Mental addition

National curriculum attainment target

- Add numbers mentally, including:
 - a three-digit number and ones
 - a three-digit number and tens
 - a three-digit number and hundreds
- Use inverse operations to check answers

Previous related lessons

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

Prerequisites for learning

Pupils need to:

- recall and use addition facts to 20 fluently, and derive and use related facts up to 100
- count on in ones from any given two- or three-digit number
- count on in tens from any given two- or three-digit number
- count on in hundreds from any given two- or three-digit number

Vocabulary

add, ones (units), tens, hundreds, number line, check, inverse

Lesson objective

• Add numbers mentally and use inverse operations to check the answer

Future related lessons

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

Success criteria

Pupils can:

- look at the number to be added
- · count on in the appropriate steps
- work mentally or use an empty number line



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, Week 1

Teach

Resources

a mini whiteboard, pen and eraser (per child)

- Say: Today we are going to focus on mental methods for addition.
- Display: Slide 1.
- Read the calculations together.
- Say: These are the types of calculations we have learned how to do either mentally, or with an empty number line.
- Ask: Which of these calculations do you think you can do in your head and which would you like to use an empty number line?
- Share children's ideas and establish which types of calculations your class need to focus on.
- Say: The empty number line is a tool that helps us practise the mental steps. When we can work out the calculations mentally, then we do not need to use the empty number line any more.
- Choose one of the calculations from the board and underline it.
- Say: Tell your partner how you would work this out. You can draw an empty number line if you need to.
- Share children's ideas and strategies. Work through the calculation as a class on a number line and model how to work it out mentally. Encourage the use of known addition facts to work out the answer.
- Focus on the digits. Ask children to look at which digits change and which stay the same. Remind them that if they are working on three-digit numbers, they need to add ones, tens or hundreds.

The word "ones" has been used throughout this lesson when referring to the least significant digit. However, children also need to be familiar with the word "units".



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- Write another calculation on the board, the same type as the one the class have just worked out.
- Say: Work out this calculation.
- Look at children's answers and work through the calculation as a class.



- Say: Using the inverse operation, subtraction, is a good method. Inverse means that the operations undo each other.
- Point to the number line for the calculation you have worked out. Write the inverse calculation. Say: **By jumping back on the number line, we are working out the inverse calculation.** Work through this with the class.
- Repeat, working through any other types of calculations that your class need to focus on.

Individualised Learning

Refer to Activity 4 from the Learning activities on page 277.

Pupil Book 3B – Page 31: Mental addition Progress Guide 3 – Support, Year 3, Unit 7, Week 1, Lesson 4: Add numbers mentally

Plenary

Resources

mini whiteboard, pen and eraser (per child)



- Say: Write a calculation on your board that you can do mentally.
- Say: Share your calculation with your partner. Decide what kind of mental calculation you would like to learn next.
- Discuss children's ideas as a class.
- Say: Choose a number and write it down. It can be a two-digit or three-digit number.
- Say: I am going to tell you some numbers to add to your number. You can add numbers on mentally or use a number line.
- Say various ones, tens or hundreds numbers to add, for example, add 4, add 30, add 400.

Homework Guide 3

Year 3, Unit 7, Week 1, Lesson 4: Spinning addition Resources: paper clip and pencil- for the spinner (per child)

Overcoming Barriers

• If children find mental addition challenging, then identify the step that they are finding difficult, such as counting on in tens, or finding it hard to cross the hundreds boundary when counting on. Once this is identified, provide additional support and practice with that skill.