

Addition - Pencil and paper method

Expectations for each year group:

- Year 2: Recognise the place value of each digit in a two-digit number (tens and ones)
Solve word problems with addition using concrete objects and pictorial representations, including those involving numbers, quantities and measures.
Apply their increasing knowledge of mental and written methods
(Recording addition in columns supports place value and prepares for formal written methods with larger numbers.)
- Year 3: Recognise the place value of each digit in a three-digit number (hundreds, tens and ones)
Add numbers with up to 3-digits using formal written methods of columnar addition.
Solve problems - more complex addition
- Year 4: Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens and ones)
Add numbers with up to 4 digits using the formal written methods of columnar addition where appropriate.
Solve addition two-step problems in contexts.
- Year 5: Add whole numbers with more than 4 digits - including using formal written methods.
Solve addition multi step problems in contexts
Solve problems involving number up to 3 decimal places
- Year 6: Solve addition multi-step problems in contexts
Solve problems involving addition

Key skills to support understanding:

- addition number facts to 20
- place value
- commutative law i.e. addition can be done in any order.
- patterns of similar calculations
- Models and images

Addition - Pencil and paper method

Expanded partitioning - Informal

ThHTU + ThHTU

$$4328 + 2147 =$$

$$\begin{aligned} 4328 &= 4000 \ 300 \ 20 \ 8 \\ + 2147 &= \underline{2000 \ 100 \ 40 \ 7} \\ &= 6000 \ 400 \ 60 \ 15 = 6475 \end{aligned}$$

Transition from expanded partitioning to standard written method starting with least significant digit

ThHTU + ThHTU

$$4328 + 2147 =$$

$$\begin{aligned} 4328 &= 4000 \ 300 \ 20 \ 8 \\ + 2147 &= \underline{2000 \ 100 \ 40 \ 7} \\ 6475 &= 6000 \ 400 \ 60 \ 15 = 6475 \\ & \quad 1 \end{aligned}$$

or

$$\begin{aligned} 4328 &= 4 \quad 3 \quad 2 \quad 8 \\ + \underline{2147} &= 2 \quad 1 \quad 4 \quad 7 \\ 6475 &= 6 \quad 4 \quad 7 \quad 5 = 6475 \\ & \quad 1 \quad \quad \quad 1 \end{aligned}$$

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Standard written method - formal

$$\begin{array}{r} 4328 \\ + 2147 \\ \hline 6475 \\ 1 \end{array}$$

$$\begin{array}{r} 2.68 \\ + 3.26 \\ \hline 5.94 \\ 1 \end{array}$$

$$\begin{array}{r} 34.7 \\ + 58.2 \\ \hline 92.9 \\ 1 \end{array}$$