Adding and subtracting whole tens

4

Educational context

There are many activities in this group, because children are now applying all that they have learnt about adding and subtracting within 10 to add and subtract whole tens. This activity group is an important first step for children in calculating with 2-digit numbers. For success with this and all further calculating activities in Number, Pattern and Calculating 2 and beyond, children need to have secure understanding of the column value and quantity value of multiples of 10. They also need to have recall of most adding and subtracting facts within 10. Until all this understanding is in place and children can use it confidently, it is strongly recommended that work on earlier activity groups is continued. Without it, children are unlikely to be able to generalize or think about efficient solutions to the problems in these activities.

Learning opportunities

- To learn that adding and subtracting facts within 10 can help when adding and subtracting multiples of 10.
- To make connections between coin values less than £1 and multiples of 10.
- To begin to write whole tens adding and subtracting sentences in columns.

Words and terms for use in conversation

adding, subtracting, equals, tens, whole tens, tens numbers, multiples of 10, ones, units, value, altogether, left over, difference, 'how many more?', compare, so
(Note: Children have been introduced to the term 'multiples of 10' but some may still use the terms 'tens numbers' and 'whole tens', so all these terms are included here.)

Assessment opportunities

Look and listen for children who:
- Use the words and terms for use in conversation effectively in discussion.
- Have fluent recall of adding and subtracting facts within 10.
- Use these facts when adding and subtracting whole tens.
- Write adding and subtracting facts in columns.
- Understand column and quantity values of multiples of 10.
- Connect adding and subtracting multiples of 10 with coin values.

📖 Explorer Progress Book 2b, pp. 4–5

After completing work on this activity group, give small focus groups of children their Explorer Progress Books and ask them to work through the challenges on the pages. As children complete the pages, assess what progress they are making with the central ideas from the activity group. Refer to the assessment opportunities for assistance.

🏠 Explore More Copymaster 18: Memory

After completing work on Activity 8, give children Explore More Copymaster 18: Memory to take home.

Calculating

Focus activities

Activity 1: Beginning to use adding facts within 10 to add whole tens

Have ready: Numicon Shapes, number rods, objects for counting, Adding to 10 Cards (cut from photocopy masters 5a and 5b enlarged to A3), individual whiteboards and dry-wipe pens, *Numicon Software for the Interactive Whiteboard* (optional)

Step 1

Hold up adding to 10 cards (photocopy masters 5a and 5b) in a random order (or write adding sentences on the board) for children to solve. Ask them to write the answers on individual whiteboards and hold them up. Look and listen for children who write answers confidently. Notice those who are unsure.

Step 2

Set the scene: explain that benches are being set out in the hall for assembly and that 10 children are able to sit on each bench. There are going to be 3 benches on one side of the hall and 3 on the other. Ask children to find out how many children can sit on the benches altogether.

Step 3

Discuss how children found their answers. Look and listen for children who used Shapes or rods and those who worked mentally. Discuss their ideas. Look and listen for children suggesting that 3 tens add 3 tens equals 6 tens and therefore the answer is 60 children.

Step 4

Discuss that if children have, e.g. 3 shells and another 3 shells they will have 6 shells, and if they have 3 pencils and another 3 pencils they will have 6 pencils, so if they have 3 tens and another 3 tens they will have 6 tens. Ask them to suggest other objects; use several examples so that children understand the language pattern. Discuss with children what *always* happens with these numbers. Look and listen for children who can generalize.

Step 5

Ask children to show 3 tens add 3 tens with Shapes or rods and agree that it equals 6 tens. Discuss and agree we can also say, 'thirty add thirty equals sixty'. Ask children to write an adding sentence for this. Look for those who write '30 + 30 = 60'.
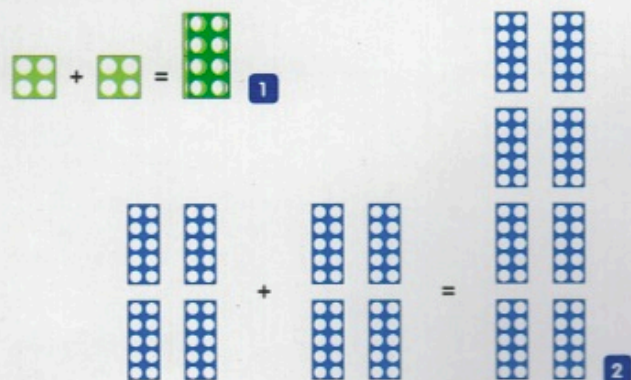
Step 6

Hold up a number of 10-shapes as examples of 'number of children' sitting on the benches. Ask children to find out how many children altogether were sitting on the benches, e.g. 5 tens one side and 2 tens the other side, 3 tens one side and 4 tens the other, 6 tens one side and 3 tens the other. Repeat Steps 3 and 4 for each example. Look and listen for children connecting the facts within 10 with adding whole tens, e.g. 5 + 2 = 7 so 5 tens + 2 tens = 7 tens. Also look and listen for children showing understanding of the equivalence between column and quantity values, e.g. by explaining that 5 tens and 2 tens equals 7 tens so 50 add 20 equals 70.

