Written addition and subtraction

National Curriculum attainment targets

- Practise addition and subtraction for larger numbers, using the formal written methods of columnar addition and subtraction
- Use estimation to check answers and determine, in the context of a problem, an appropriate degree of accuracy

Lesson objectives

- Add and subtract whole numbers and decimals using the formal written methods of columnar addition and subtraction
- Estimate and check the answer to a calculation

Previous related lessons

Unit 3, Week 1, Lesson 1; Unit 3, Week 1, Lesson 2; Unit 3, Week 1, Lesson 3

Prerequisites for learning

Pupils need to:

- Use the formal written methods with six-digit numbers

Vocabulary

addition, subtraction, decimal, place value, carry

Future related lessons

None

Success criteria

Pupils can:

- write out the calculation correctly
- add/subtract each column
- carry the digit to the next column when needed
- change digits when needed

Getting Started

- Choose an activity from Number – Addition and subtraction.
- Choose a game or activity from *Fluency in Number Facts: Y5/Y6* – Addition and subtraction.

Collins Connect
Year 6, Unit 9, Week 1

Teach

Resources

mini whiteboard, pen and eraser (per child)

- Display: Slide 1. Choose one of the calculations and point to it.
- Say: **Use rounding to estimate the answer to this calculation.** Ask a pair to explain how they used rounding.
- Ask a different pair who rounded the numbers differently to share their estimate.
- Say: **How the numbers are rounded will determine how accurate our estimate is. At different times we may need a more accurate estimate.**
- Say: **Work out the answer using the formal written method.** Work through the calculation as a class.
- Say: **Choose a calculation together, estimate the answer and work it out using the formal written method on your whiteboards. As you work it out, prepare a tip for how to be successful with this method to share with the class.**
- Work through the calculations one at a time. Ask pairs who worked out that calculation to feed back their working out.
- Focus on any aspects that the class have found challenging.
- Ask pairs to share their tips on how to be successful at this method.
- Display: Slide 2. Say: **Choose the calculation you feel you need most practice at, and work it out using the formal written method.**
- Display: Slide 3. Say: **Estimate the missing number in this calculation.** Ask some pairs to share their estimate.
- Ask: **How can we work out the missing number?** Ask some pairs to feed back their suggestions.
- Work through the calculation as a class. Say: **As we have the answer, we can work through the calculation using our understanding of how the method works to find the missing number.**
- Point to the ones column and ask: **How can six add something equal three?** Establish that the three comes from thirteen, so it is six add something equals thirteen.
- Say: **So this means that we must carry the ten to the next column and include it when we work out the missing tens digit.** Write the carried ten in the appropriate place on the board.

- Ask: **So, what must we add to six to make thirteen?** (7) Write 7 in the ones column.
- Repeat until the calculation is complete. (6 847 316 + 3 928 277 = 10 775 593)
- Display: Slide 4. Say: **Work out the missing number in this calculation.**
- Ask some pairs to explain their method and work through the calculation as a class.
- Point to the ones column and ask: **How can two subtract something equal six?** Establish that this shows that a ten was taken from the tens column and two became twelve. On the board: cross out the eight in the tens column and write seven above it. Change the two to twelve.
- Continue to work through the rest of the calculation until it is complete. (7 306 582 – 4 823 196 = 2 483 386)
- Display: Slide 5. Say: **Work out the missing number in this calculation.**

Individualised Learning

Refer to Activity 2 from the Learning activities on page 358.

Pupil Book 6C – Page 6: Missing Numbers

Progress Guide 6 – Extension, Year 6, Unit 9, Week 1, Lesson 2: Shape Values

Plenary

- Say: **Tell your partner something that you found challenging at the beginning of the lesson but feel more confident with now.**
- Ask some children to share with the class what they feel they have improved on. Ask the rest of the class if they had chosen the same aspect of the learning.
- Say: **Tell your partner how you rounded the numbers to estimate and check your answers.**
- Discuss this as a class and determine the degree of accuracy that most children think is suitable.

Overcoming Barriers

- If children are making mistakes with the formal written methods it indicates they do not have a secure understanding of why the method works. Children who do understand the method can apply it to any numbers. Use four- or five-digit numbers and show the adding of each column separately alongside the written method so children can clearly see the place value of each answer, e.g. thousands add thousands.