

# Sense of Number Visual Calculation Policy

**Expanded Edition for**  
**Toner Avenue Primary School**  
**March 2015**



**Graphic Design by Dave Godfrey**  
**Compiled by the Sense of Number Maths Team**

**For sole use within Toner Avenue Primary School.**



**‘A picture is worth 1000 words!’**  
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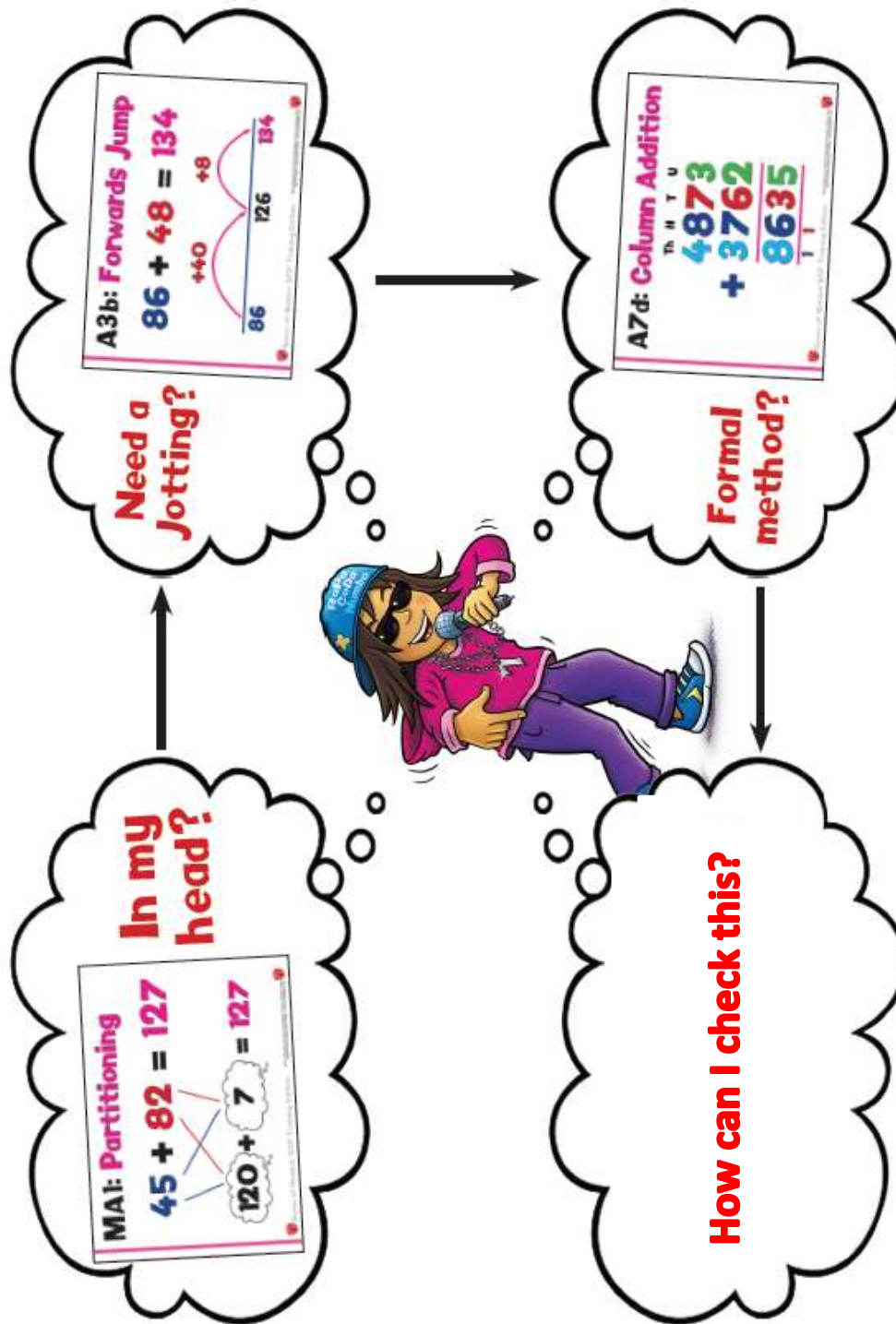


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We want our pupils to make decisions. We help our pupils make choices to be fast and efficient at maths.



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This is how we can ask and answer our questions.

