Mathematical Structures and Place Value — Knowledge Organiser

Key Vocabulary

- ten million
- millions
- thousands
- hundreds
- tens
- ones
- zero
- place value
- part-part whole
- additive
- multiplicative
- bar model
- equation
- addend
- partition
- digit
- difference
- equal
- equivalent

Equal Parts

10	
5	5

10			
2.5	2.5	2.5	2.5

10				
2	2	2	2	2

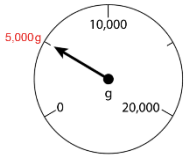
$2 \times 5 = 10$ $\quad 10 \div 2 = 5$ $\quad \frac{1}{2} \times 10 = 5$

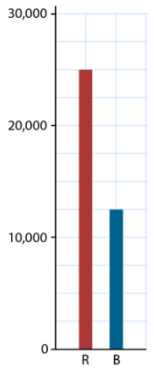
$5 \times 2 = 10$ $\quad 10 \div 5 = 2$ $\quad 10 \times \frac{1}{2} = 5$

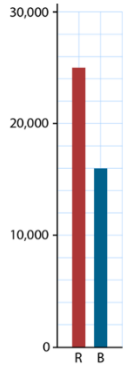
10,000	
5,000	5,000

10,000			
2,500	2,500	2,500	2,500

10,000				
2,000	2,000	2,000	2,000	2,000







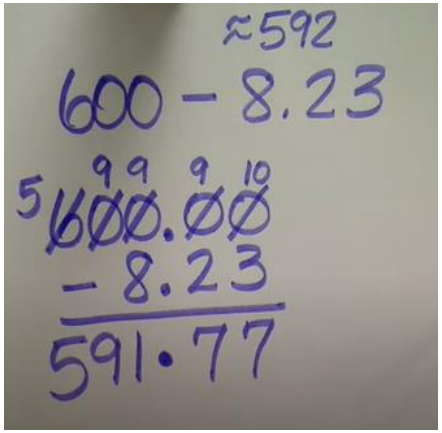
Calculations

✗
$$\begin{array}{r} 5.6 \\ +\ 3.72 \\ \hline ? \end{array}$$

✓
$$\begin{array}{r} 5.6 \\ +\ 3.72 \\ \hline 9.32 \\ {\scriptstyle 1} \end{array}$$

✓
$$\begin{array}{r} 8.73 \\ -\ 2.52 \\ \hline 6.21 \end{array}$$

$$\begin{array}{r} 12.60 \\ 4.00 \\ 0.24 \\ +\ 100.00 \\ \hline 116.84 \end{array}$$



Representing Numbers to Ten Million

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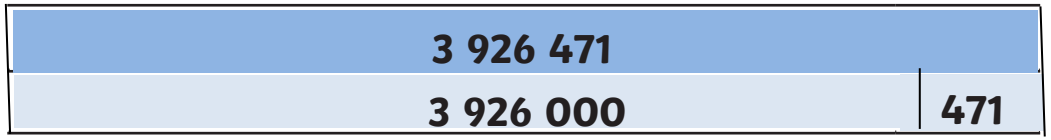
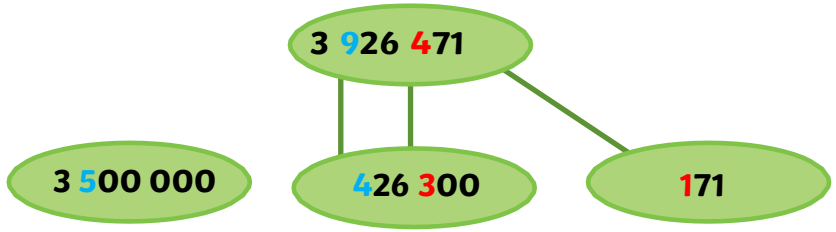
3 926 471

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
3	9	2	6	4	7	1

three million, nine hundred and twenty-six thousand, four hundred and seventy-one





Multiples of 1,000

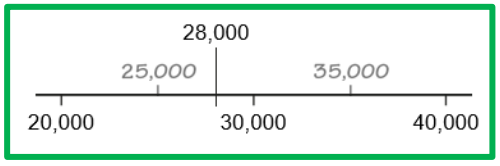
10 = 10 ones = 1 ten
100 = 100 ones = 10 tens
1,000 = 1,000 ones = 100 tens = 10 hundreds
10,000 = 10,000 ones = 1,000 tens = 100 hundreds = 10 thousands
100,000 = 100,000 ones = 10,000 tens = 1,000 hundreds = 100 thousands = 10 ten thousands
1,000,000 = 1,000,000 ones = 100,000 tens = 10,000 hundreds = **1,000 thousands** = 100 ten thousands

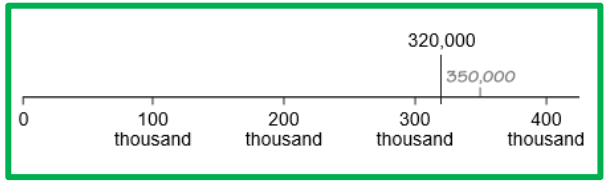
Unitising:

999,000 (999 thousands)

1,000,000 (1,000 thousands)

Number sense: How big is a million?





At one number per second — with no breaks, at all, for any reason — it would take **11 days**, **13 hours**, **46 minutes**, and **40 seconds** to count from one to 1,000,000.