Language of Subtraction

- Decrease
- Difference between
- Less than
- Subtract
- Minus
- Take away

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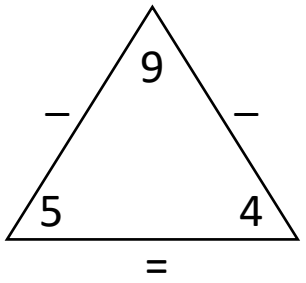
Remember… mental maths should be completed without written working.

Mental Subtraction

Strategies

Number Bonds/Families

e.g



Double/Near Doubles

160 - 80 (double 80 = 160)

Partitioning

Holding numbers in your head

e.g.

Step 2 Step 1

75 ← Keep this number in your head

- 43

32

Bridging

21 – 9

~~21~~ – 9

= _ 2

= 1 2

Holding the subtraction of the units in your head

Compensating

e.g. 30 - 19

=> 30 - 20

= 10 (+ 1)

= 11

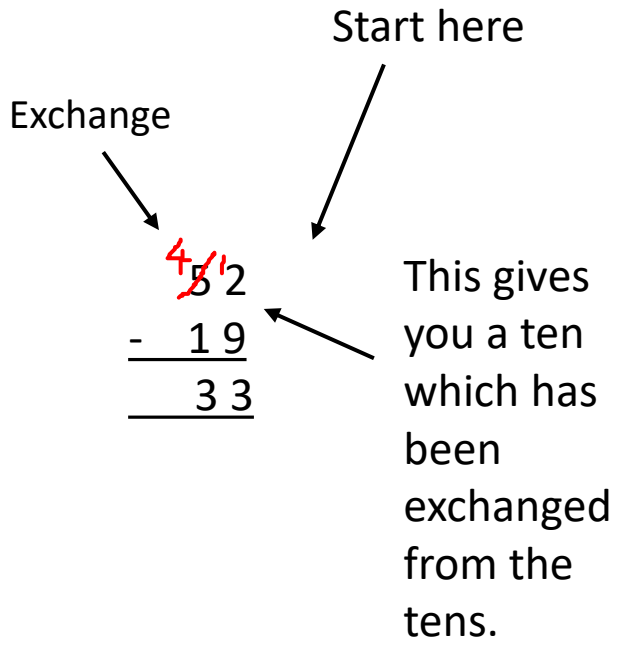
Keep the big number in your head and count back (within reason)

Written Subtraction Calculations

```
   T U
   5 3
-  1 2
_____
```

These are called vertical calculations

- Digits should be lined up in the correct column
- Always start by subtracting units (if a whole number), or the number furthest to the right when using decimals.
- Use the term exchange, not borrowing.
- Keep on subtracting until the vertical subtraction is complete.



* Keep on subtracting till the vertical subtraction is complete.

Written Subtraction

Common Errors

Putting the exchanged ten in the wrong column

e.g
$$\begin{array}{r} 62 \\ -\ 14 \\ \hline \\ \hline \end{array}$$

Not lining up the columns correctly

H T U

– – –

Missing a column when exchanging

e.g
$$\begin{array}{r} 704 \\ -\ 265 \\ \hline \\ \hline \end{array} \qquad \begin{array}{r} 704 \\ -\ 265 \\ \hline \\ \hline \end{array}$$

When exchanging and forgetting you have exchanged from tens

e.g
$$\begin{array}{r} 62 \\ -\ 14 \\ \hline 58 \end{array}$$

Mental strategy
Not over compensating

29 − 19 = 30 − 20 = 10 − 2 = 8

Swapping digits

e.g
$$\begin{array}{r} 23 \\ -\ 15 \\ \hline \\ \hline \end{array}$$

e.g
$$\begin{array}{r} 23 \\ -\ 15 \\ \hline 12 \end{array}$$

Common Mistakes

1. Putting numbers in the wrong column
2. Putting the decimal point in the wrong place
3. Counting back from the wrong number (eg 6 -3 don't start with the 6. Hold that number in your head and count your jumps instead).
4. Swapping digits (see previous slide)
5. Missing a column when exchanging (see previous slide)

Subtracting Fractions

1. Find the lowest common denominator
2. Convert fractions into equivalent fractions
3. If there are whole numbers, subtract them first before subtracting the fractions
4. Only subtract the numerator (number on top).

Subtracting Fractions

Hard

$5\frac{1}{4} - 2\frac{9}{10}$

$3\frac{1}{4} - \frac{9}{10}$

$3\frac{5}{20} - \frac{18}{20}$

$2\frac{25}{20} - \frac{18}{20}$

$2\frac{7}{20}$

Medium

$5\frac{2}{3} - 2\frac{5}{9}$

$3\frac{2}{3} - \frac{5}{9}$

$3\frac{6}{9} - \frac{5}{9}$

$3\frac{1}{9}$

Easy

$\frac{9}{10} - \frac{1}{4}$

$\frac{18}{20} - \frac{5}{20}$

$\frac{13}{20}$

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Subtracting Negative Numbers



- When you subtract a negative you treat it as an addition
- When working with negative numbers, encourage children to think of a thermometer

Easy	Medium	Hard
10 + (-3) = 7	4 + (-6) = -2	-6 + (-5) = -11

=> Remember to move away from '0'

Children should have a secure understanding of previous work ←

- Extension

-24 + (-16)

$$\begin{array}{r} 24 \\ +\ 16 \\ \hline -40 \end{array}$$

-254 + (-132)

$$\begin{array}{r} 254 \\ +\ 132 \\ \hline -386 \end{array}$$

When working with bigger negative number treat as an addition, adding the negative at the end.

Subtracting Negative Numbers

Be able to recognise and use the double negative method

When asked the answer to 7 - (-3), the obvious answer is 4. **Wrong** !!

Think of a simpler question :-

9 - 3 means "how far is it from 3 up to 9 ?"

=> by counting, we can see the answer is 6.

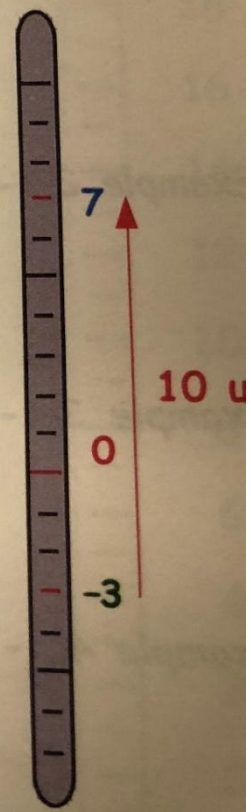
This means that the question :-

7 - (-3) means "how far is it from -3 up to 7 ?"

=> by counting, we see the answer is **10** (not 4).

Notice that 7 + 3 also gives **10**.

A rule for **Double Negatives** :- **"Two Negatives make a positive"**



Examples :-

5 - (-3)	15 - (-6)	(-1) - (-8)	-2x - (-7x)
= 5 + 3	= 15 + 6	= -1 + 8	= -2x + 7x
= 8	= 21	= 7	= 5x