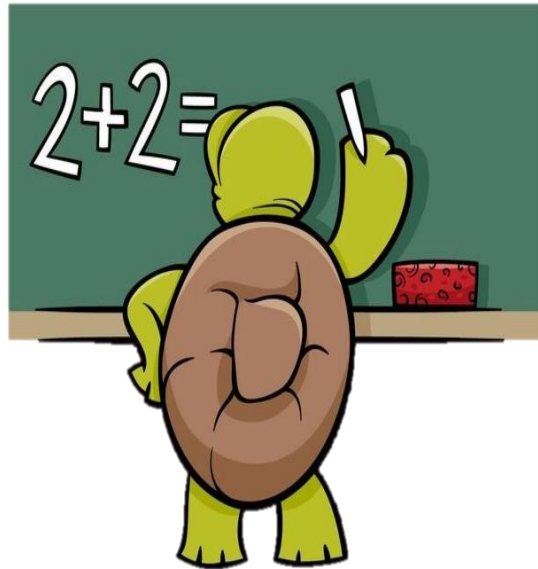


# ADDITION and SUBTRACTION

### Overview



**In our unit on addition and subtraction** we learn:

- Add two 4-digit numbers (one and more exchanges)
- Add/subtract whole numbers with more than 4 digits
- Subtract two 4-digit numbers (one and more exchanges)
- Round to estimate & approximate
- Inverse operations
- Multi-step addition and subtraction problems.

Addition and Subtraction is useful learning because it is used in many areas of everyday life – e.g. shopping, cooking, or playing games. It also forms the basis for lots of other maths ideas.

### Subtraction Methods – Two 5-digit Numbers

#### 1 Exchange

$$8673 - 1448 = 7225$$

$$\begin{array}{r} 5 \ 8 \ 3 \ 2 \ 4 \\ - 2 \ 7 \ 2 \ 1 \ 8 \\ \hline 3 \ 1 \ 1 \ 0 \ 6 \end{array}$$

Starting with the ones, subtract each column in turn.

When subtracting 3 ones – 8 ones, exchange 1 hundred to make 13 tens – 8 tens. Don't forget to take this from the hundreds in the next calculation.

#### 2 Exchanges

$$61069 - 36827 = 24242$$

$$\begin{array}{r} 5 \ 10 \ 10 \ 6 \ 9 \\ - 3 \ 6 \ 8 \ 2 \ 7 \\ \hline 2 \ 4 \ 2 \ 4 \ 2 \end{array}$$

Starting with the ones, subtract each column in turn.

Exchange tens, hundreds, thousands as needed.

Don't forget to subtract the exchanged number from the next calculation.

#### Subtraction with zeros

**STEP 1** Regroup from THs & add to Hs  

$$\begin{array}{r} 6,000 \\ - 3,454 \\ \hline \end{array}$$

**STEP 2** Repeat until you reach Os  

$$\begin{array}{r} 5,990 \\ - 3,454 \\ \hline \end{array}$$

**STEP 3** Rewrite 1 zero as a zero as a  

$$\begin{array}{r} 5,990 \\ - 3,454 \\ \hline \end{array}$$

Small text: Skip all of the zeros because they are 0! / Now keep subtracting 1 & adding 10. / Add 10 to last zero

**STEP 4** Solve!  

$$\begin{array}{r} 5,990 \\ - 3,454 \\ \hline 2,536 \end{array}$$

Starting with the thousands, we regroup and add to the hundreds. We repeat this step until we reach the ones. The ones are written as a 10.

### Addition Methods – Two 5-digit Numbers

#### 1 Exchange

$$21351 + 21700 = 43051$$

$$\begin{array}{r} 1 \\ 21351 \\ + 21700 \\ \hline 43051 \end{array}$$

Starting with the ones, add each column in turn. When calculating 3 hundreds plus 7 hundreds, the answer is 10 hundreds (one thousand). Place 0 hundreds as the answer and 1 thousand under thousands answer. Include this in the next calculation.

#### 2 Exchanges +

$$95392 + 92730 = 188122$$

$$\begin{array}{r} 95392 \\ + 92730 \\ \hline 188122 \\ 111 \end{array}$$

Starting with the ones, add each column in turn. Exchange tens, hundreds, or thousands as required. Don't forget to add the exchanged number into the next calculation.

### Rounding to estimate

£ 2,138.95      £ 1,219.40

£ 2,138.95 is quite close to £ 2,100

£ 1,219.40 is quite close to £ 1,200

£ 2,100 plus £ 1,200 is £ 3,300 so Ron has enough money

To check our answer, we can use estimating. We need to round our numbers and then complete our calculation. If our answer is close to the estimate, we know if our answer is correct.

### Multistep Problems/ Inverse Operations

#### Multistep Problems using bar modelling

£30		
£14.85	£7.89	?
£22.74		£7.26

I have £30.00

I buy two toys, costing £14.85 and £ 7.89

How much change do I receive?

$$£14.85 + £7.89 = £22.74$$

$$£30.00 - £22.74 = £7.26$$

#### Inverse Operations

Use the inverse to check.

54, 959	
36, 161	18,798

For example, to check  $54,959 - 36,161 = 18,798$

$$\text{Use } 36,161 + 18,798 = 54,959$$

Inverse can be used to find the missing number.

e.g. I have a number, I subtract 48, and then double the resulting number to get 28. What is the original number? **Start with 28. Divide by 2 = 14. Add 48. The original number was 62.**

### Key Vocabulary

Total      Altogether      Difference      Exchange      Column Method      Estimate      Inverse      Number Facts      Place Value      Complex