Why Do We Need Mental Strategies?

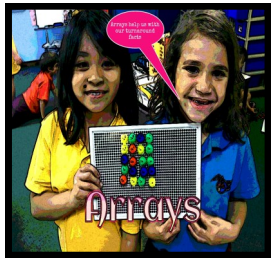
Mental computations are not necessarily quicker than using traditional written methods. Sometimes they will be slower. Their importance lies in their convenience and flexibility.

From the earliest years, students should be challenged through practical problem situations. We encourage students to calculate with larger numbers and look beyond finger counting and other simple strategies. Partitioning is the key to developing these solid numeracy skills.

By breaking numbers into easy to use parts, we can turn any sum into one that can be solved using a variety of mental maths strategies.

For example; 33+37= 7+3=10 (Friends of 10), 30+30=60 (Doubles), 60+10=70 (Skip counting by 10).

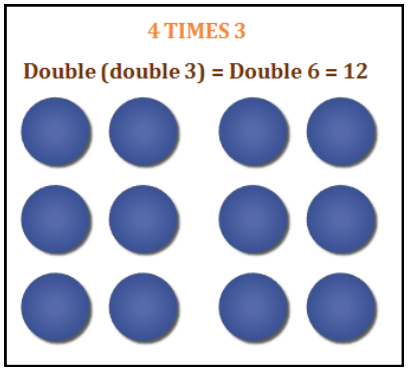
If a student knows 5x2=10, they also know the turn around fact, 2x5=10. Arrays (equal lines and rows) help students see this relationship.



Four Times Tables

Finding multiples of four can be achieved using *Double Doubles*.

For example 8x4
First, double 8: Double 8 is 16.
Next double the result (16):
Double 16 is 32



For children to double a two digit number, such as 16, they can also draw on their knowledge of partitioning and place value.

Double 16 can be found by;
Doubling 10 and doubling 6.
Then adding the two results:

1.10+10=20, 6+6=12
2. 20 + 12
3. 20+10+2=32.

Breigh Pearson, Hayley Barker & Erin Smith 2013

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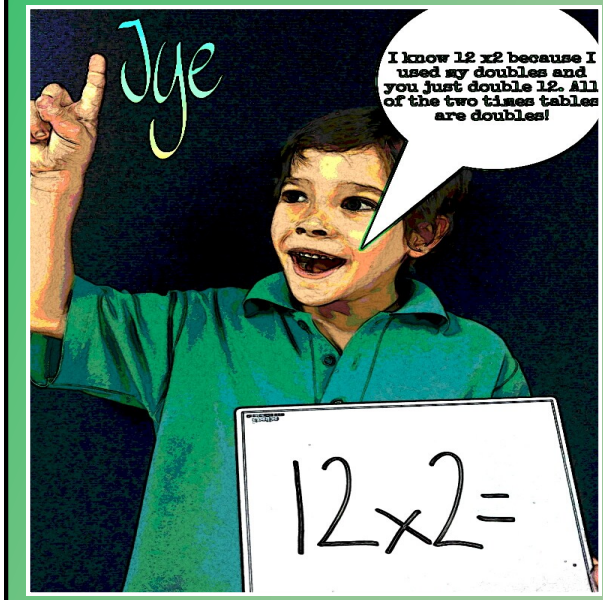
Multiplication

Helping My Child At Home



Multiplication Strategies

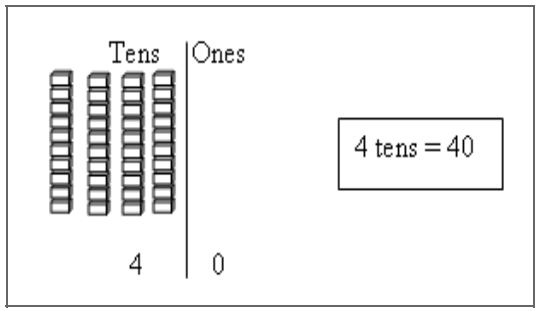
Ones Times Tables

When revising multiplication, model the ones facts. For example, 6x1 means 6 groups of 1 (1+1+1+1+1+1) or 1x6 means 1 group of 6. It may appear obvious, however some children require many opportunities to develop this understanding.

Ten Times Tables

By Year Two, students should have a solid understanding of partitioning, place value and skip counting by tens. This prior knowledge provides students with a strategy to solve their ten times tables.

Using their partitioning knowledge, students can expand numbers. For example, 48 becomes 40+8. Students recognise 4 in the tens means there are 4 groups of 10 (40).



Through skip counting and patterning, students develop an understanding that the number in the ones place stays the same when counting by tens. Therefore, when completing your ten times tables, the number will always end in 0 and the number in the tens place will be the number you are multiplying by ten. 4x10=40

Multiplication Strategies

Five Times Tables

There are two patterns that can be used when numbers are multiplied by five.

1. For even numbers multiplied by 5, the answer always ends in 0 and the digit in the tens place is half the number you are multiplying by 5.
   8x5= (8 is even therefore it will end in 0, half of 8 is 4) 40.

2. For odd numbers multiplied by 5, the answer always ends in 5 and the number in the tens place is half of the number that comes BEFORE the number you are multiplying by 5.
   7x5= (7 is odd so there will be a 5 in the ones place, 6 comes BEFORE 7 and half of 6 tens is 30).
   Therefore the answer is 35.

Multiplication Strategies

Two Times Tables

Once a child knows their doubles to ten, they know their two times tables. Once again, use concrete materials to model two 'groups of' and make the connection to doubles facts.

A great song to use is the Doubles Rap 1-5 on youtube:
http://www.youtube.com/watch?v=ljPKoNJH1Jg
or the Doubles Rap 6-10 at:
http://www.youtube.com/watch?v=yFuskIXXQa4

The collections below can be thought of as 3+3 or double three. From here you may point out it is also 2x3 and because we know our doubles we know 2x3 is 6.

The flash cards below have both the addition number sentence and the multiplication number sentence. These are a great resource for highlighting this connection.