# KC1: Key Concepts!

## Addition

+

$$8 + 2 = 10$$

"What is 8 add 2?"  
Answer: 10

## Subtraction

-

$$8 - 2 = 6$$

"What is 8 subtract 2?"  
Answer: 6  
"The difference between 8  
and 2 is 6"



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# KC2: Key Concepts!

## Multiplication

x

$$8 \times 2 = 16$$

"8 multiplied by 2" means  
"8, 2 times" or  
"2 groups of 8"

## Division

÷

$$8 \div 2 = 4$$

"8 divided by 2" means "How  
many groups of 2 are there in  
8?" Answer: 4

("8 shared into 2 sets is 4")



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Before we answer questions, this is what we consider.

**1**

**Can I do this  
in my head?**



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**2**

**Do I need to  
use a drawing  
or a jotting?**



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**3**

**Do I need an  
expanded or a  
standard method?**

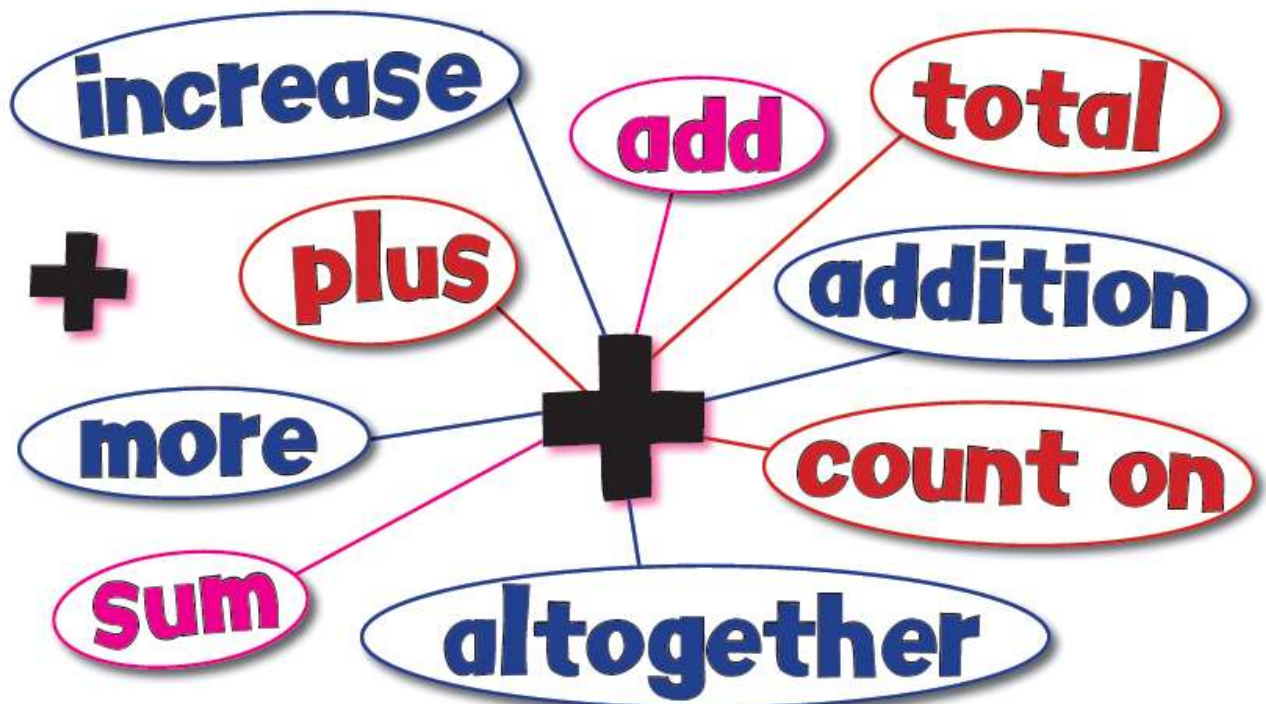


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# Addition Vocabulary

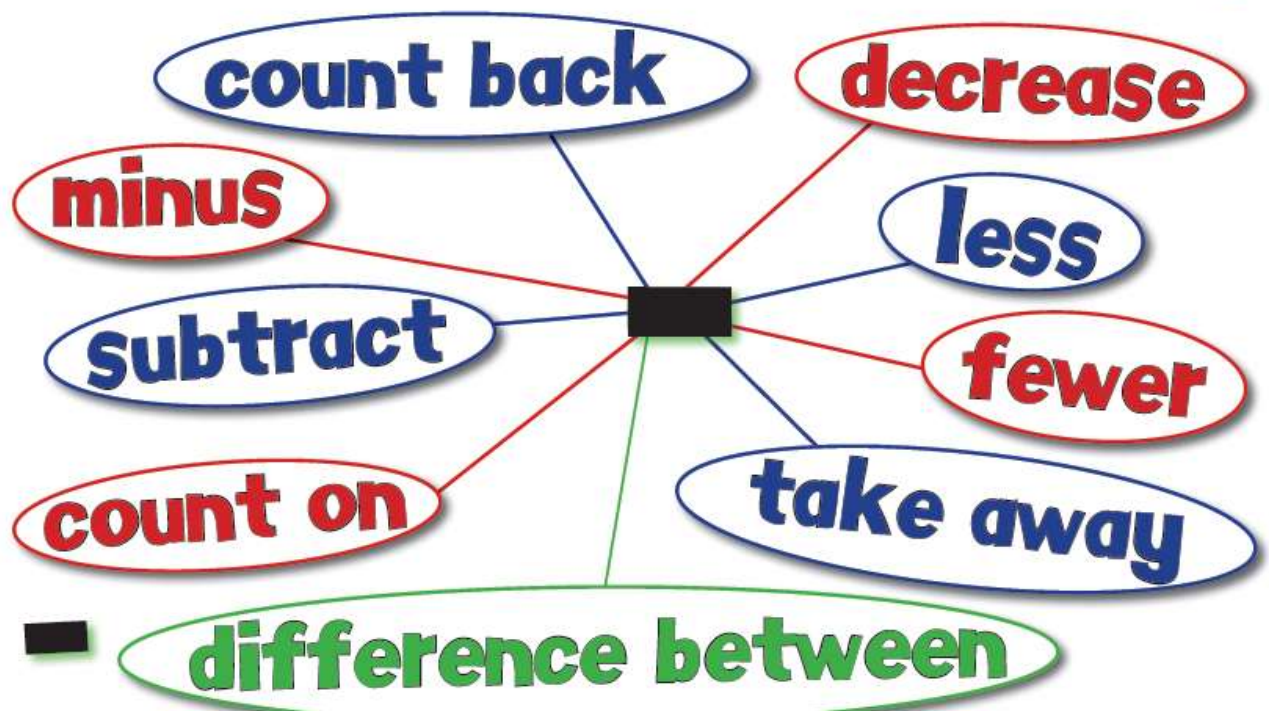


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# Subtraction Vocabulary



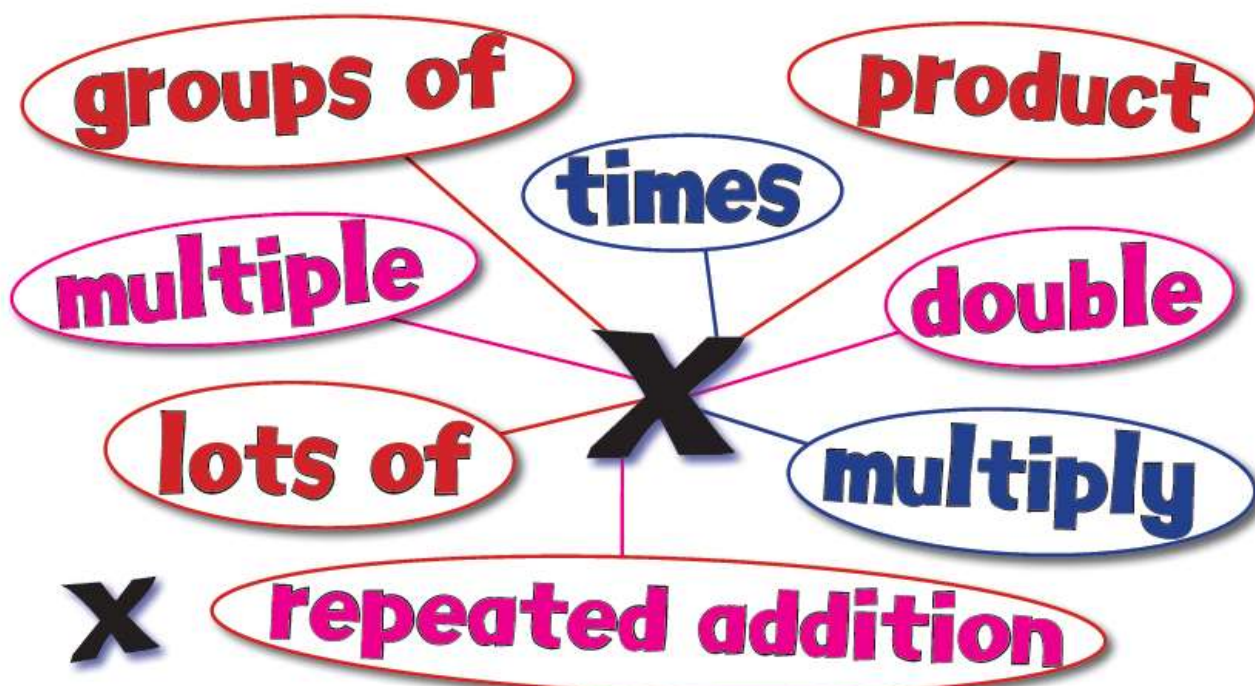
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# Multiplication Vocabulary

