



CENTER FOR ELEMENTARY MATHEMATICS AND SCIENCE EDUCATION
THE UNIVERSITY OF CHICAGO



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SCHOOL MATHEMATICS PROJECT

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 $634 + 918$.

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

$$634 = 600 + 30 + 4$$

$$918 = 900 + 10 + 8$$

Partial-Sums Addition

Problem: $634 + 918$

Remember:

$$634 = 600 + 30 + 4$$

$$918 = 900 + 10 + 8$$

With the partial sums algorithm, you can start from the right or the left. Children often prefer to start from the largest place-value digits.

Partial-Sums Addition

Add the hundreds.



634

+ 918

$$600 + 900 = 1,500$$

Partial-Sums Addition

Add the tens.

$$\begin{array}{r} \downarrow \\ 634 \end{array}$$

$$\begin{array}{r} +918 \\ \hline \end{array}$$

$$600 + 900 = 1,500$$

$$30 + 10 = 40$$

Partial-Sums Addition

Add the ones.

$$\begin{array}{r} \downarrow \\ 634 \\ + 918 \\ \hline \end{array}$$

$$600 + 900 = 1,500$$

$$30 + 10 = 40$$

$$4 + 8 = 12$$

Partial-Sums Addition

Add the partial sums to find the answer.

$$\begin{array}{r} 634 \\ + 918 \\ \hline 1,500 \\ 40 \\ + 12 \\ \hline 1,552 \end{array}$$

Partial-Sums Addition

$$634 + 918 = 1,552$$

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

For example:

- 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.