

Mental methods: subtraction

National Curriculum attainment target

- Practise mental methods with increasingly large numbers to add fluency

Lesson objective

- Use mental methods for subtraction

Previous related lesson

Unit 1, Week 2, Lesson 2

Prerequisites for learning

Pupils need to:

- be confident counting back in tens
- be confident counting back in hundreds
- be confident with numbers up to 1000

Vocabulary

subtraction, ones, tens, hundreds, multiples of ten, jottings

Future related lesson

Unit 7, Week 1, Lesson 2

Success criteria

Pupils can:

- subtract mentally by counting back in their heads, in hundreds, tens and ones depending on the calculation
- make jottings to support their mental steps



Getting Started

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

Teach

Resources

mini whiteboard, pen and eraser (per child)

**Collins
Connect**

Year 4, Unit 5,
Week 2



- Say: **Today we are going to practise our mental methods for subtraction.**
- Ask: **What subtraction calculations can you do mentally without a number line? Write some down.**
- Ask some pairs to share their calculations. Record some on the board and organise them into types of calculations, such as two-digit subtract two-digit, three-digit subtract hundreds.
- Say: **Remember, an empty number line supports our mental methods, but we want to be able to subtract these calculations without empty number lines.**
- Write 340 - 135 on the board. Remind the class that they worked on this type of calculation in Unit 1. Say: **I am going to show you how I would work this out in my head without an empty number line.**
- Say: **I put 340 in my head, then I subtract 100 which makes 240. Jot 240 on the board. I am jotting 240 down so I do not forget it. Now I subtract 30. 40 subtract 30 is 10 so 240 subtract 30 is 210. Jot down 210. Then I subtract 5. So the answer is 205.**
- Say: **Remember jottings are a way of helping you keep track of the calculation. They are the same numbers that you would have on a number line, but it is a quicker way to record them.**
- Write 390 - 158 on the board. Say: **Talk yourselves through this calculation just like I did. Make jottings to help you.**
- Ask some pairs to talk through their working out and show their jottings. Invite the rest of the class to comment and say if that is how they did it.
- Say: **Talking yourself through the calculation helps make sure the steps are clear in your mind.**
- Write 420 - 259 on the board. Say: **This calculation is a bit trickier as the tens cross a hundred boundary.**
- Say: **This is how I would do it mentally. I put 420 in my head, subtract 200, that is 220. Jot down 220. Now I need to subtract 50. I know subtracting 20 will take me to 200. Jot down 200. There is 30 left to subtract, 200 subtract 30 is 170. Jot down 170. Now I subtract the ones. So the answer is 161.**

Choose an easier calculation, so children can focus on the mental process.



↓ Children can work in pairs.



↑ Advise children on appropriate start numbers.
↓

- Model the calculation on a number line if appropriate.
- Say: **I made subtracting the tens easier by doing it in two steps.**
- Write $430 - 274$ on the board. Talk yourself through this calculation. Make jottings as you do.
- Ask some children to talk through their working out and show their jottings.
- Say: **Choose a start number that is a multiple of ten above 400 and write it on your board.**
- Say: **I am going to call out different numbers to subtract. Each time, you subtract from your previous answer so you have a number chain.**
- Say: **Subtract 50, subtract 100, subtract 46.** Continue the chain as appropriate. Keep a record of what you say.
- Stop and check calculations if needed. Encourage mental subtraction.

Individualised Learning

Refer to Activity 1 from the Learning Activities on page 214.

Pupil Book 4B: – Page 8: Subtraction chains

Progress Guide 4: – Support, Year 4, Unit 5, Week 2, Lesson 1: Subtraction on a number line



Plenary

- Ask: **Are some numbers easier or trickier to subtract than others?**
- Discuss this as a class. Unpick why children feel some numbers are trickier.
- Say: **The more we practise our mental subtraction, the better we get.**
- Ask: **At the beginning of the lesson, we thought about calculations that we can do mentally. Would you add any calculations to your list now?**
- Invite children to share their ideas.



Homework Guide 4

Year 4, Unit 5, Week 2, Lesson 1:
Mental jumping – subtraction

Overcoming Barriers

- Children may not be ready to move on to subtracting mentally without the support of a number line. If so, then continue to model the number line for them.