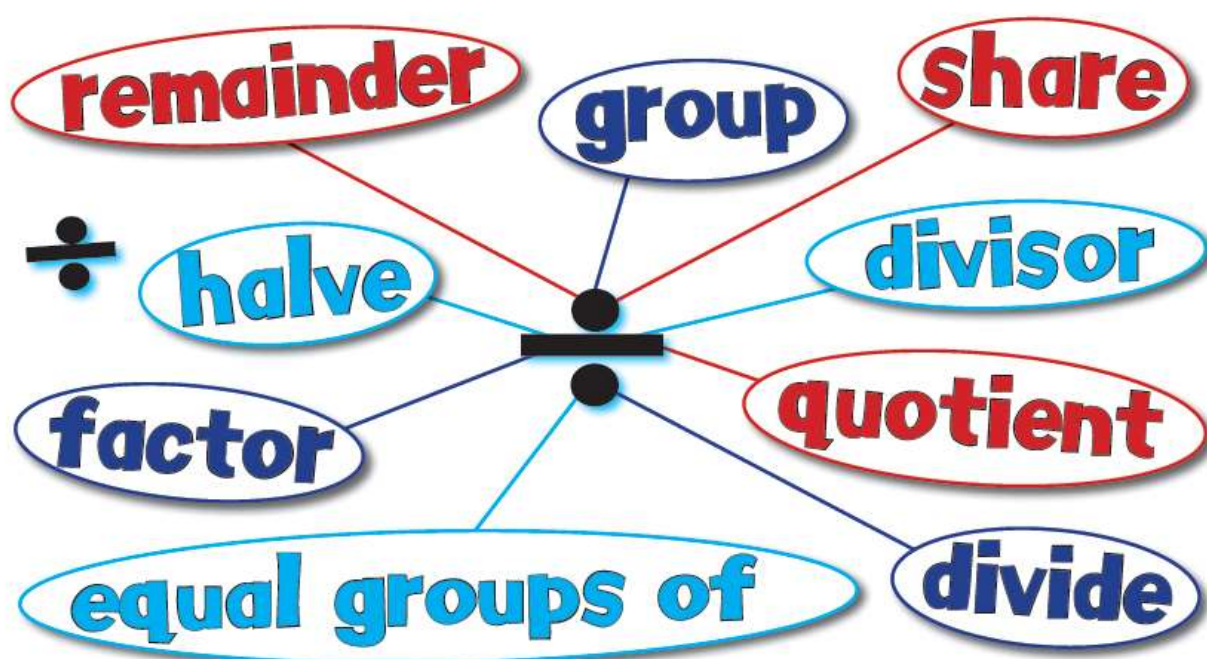


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# Division Vocabulary

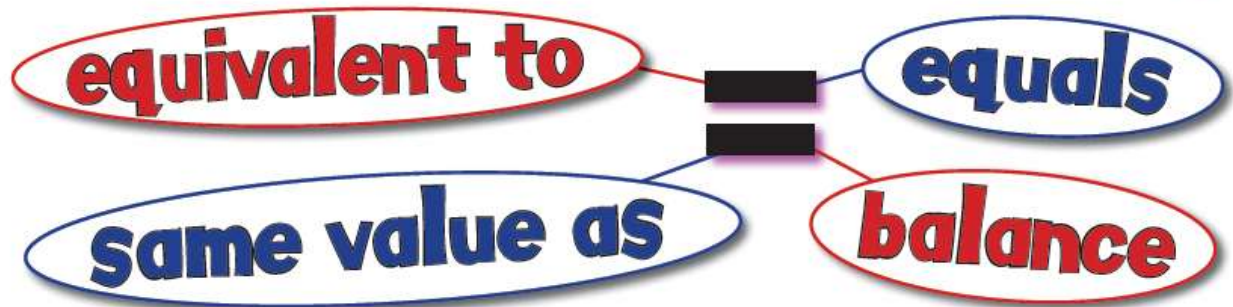


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# Calculation Vocabulary



