

Teaching Activity

Addition and subtraction of multi-digit numbers

Number and Algebra - Whole number operations, 115-124, 105-114

Curriculum code: AC9M4N08, ACMNA055, ACMNA073 [Select state curriculum](#)

★ Add to favourites

Key concepts and skills

- Recognising different ways of renaming numbers to assist calculations. For example, the number 987 can be represented as 98 tens and 7 ones; or 9 hundreds and 87 ones; or 9 hundreds, 8 tens and 7 ones; or 987 ones.
- Understanding that renaming does not change the size of a number.
- Understanding the importance of place value in vertical addition and subtraction.
- Completing vertical addition and subtraction without the use of concrete materials.

Common errors and misconceptions

- Misunderstanding the use of place value in setting up the vertical addition or vertical subtraction; for example:
 - counting 63, 64, 65 ... but seeing 'sixty' as just a number in a sequence rather than as six 10s
 - reading 476 as 'four hundred and seventy-six' but not recognising it if renamed as 'forty-seven 10s and 6'
- Confusion when regrouping or renaming as necessary; losing track in the process of calculating with larger numbers.

Activity

Newspaper search

- Have students search the newspaper (hardcopy or online) to find five numbers that have five or more digits.
- Have students record the numbers.
- Then have them use different combinations of the numbers to create as many different addition and subtraction equations as possible.
- Have student record each of the equations in vertical format and complete the addition or subtraction.
- To extend students, encourage them to use more than two numbers in the equation.
- Students could check answers using calculators.

Missing numbers

- Present students with a vertical addition with five or more digits that have some of the numbers missing.
- The aim is for students to find the missing numbers.

For example:

	1		3	7	5
+		6	9	8	
	1	9		5	8

- Repeat for a number of examples.
- When confident, students could create their own examples, to share with other members of the class.
- This activity would also apply to vertical subtraction.
- Students who require support could be provided with a set of cards to model and then manipulate the calculation.

× Need help?

Prerequisites

- [Vertical subtraction with concrete materials](#)

- [Vertical addition with concrete materials](#)
- [Renaming numbers](#)
- [Place value \(whole numbers\)](#)

Related activities below the level

- [Vertical addition with concrete materials](#)
- [Solve a simple addition problem](#)
- [Fact families: addition and subtraction](#)
- [Addition of one- and two-digit numbers](#)
- [Addition of two or more quantities](#)
- [Vertical addition without concrete materials](#)
- [Adding two-digit numbers](#)

Related activities at the level

- [Addition of one- and two-digit numbers](#)
- [Solve a simple addition problem](#)
- [Addition of negative numbers](#)
- [Finding a missing addend](#)
- [Addition of ten](#)
- [Addition of two or more quantities](#)
- [Vertical addition without concrete materials](#)
- [Adding two-digit numbers](#)

Related activities beyond the level

- [Finding a missing addend](#)
- [Addition of negative numbers](#)

Related annotated questions

- [Solves a multi-step word problem requiring the addition and subtraction of 2-digit numbers](#)
- [Adds three 3-digit numbers](#)
- [Solves a problem involving addition and even numbers](#)
- [Determines the pair of numbers that sum to 1000](#)

Further reading

- Carpenter, T.P., Franke, M.L., Jacobs, V.R., Fennema, E., & Empson, S.B. (1998). A longitudinal study of invention and understanding in children's multidigit addition and subtraction, *Journal for Research in Mathematics Education*, 29(1), 3–20. Retrieved from <http://www.uta.edu/faculty/tjorgens/pastcourses/WNO/jrme.pdf>
- National Library of Virtual Manipulatives (Utah State University). (n.d.). Interactive tools: Base blocks addition; Base blocks subtraction. Retrieved from http://nlvm.usu.edu/en/nav/category_g_2_t_1.html