two parts so that you can add up to a multiple of 10. For example: $26 + 7 = ?$ 1. The Tens Partner for 6 in 26 is 4. So, split 7 into 4 + 3. 2. Add the Tens Partners numbers: $26 + 4 = 30$ 3. Then add the remaining number: $30 + 3 = 33$								
Hidden Facts	Finding Tens Partners and Doubles hidden within problems can make the problems easier to solve. <table border="1" data-bbox="625 1743 1274 1911" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Hidden Tens Partners</th> <th>Hidden Doubles</th> </tr> </thead> <tbody> <tr> <td>$8 + 6 = (8 + 2) + 4$</td> <td>$6 + 8 = (6 + 6) + 2$</td> </tr> <tr> <td>$= 10 + 4$</td> <td>$= 12 + 2$</td> </tr> <tr> <td>$= 14$</td> <td>$= 14$</td> </tr> </tbody> </table>	Hidden Tens Partners	Hidden Doubles	$8 + 6 = (8 + 2) + 4$	$6 + 8 = (6 + 6) + 2$	$= 10 + 4$	$= 12 + 2$	$= 14$	$= 14$
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Subtraction Strategies

Count Back	Count back to take away small numbers, such as 1, 2, or 3.
Count Up	Count up to find the difference. This works best when the numbers are close together. $11 - 9 = \square$ Count up from 9 to 11.
Think Addition	To subtract, think of the related addition fact. $13 - 6 = \square$ Think: $\square + 6 = 13$
Tens Partners	If you know the addition Tens Partners, then you know the related subtraction facts. $7 + 3 = 10$ so $10 - 3 = 7$ and $10 - 7 = 3$ Tens Partners can be extended to find differences from 20. $20 - 8 = 12$
Doubles	If you know the addition Doubles facts, then you know the related subtraction facts. $2 + 2 = 4$ so $4 - 2 = 2$
Minus 10	The tens-place digit decreases by one, and the ones-place digit stays the same. $23 - 10 = 13$
Minus 9 See 9. Think 10.	Subtract 10 and add 1. Minus 9 can be extended to Minus 19: Subtract 20 and add 1. Minus 9 can be extended to Minus 99: Subtract 100 and add 1.
Minus 8 See 8. Think 10.	Subtract 10 and add 2.
Subtract in Small Steps	Split the number being subtracted into two parts so that you can subtract to 10 or a multiple of 10. For example: $24 - 7 = \square$ $24 - 4 = 20$. So, split 7 into 4 and 3. Then apply Tens Partners to subtract 3 from 20. $20 - 3 = 17$

Multiplication Strategies

Times 0	0 Times a number is always 0.
Times 1	Times 1 equals the number.
Times 2	Times 2 is double the number.
Times 3	Times 3 is the number tripled. Double the number and add one more group.
Times 4	Times 4 is double Times 2. $\text{Times 4} = \text{Times 2} + \text{Times 2}$. Double the number and double again.
Times 5	Times 5 is like counting nickels. Times 5 is half of Times 10. $\text{Times 5} = \text{Times 10} \div 2$.
Times 6	Times 6 is double Times 3. $\text{Times 6} = \text{Times 3} + \text{Times 3}$. $\text{Times 6} = \text{Times 5} + \text{Times 1}$.
Times 7	Turn Times 7 into smaller multiplication facts: $\text{Times 7} = \text{Times 5} + \text{Times 2}$.
Times 8	Times 8 is double Times 4. $\text{Times 8} = \text{Times 4} + \text{Times 4}$.
Times 9	See Times 9. Think Times 10. Think Times 10 and subtract one group. $\text{Times 9} = \text{Times 10} - \text{Times 1}$.
Times 10	Times 10 increases a number tenfold. Put a 0 in the ones place to increase its value.
Times 11	Single-digit factors Times 11 make double-digit products. ($3 \times 11 = 33$) Times 11 is one group more than Times 10. $\text{Times 11} = \text{Times 10} + \text{Times 1}$.
Times 12	$\text{Times 12} = \text{Times 10} + \text{Times 2}$. $\text{Times 12} = \text{Times 6} + \text{Times 6}$.

Division Strategies

Division of 0

0 divided by any number is 0.

$$0 \div 6 = 0$$

If there are 0 things, there is nothing to divide into groups.

Division by 0 is **not** possible.

$$\cancel{8 \div 0} =$$

You can't divide 8 things into 0 groups. That makes no sense.

A Number Divided by Itself

A number divided by itself is 1.

$$3 \div 3 = 1 \quad 89 \div 89 = 1$$

Division by 1

A number divided by 1 equals the number.

$$3 \div 1 = 3 \quad 89 \div 1 = 89$$

Division by 2

A number divided by 2 is half the number.

Use Doubles facts to solve Division by 2.

$$8 \div 2 = ?$$

Division by 3-12

Use related multiplication to solve division problems. For example:

$$40 \div 5 = ?$$

Think: $5 \times \textit{what} = 40$

$$5 \times 8 = 40,$$

$$\text{so } 40 \div 5 = 8.$$