**+** Addition

**X** Multiplication

**Operations**

**-** Subtraction

**÷** Division



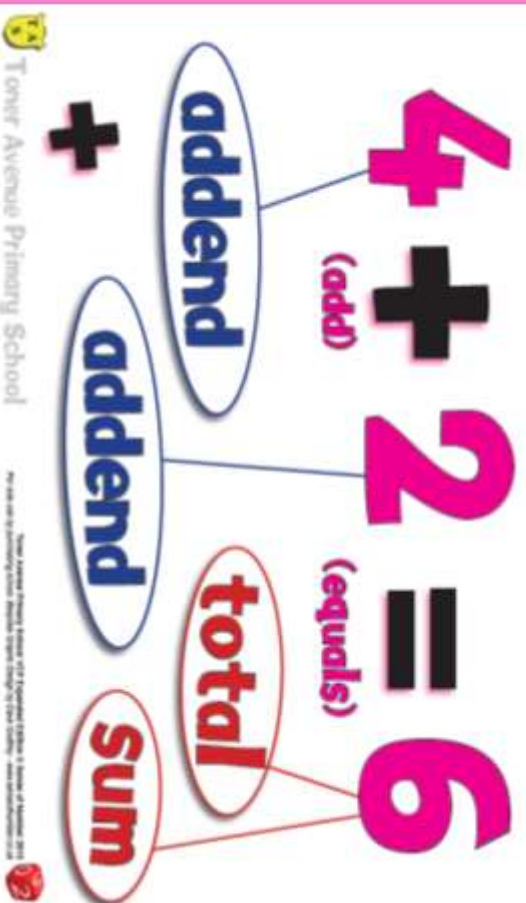
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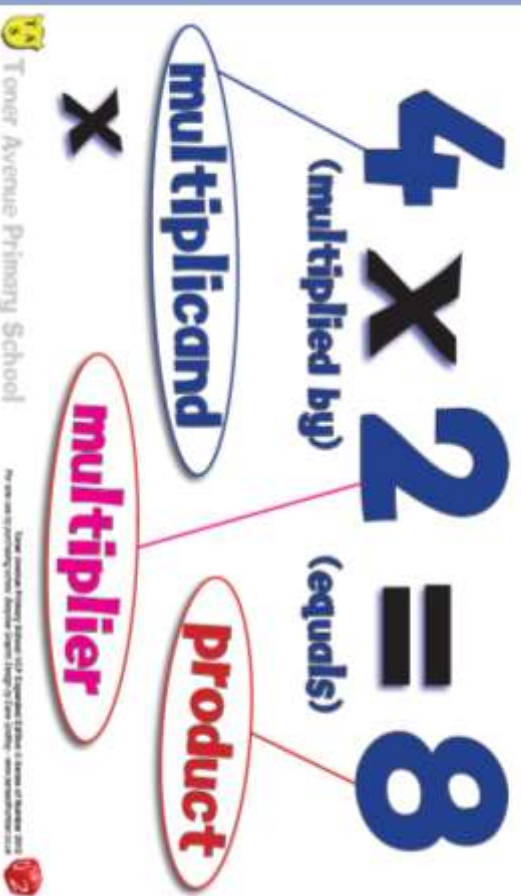




