

PURPOSE AND PROMPTS

This will remind children about partitioning two-digit numbers in different ways and will support the development of a compact method of subtraction.

This demonstrates subtraction of two-digit numbers.

UNIT 8 PART 2 SUPPLEMENTARY TEACHING SEQUENCES

SEQUENCE 1

Compact method sequence for subtraction

RESOURCES:

Place value cards
Activity sheet 8.1 (*Springboard 5* page 97)

STEP 1

Revise partitioning two- and three-digit numbers using place value cards.

Remind children of the 'multiple partitioning' activity they did in Unit 1 to help them to halve awkward numbers. Show them all the partitions of 36 that involve a multiple of 10 ($30 + 6$, $20 + 16$, $10 + 26$) and ask them to work out similar partitions of 73.

STEP 2

Write down $78 - 45$.

Remind them that this calculation can be worked out by finding the difference between 78 and 45 on an empty number line, as they may have done in previous units. Tell them that another method involves taking away (or subtracting) 45 from 78 and that this is the method you are going to consider.

Ask for help in partitioning the numbers into tens and units (or ones) on the flipchart (or board), one set on top of the other:

$$\begin{array}{r}
 70 \qquad 8 \\
 -40 \qquad 5 \\
 \hline
 30 \qquad 3 \\
 \swarrow \quad \searrow \\
 \qquad 33
 \end{array}$$

Talk them through the procedure, showing how the units are taken away from the units and the tens from the tens. Tell the children that they could work out $78 - 45$ mentally with some jottings, but they need to see how this method works as it will be useful when dealing with larger, more awkward numbers.

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UNIT 8 PART 2 SUPPLEMENTARY TEACHING SEQUENCES

understanding of partitioning or their experience of having this method demonstrated in class.)

Ask them to think of one of the activities they did earlier that might be useful here.

Q Which partition of 73 might be more useful than 70 and 3?

Accept (or supply!) $60 + 13$.

Explain that for this method of subtraction, we need to have larger numbers on top, so that we can quickly subtract the smaller numbers underneath.

Show an example in which 73 is partitioned into 60 and 13:

$$\begin{array}{r} 400 \quad 70 \quad 3 \\ - 200 \quad 50 \quad 6 \\ \hline \end{array}$$

becomes:

$$\begin{array}{r} 400 \quad 60 \quad 13 \\ - 200 \quad 50 \quad 6 \\ \hline \end{array}$$

Q How does this make the calculation easier?

Now the subtraction can be carried out quite easily in the three columns, and the numbers recombined to give the answer.

$$\begin{array}{r} 400 \quad 60 \quad 13 \\ - 200 \quad 50 \quad 6 \\ \hline 200 \quad 10 \quad 7 \quad = 217 \end{array}$$

At this point, ask children to work in pairs and 'tell the story' of this subtraction. It will help to clarify the process and their thinking about it.

If children are struggling you may need to do another example with the group and again invite them to tell the story.

Ask one (or more) of the children to share their story with the rest of the group.

Ask the children to use this method to calculate: $356 - 138$; $784 - 437$; and $935 - 516$.

Ensure that they estimate to the nearest hundred and then correctly partition and line up the columns.

Ask the children how they can check whether the answer is right.

**PURPOSE AND
PROMPTS**

This will help children to understand how three-digit numbers can be partitioned in different ways.

This will help children to realise the importance of looking at the numbers involved before deciding on a method of calculation.

UNIT 8 PART 2 SUPPLEMENTARY TEACHING SEQUENCES

Q What is the opposite (inverse) operation to subtraction?

Q What numbers do we need to add?

Point out that if they add the answer of the subtraction to the number they have taken away, they should reach the original number. Demonstrate on the board, inviting different children to explain each step as you do it.

Can children carry out vertical addition confidently?

Introduce Activity sheet 8.1 (*Springboard 5* page 97) and make sure all children know how to tackle it.

STEP 5

Take feedback from the children about this method. Check that they understand that partitioning numbers in different ways will not affect their value.

In preparation for exchange from the hundreds column which may sometimes be needed in these calculations, write 534 on the board and partition it into:

500 30 4

Q Can you partition 534 in a different way?

(e.g. $400 + 100 + 34$, $400 + 120 + 14$)

Ensure that $400 + 130 + 4$ is one of these partitions. Discuss the structure of this particular partition and ask the children to partition other three-digit numbers in this way.

STEP 6

Write down these subtractions: $400 - 199$; $567 - 248$; $520 - 403$; $856 - 798$; $452 - 237$.

Q You do not have to work these out, but decide the best way to tackle these calculations.

Is it:

- counting up or back?

**PURPOSE AND
PROMPTS**

This moves on to
further
partitioning.

UNIT 8 PART 2 SUPPLEMENTARY TEACHING SEQUENCES

- **using jotting or a number line where necessary?**
- **partitioning the numbers and subtracting in columns?**
- **a different method that works for you?**

Encourage children to spend a short time thinking about these and then invite them to share their decisions with the rest of the group.

STEP 7

If the children are ready, move on to examples where partitioning of hundreds is also needed.