Written subtraction (2)

National Curriculum attainment targets

- Subtract numbers with up to 4 digits using the formal written method of columnar subtraction where appropriate
- Estimate and use inverse operations to check answers to a calculation

Lesson objectives

- Subtract numbers with up to 4 digits using the formal written method of columnar subtraction (decomposition)
- Estimate and use inverse operations to check answers to a calculation

Previous related lesson

Unit 5, Week 2, Lesson 2

Prerequisites for learning

Pupils need to:

- understand the place value of three- and four-digit numbers
- use the written method and decompose ones and tens

Vocabulary

place value, thousands, hundreds, tens, ones, estimate, change, inverse

Future related lessons

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

Success criteria

Pupils can:

- write the calculation vertically and make a sensible estimate
- subtract the ones, change the ones column when needed
- subtract the tens, change the tens column when needed
- subtract the hundreds, change the hundreds column when needed

Getting Started

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

Throughout the lesson, ensure that the digits are referred to by their place value, not just as a one digit number. So in 728, the digit 2 must be referred to as 20 and 7 as 700.

Teach

Collins Connect
Year 4, Unit 5, Week 2

Resources

mini whiteboard, pen and eraser (per child)

- Say: **Tell your partner one thing you know about the written method for subtraction**. Share children's ideas.
- Write 961 – 584 on the board. Underneath, re-write the calculation vertically. Ask: **What is your estimate for the answer to this question?**

Remind children to start by looking at the most significant digit.

- Say: **Work out the calculation using the column method. This is a calculation where both the ones and tens columns need changing, so keep your working out neat.** Observe children's working out and notice any steps they are not clear of.
- If appropriate, work through the calculation as a class, picking up on any difficult areas.
- Say: **Check the answer to the calculation using addition.** Ask a pair to share their working with the class.
- Ask: **Why is checking with the inverse operation a good method for checking?** Ask some pairs to share their ideas with the class.
- Write 2264 – 1327 on the board. Underneath, re-write the calculation vertically. Say: **Write your estimate for the answer to this calculation on your whiteboard.** Look at children's estimates and ask a few children to share theirs with the class.
- Ask: **What columns will need changing in this calculation?** Establish that the ones and hundreds columns will both need changing.
- Say: **Work out this calculation. We have not changed the hundreds column before, but if you know how to change ones and tens you can change the hundreds.**
- Work through the calculation as a class. Model how clearly the crossing out and writing of the new digits needs to be done.
- When you get to the hundreds column say: **As 300 cannot be subtracted from 200 I will need to take 1000 from the thousands column. That means there will be only one thousand left so I put 1 there instead. I can now subtract 300 from 1200.**

- As you are modelling this step of the calculation, children can check their own working out. Discuss any mistakes that you observe.
- Say: **Check the answer to the calculation using addition.**
- Write 2359 - 1573 on the board. Say: **Work out the calculation using the written method.**
- Work through the calculation with the class, asking different children to explain what needs to be done next and why. Focus on any aspects you have noticed the class found tricky.

Individualised Learning

Refer to Activity 3 from the Learning Activities on page 215.

Pupil Book 4B: – Page 10: Written subtraction 2

Progress Guide 4: – Support, Year 4, Unit 5, Week 2, Lesson 3: Change the ones

Plenary

- Ask: **When is the written method the best method to use?** Share children's answers. Establish that the written method is the best one when the numbers cannot be subtracted mentally.
- Say: **Think of a calculation you would work out mentally, a calculation where you would use the written method and a calculation you know the answer to.**
- Draw three columns on the board with the headings: Known, Mental, Written.
- Ask pairs for their suggestions for calculations for the different headings and record them on the board.
- Say: **If you disagree with any of the suggestions then you can explain why. The person who suggested it can say their reason and we will have a vote as to which column it needs to go in.**

Homework Guide 4

Year 4, Unit 5, Week 2, Lesson 3: Estimate, calculate, check – subtraction

Overcoming Barriers

- If children are making mistakes with the formal written method, it indicates they do not have a secure understanding of why the method works. It is important that children have a secure understanding of the place value of three- and four-digit numbers in order to understand why columns are changed. Using Base 10 to model this will develop their understanding.