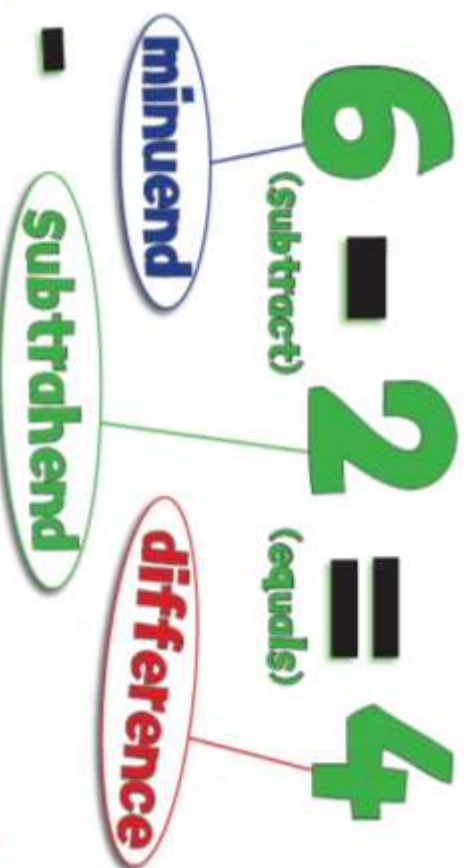
# Addition Calculation



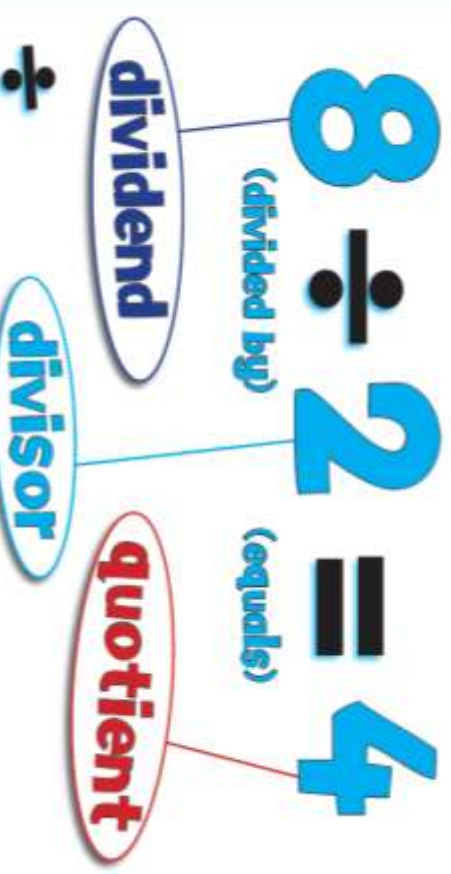
# Multiplication Calculation



# Subtraction Calculation



# Division Calculation





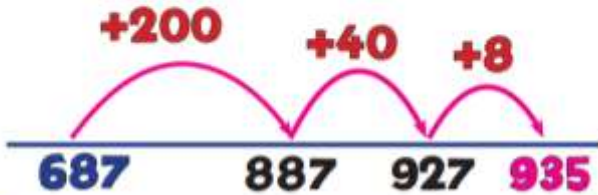
# Counting



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### A3c: Forwards Jump

$$687 + 248 = 935$$



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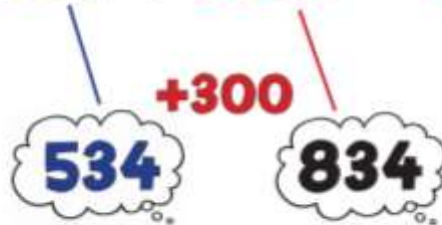


### MA2b: Counting On

3

Hundreds

$$534 + 300 = 834$$



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### MA3: Number Bonds

3

$$43 + 9 + 7 + 21 = 80$$



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### MA5: Round & Adjust

$$45 + 39 = 84$$

$$45 + 40 - 1 = 85 - 1 = 84$$



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### A4c: Partitioning

$$687 + 248 = 935$$

$$600 + 200 = 800$$

$$80 + 40 = 120$$

$$7 + 8 = 15$$

$$935$$



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### A5c: Partition Jot

$$687 + 248 = 935$$

$$800 + 120 + 15$$



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### MA1: Partitioning

5

$$576 + 258 = 834$$

$$700 + 120 + 14 = 834$$



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# Addition



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# (A7: Column Addition)

Additional: b

$$\begin{array}{r} \text{H} \quad \text{T} \quad \text{U} \\ 86 \\ + 48 \\ \hline 134 \\ \hline \text{1} \quad \text{1} \end{array}$$



