Formal written method of column addition (1)

National curriculum attainment targets

- Add numbers with up to three digits, using the formal written methods of columnar addition
- Estimate the answer to a calculation and use inverse operations to check answers

Lesson objectives

- Add three-digit numbers using the formal written method of column addition
- Estimate the answer to a calculation

Previous related lessons

None

Prerequisites for learning

Pupils need to:

- understand the place value of three-digit numbers
- recall and use addition facts to 20 fluently, and derive and use related facts up to 100
- understand the expanded written method of column addition

Vocabulary

place value, hundreds, tens, ones (units), estimate, carry

Future related lessons

Unit 7, Week 1, Lesson 3; Unit 9, Week 2, Lesson 2; Unit 11, Week 1, Lesson 1; Unit 11, Week 1, Lesson 2

Pupils can:

- write the calculation vertically
- add the ones and carry ten when needed
- · add the tens
- add the hundreds



Getting Started

- Choose an activity from Number Addition and subtraction.
- Choose an activity from *Fluency in Number Facts:* Y3/Y4 Addition and subtraction.

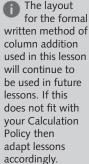
Collins Connect Year 3, Unit 7,

Teach

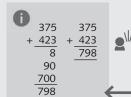
mini whiteboard, pen and eraser (per child), Base 10 (per class) (optional)



- Display: Slide 1.
- Say: We are going to continue to learn a method for adding numbers that are too large to add mentally. The expanded method will help us understand the formal method.
- Say: First let's estimate the answer to the calculation with your partners. After about 20 seconds, ask for some estimates.
- Say: In both calculations, we start with the ones.
- Ask: What is the ones calculation? Ask a child to write the answer on both versions.
- Ask: What is the tens calculation? Insist that children say 70 add 20 and not 7 add 2. Encourage the use of known addition facts to work out the answer.
- Model where to put the answer in both versions. Say: We write 9 straight into the answer box. As the 9 is in the tens column, it means 90.
- Ask: What is the hundreds calculation? Insist that children say 300 add 400.
- Model where to put the answers in both versions. As the 7 is in the hundreds column it means 700.
- · Add up the hundreds, tens and ones on the expanded version. Say: We have the same answer in both calculations.
- Say: Discuss the two methods and what you like about them. Share children's ideas and reasons.
- Display: Slide 2.
- Say: Estimate the answer to this calculation.
- Say: Work out this calculation. Use the formal method for addition.



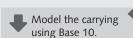












428

356

14

70

700

- Display: Slide 3.
- Say: In this calculation, the ones add up to 14. Write 14 on the expanded version.
- Ask: What are the ones in 14? (4) So I can write 4 in the ones column on the formal version.
- Ask: How many tens in 14? (1) Say: The 10 must go in the tens column; I cannot write it in the answer line as I know there are more tens to add. I carry the 10 from the ones column to the tens column but I write it under the answer box. Write 1 under the answer line.
- Say: When we add up the tens column, we will add it on.
- Add the tens digits and say: 20 add 50 is 70, and then I add on the 10 we carried over; that makes 80. Write 8 in the tens column.
- Continue modelling the calculation. Fill in the expanded version if it is appropriate for your class.
- Display: Slide 4.
- Say: Estimate the answer and then work it out. Remember to carry the ones into the tens column.
- Work through the calculation as a class, focusing on any aspects children find challenging.

Individualised Learning

428

356

784

4

Refer to Activity 2 from the Learning activities on page 276.

Pupil Book 3B – Page 29: Column addition (1)Progress Guide 3 – Extension, Year 3, Unit 7, Week 1, Lesson 2: Addition instructions

Plenary

Resources

mini whiteboard, pen and eraser (per child)



- Say: We are going to write some instructions to help us with this method for addition. If any children have worked on Extension: Addition instructions, ask them to have their instructions ready to share.
- Ask: What do you think the first instruction should be?
- Work together as a class and compile a set of instructions.
- Write a calculation on the board for the class and ask them to copy it onto their whiteboards.
- Say: I will read out the instructions. Follow the instructions to work out the calculation.
- As the instructions are carried out, ask the class if they think they work or whether they need to be adapted.
- Say: We can use these instructions every time we learn about the formal column method.



Homework Guide 3

Year 3, Unit 7, Week 1, Lesson 2: Practising the column method for addition

Overcoming Barriers

• Children will find this method challenging if they do not have a secure understanding of the place value of three-digit numbers and instant recall of the addition number facts to 20. Continue to focus on mental methods to develop this understanding or continue to use the expanded method.