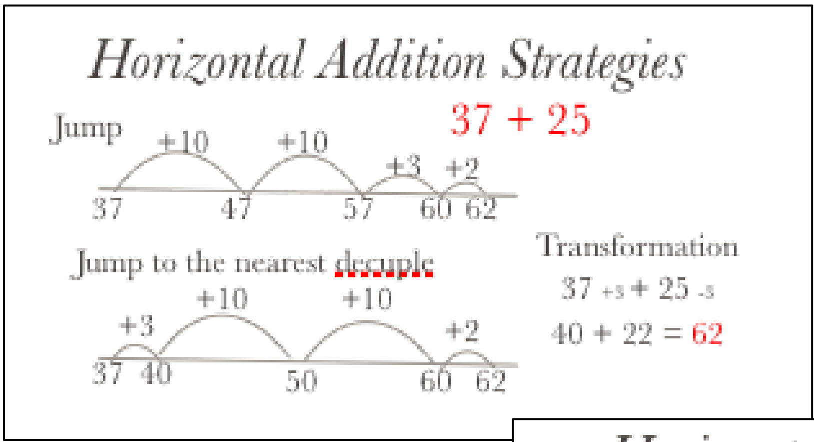
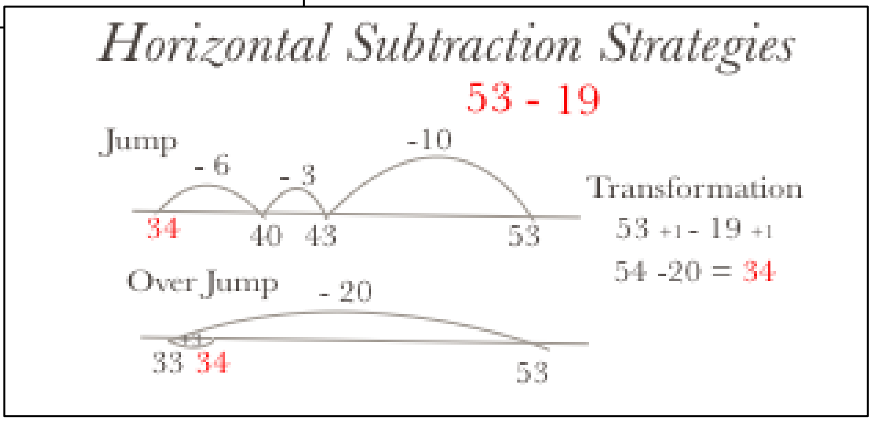
Addition & Subtraction

Once children have learnt the basic number bonds (the result of adding and subtracting numbers between 1 and 10), they are ready to develop their mental arithmetic further. These days, children are encouraged to imagine an empty number line, onto which they will discover that there are many different methods they can use for doing a sum.





Practicing mental addition & subtraction

As well as developing these mental methods, your child will still need to practice using them so that they become second nature. You may be wondering about those calculation workbooks that you can buy in the supermarkets, or calculations that you can download from the internet. Is there a place for these? Yes, but talk to your child about different calculation methods. Don't just set them off to work through a page of twenty calculations using the same method for each one simply because they are set out as vertical calculations. You could ask you child to draw a circle around each calculation they think they could figure out mentally, share your favourite ones with them, treat the page of calculations as something to be approached intelligently rather than slavishly.

Multiplication

The order for learning tables

Learning tables in order- first the twos, then threes, then fours and so on is NOT the most effective way to learn them. The most natural order for children to learn their tables is to start with the easiest and work up to the hardest.

Tens (10,20,30…) which children learn as a natural part of counting**.**
Fives, because of fingers and toes.
Two. Pairs, even numbers and doubling are familiar ideas
Fours (which are just double the twos) and **eights** (double to fours).
Nines (there are nice shortcuts).
Threes and **sixes.**
Sevens.

Why 3x7 equals 7x3
A big idea in helping children to learn their tables is learning that the order of the numbers doesn't matter: 3x7 has the same answer as 7x3. Mathematicians love this big idea so much that they gave it a fancy name : the *commutative law* (which has the same origins as 'commuter'- both based on the notion of back-a-forth).

One of the best ways of demonstrating to a child why 3x7 equals 3x7 is by using an array. Array is a word that may not have cropped up in your maths education, but these days it features prominently in the vocabulary of school maths. It's the formal mathematical word for a set of numbers or shapes laid out in a rectangle.

1) Using an array (by drawing or using manipulatives)

An array shows objects arranged into equal rows.
To find 6 X 3, make an array of 6 rows of 3

6 X 3 = 18

2) Doubling

When you double a number you are multiplying by 2.
Ex. 6 X 9 =
First find 3 X 9, then double it

(3 X 9 = 27) + (3 X 9 = 27)

(3 X 9) + (3 X 9) = 27 + 27 = 54

3) Repeated Doubling

To find 8 X 8, first find 2 X 8, then double, then double again.

2 X 8 = 16

4 X 8 is double 2 X 8
16 + 16 = 32 so,
4 X 8 = 32

8 X 8 is double 4 X 8
32 + 32 = 64 so,
8 X 8 = 64

4) Skip Counting

To find 8 X 6, skip count by 6 eight times.
6, 12, 18, 24, 30, 36, 42, 48

or

skip count by 8 six times
8, 16, 24, 32, 40, 48

5) Skip Count from a known fact

To find 9 X 6, you know that 9 X 5 = 45.
Skip county by 9 to add one more group of 9

45 + 9 = 54, so 9 X 6 = 54

To find 9 X 7 add two groups of 9 to 45

45 + 9 + 9 = 63, so 9 X 7 = 63

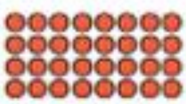
6) Use Friendly facts

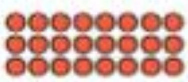
To find 9 X 7, you know that 10 X 7 = 70.
now subtract one group of 7 to equal 63

To find 6 X 8, you know that 5 X 8 = 40.
now add one group of 8 to equal 48

7) Use two known facts and add them together

To find 7 X 8
You know that 4 X 8 is 32 and 3 X 8 is 24. Add the products.

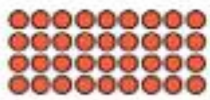




7 X 8 = 56

10) Related facts

If you know the product to 9 X 4 you know 4 X 9. These are related facts.



11) Combination of any of the above strategies.