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# A7: Column Addition

$$\begin{array}{r} \text{H} \quad \text{T} \quad \text{U} \\ 687 \\ + 248 \\ \hline 935 \\ \hline \text{1} \quad \text{1} \end{array}$$



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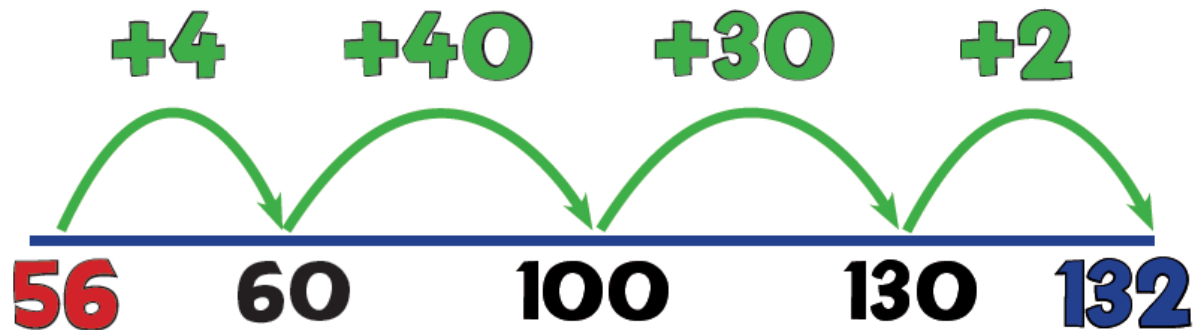


# Subtraction



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# S8b: Quad Jump!



$$132 - 56 = 76$$



# S11: Column Subtraction

A column subtraction diagram showing the subtraction of 356 from 723. The columns are labeled H (Hundreds), T (Tens), and U (Units). The numbers are written in columns: 723 (top) and 356 (bottom). The result 367 is written below the bottom number. The diagram shows the borrowing process: 723 becomes 6113 (where 7 is crossed out and 6 is written above it, 2 is crossed out and 11 is written above it, and 3 is crossed out and 1 is written above it). The subtraction is then performed: 6113 - 356 = 367. The numbers 6, 11, and 1 are written above the columns H, T, and U respectively. The numbers 7, 2, and 3 are written in the top row, and 3, 5, and 6 are written in the bottom row. The result 3, 6, and 7 are written in the bottom row.





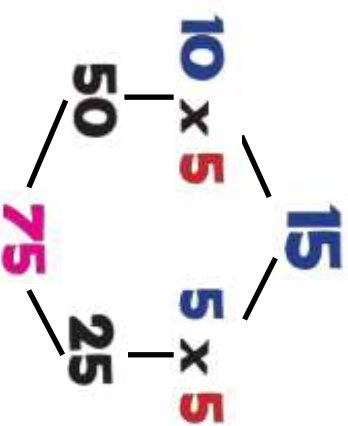
# Multiplication



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## M4-a: Partitioning

$$15 \times 5 = 75$$



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## (M6: Expanded Column)

Additional a

$$\begin{array}{r} 100 \quad 10 \quad 1 \\ 43 \\ \times 6 \\ \hline 240 \quad (6 \times 3) \\ 258 \quad (6 \times 40) \\ \hline 258 \end{array}$$



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## MM3: Partitioning

$$15 \times 5 = 75$$

$$\begin{array}{c} 10 \times 5 \\ 50 \end{array} + \begin{array}{c} 5 \times 5 \\ 25 \end{array} = 75$$



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## (M7: Column Multiplication)

Additional a

$$\begin{array}{r} 100 \quad 10 \quad 1 \\ 43 \\ \times 6 \\ \hline 258 \\ \hline 258 \end{array}$$




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## MM5: Doubling

$$\text{Double } 17 = 34$$


$$20 + 14 = 34$$




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## MM5c: Doubling

$$\text{Double } 340 = 680$$


$$600 + 80 = 680$$




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## MM5e: Doubling

$$\text{Double } 278 = 556$$


$$400 + 140 + 16 = 556$$



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# MM1: Jump!

