



Everyday Mathematics

Partial-Sums

Addition Algorithm



Partial-Sums Addition

Partial-sums addition involves:

- Thinking of the place value of digits in the numbers,
- Finding partial sums by adding parts of numbers according to their place value, and
- Adding partial sums together to get a total.

Partial-Sums Addition

Solve $5,384 + 2,197$.

Begin by thinking of the expanded notation for the numbers being added:

$$5,384 = 5,000 + 300 + 80 + 4$$

$$2,197 = 2,000 + 100 + 90 + 7$$

Partial-Sums Addition

Problem: $5,384 + 2,197$

Remember:

$$5,384 = 5,000 + 300 + 80 + 4$$

$$2,197 = 2,000 + 100 + 90 + 7$$

With **partial-sums addition**, you can start from the right or the left. Children often prefer to start from the greatest place-value position.

Partial-Sums Addition

Add the thousands.



5,384

+ 2,197

$$5,000 + 2,000 = 7,000$$

Partial-Sums Addition

Add the hundreds.

$$\begin{array}{r} \downarrow \\ 5,384 \end{array}$$

$$+ \underline{2,197}$$

$$5,000 + 2,000 = 7,000$$

$$300 + 100 = 400$$

Partial-Sums Addition

Add the tens.

$$\begin{array}{r} \downarrow \\ 5,384 \\ + 2,197 \\ \hline \end{array}$$

$$5,000 + 2,000 = 7,000$$

$$300 + 100 = 400$$

$$80 + 90 = 170$$

Partial-Sums Addition

Add the ones.

$$\begin{array}{r} 4 \\ + 2,197 \\ \hline \end{array}$$

$$5,000 + 2,000 = 7,000$$

$$300 + 100 = 400$$

$$80 + 90 = 170$$

$$4 + 7 = 11$$

Partial-Sums Addition

Add the partial sums to find the answer.

$$\begin{array}{r} 5,384 \\ + 2,197 \\ \hline 7,000 \\ 400 \\ 170 \\ + 11 \\ \hline 7,581 \end{array}$$

Partial-Sums Addition

$$5,384 + 2,197 = 7,581$$

Note that when children use **partial-sums addition** to solve an addition problem, they have an opportunity to practice a variety of skills related to developing number sense and algebraic reasoning.

These skills include:

- *Writing numbers in expanded notation*
- *Using different names for numbers to solve problems*
- *Identifying the place value of digits*

If children work from left to right (which is generally their inclination), they begin the problem solving process with a reasonable estimate of what the final answer should be.