**x100**

**x10**

**÷10**

**÷100**

Th H T U . Th Hh

3400

340

34

3.4

0.34



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# **Mx3: Table Facts**

## **3x table**

**3**

$3 \times 1 = 3$   
 $3 \times 2 = 6$   
 $3 \times 3 = 9$   
 $3 \times 4 = 12$   
 $3 \times 5 = 15$   
 $3 \times 6 = 18$   
 $3 \times 7 = 21$   
 $3 \times 8 = 24$   
 $3 \times 9 = 27$   
 $3 \times 10 = 30$   
 $3 \times 11 = 33$   
 $3 \times 12 = 36$

$3 \times 5 = 15$   
 $3 \times 12 = 36$   
 $3 \times 2 = 6$   
 $3 \times 4 = 12$   
 $3 \times 6 = 18$   
 $3 \times 3 = 9$   
 $3 \times 7 = 21$   
 $3 \times 9 = 27$   
 $3 \times 11 = 33$   
 $3 \times 6 = 18$   
 $3 \times 10 = 30$   
 $3 \times 1 = 3$



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# **Mx4: Table Facts**

## **4x table**

**4**

$4 \times 1 = 4$   
 $4 \times 2 = 8$   
 $4 \times 3 = 12$   
 $4 \times 4 = 16$   
 $4 \times 5 = 20$   
 $4 \times 6 = 24$   
 $4 \times 7 = 28$   
 $4 \times 8 = 32$   
 $4 \times 9 = 36$   
 $4 \times 10 = 40$   
 $4 \times 11 = 44$   
 $4 \times 12 = 48$

$4 \times 9 = 36$   
 $4 \times 2 = 8$   
 $4 \times 4 = 16$   
 $4 \times 6 = 24$   
 $4 \times 11 = 44$   
 $4 \times 3 = 12$   
 $4 \times 7 = 28$   
 $4 \times 1 = 4$   
 $4 \times 12 = 48$   
 $4 \times 5 = 20$   
 $4 \times 10 = 40$   
 $4 \times 8 = 32$



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# **Mx8: Table Facts**

## **8x table**

**8**

$8 \times 1 = 8$   
 $8 \times 2 = 16$   
 $8 \times 3 = 24$   
 $8 \times 4 = 32$   
 $8 \times 5 = 40$   
 $8 \times 6 = 48$   
 $8 \times 7 = 56$   
 $8 \times 8 = 64$   
 $8 \times 9 = 72$   
 $8 \times 10 = 80$   
 $8 \times 11 = 88$   
 $8 \times 12 = 96$

$8 \times 1 = 8$   
 $8 \times 6 = 48$   
 $8 \times 11 = 88$   
 $8 \times 5 = 40$   
 $8 \times 2 = 16$   
 $8 \times 10 = 80$   
 $8 \times 4 = 32$   
 $8 \times 9 = 72$   
 $8 \times 12 = 96$   
 $8 \times 8 = 64$   
 $8 \times 3 = 24$   
 $8 \times 7 = 56$



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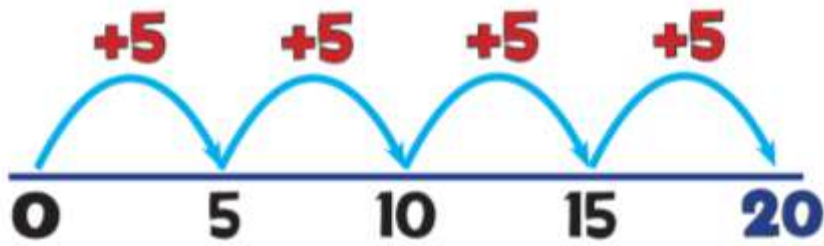
# Division



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## D5: Grouping on a Number Line



$$20 \div 5 = 4$$

"How many 5s in 20?"  
Answer: 4



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## (D10: Short Division)

Additional

$$72 \div 4 = 18$$

$$\begin{array}{r} 18 \\ 4 \overline{) 72} \end{array}$$



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## (D10: Short Division)

Additional

$$65 \div 4 = 16r1$$

$$\begin{array}{r} 16r1 \\ 4 \overline{) 65} \end{array}$$



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## D10: Short Division

$$136 \div 4 = 34$$

$$\begin{array}{r} 34 \\ 4 \overline{) 136} \end{array}$$



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## D10c: Short Division

$$394 \div 6 = 65r4$$

$$\begin{array}{r} 65r4 \\ 6 \overline{) 394} \end{array}$$



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## D10d: Short Division

$$591 \div 3 = 197$$

$$\begin{array}{r} 197 \\ 3 \overline{) 591} \end{array}$$



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