Activity 2: Using adding facts within 10 to add whole tens

Have ready: Numicon Shapes, *Numicon Software for the Interactive Whiteboard* (optional)

Step 1

Explain to children that in the hall there were 40 children sitting on one side and 40 sitting on the other. Discuss how this could be written as a number sentence. Look and listen for children who suggest writing '40 + 40'. Write this and ask children if the numbers remind them of other adding facts. Look and listen for children suggesting 4 + 4 to answer 'four tens add four tens equals eight tens'. Ask children to complete the adding number sentence, '40 + 40 = 80'.

Step 2

Illustrate with Shapes showing 4 add 4 equals 8 (see **Fig. 1**) and 4 tens add 4 tens equals 8 tens (see **Fig. 2**).

Ask children to look at the number sentences and the imagery and discuss the different connections they can make between adding facts within 10 and adding whole tens. Allow plenty of discussion of alternative explanations and reasoning, e.g.:

40 add 40 is equivalent to 4 tens add 4 tens,
4 tens add 4 tens equals 8 tens (4 + 4 = 8),
8 tens are equivalent to 80, so
40 add 40 must equal 80.

Step 3

Try different examples, e.g. 30 + 50, 70 + 20, 50 + 40, asking children to explain what can help them solve the adding sentences before finding the answers.

Step 4

Look specifically at examples like 60 + 10 and 10 + 40, relating them to 6 + 1 and 1 + 4, as some children can find these more challenging.

Activity 3: Using a tens and units frame for adding

Have ready: Numicon Shapes, Tens and Units Frame (photocopy master 47), *Numicon Software for the Interactive Whiteboard* (optional)

Step 1

Ask children how they would find the answer to 40 + 30. Look and listen for children suggesting 4 + 3 to answer 'four tens add three tens equals seven tens'.

Step 2

Now ask children to show 40 + 30 using Numicon Shapes on the tens and units frame (photocopy master 47). Look and listen for children who remember the 'columns' of the tens and units frame and agree with them that, when forty and thirty are shown with Numicon Shapes, all the 10-shapes are in the tens column of the frame and that there are no units in the units column.

Step 3

Talk with children about how they might write 40 + 30 = 70 using the column idea of the tens and units frame. Agree the importance of keeping the tens in one column and the units in another (like the frame). Write 40 + 30 under the tens and units frame, keeping the 'tens' digits under the 'Tens' column and the 'units' under the 'Units' column. Discuss where to write the total and whether the children think the two horizontal lines could represent the '=' symbol (see **Fig. 3**).

Agree that this could be read as 'forty add thirty equals seventy' or 'four tens add three tens equals seven tens' which is also 'seventy'.

Step 4

Try other examples.

Activity 4: Beginning to use subtracting facts within 10 to subtract whole tens

Have ready: Numicon Shapes, number rods, Subtracting to 10 Cards (cut from photocopy masters 44a and 44b enlarged to A3), individual whiteboards and dry-wipe pens, *Numicon Software for the Interactive Whiteboard* (optional)

Step 1

Hold up subtracting to 10 cards (photocopy masters 44a and 44b) in a random order (or write subtracting sentences on the board). Ask children to write the answers on individual whiteboards and hold them up. Look and listen for children who write answers confidently.

Step 2

Remind children about the benches in the hall and explain that this time there are 90 children sitting on them. 60 children leave to go back to their classrooms. How many children are left? Discuss with children how they could find the answer. Look and listen for those who are confident when subtracting 60 from 90 and for those who use 9 subtract 6 equals 3, to solve 9 tens subtract 6 tens equals 3 tens.

Step 3

Explore the idea that if children have 9 pencils and 6 are broken they will have 3 pencils left, or if they have 9 cakes and 6 are eaten then 3 cakes are left; similarly, 9 tens subtract 6 tens equals 3 tens. Ask children to suggest other stories. Use several examples so that children understand the language pattern. Discuss what *always* happens with these numbers. Look and listen for children who are able to generalize.

Step 4

Ask children to use Shapes or rods to show 9 tens subtract 6 tens and agree that it equals 3 tens. Discuss and agree we can also say 'ninety subtract sixty equals thirty'. Ask children to write a subtracting sentence to show this. Look for those who write '90 – 60 = 30'.

Step 5

Hold up other amounts of 10-shapes as examples of numbers of children sitting on the benches and ask children to find out how many children would be left if different numbers of children leave, e.g. 7 tens subtract 3 tens equals 4 tens, 6 tens subtract 4 tens equals 2 tens.

Tens	Units

$$
\begin{array}{cc}
4 & 0 \\
3 & 0 \\
\hline
7 & 0
\end{array} +
$$

Calculating

4

Activity 5: Using subtracting facts within 10 to subtract whole tens

Have ready: Numicon Shapes, Subtracting Covers (photocopy masters 43), *Numicon Software for the Interactive Whiteboard* (optional)

Step 1

Explain to children that there were 70 children in the hall and 40 had to go back to their classes. Discuss how this could be written. Look and listen for children who suggest 70 – 40. Write this and ask children if the numbers remind them of other subtracting facts. Look and listen for children making the connection with 7 – 4 = 3 to answer 7 tens subtract 4 tens equals 3 tens. Ask children to complete the subtracting number sentence, 70 – 40 = 30.

Step 2

Illustrate with Shapes, showing 7 subtract 4 equals 3 (see **Fig. 4**) and 7 tens subtract 4 tens equals 3 tens (see **Fig. 5**).

Ask children to look at the number sentences and the imagery and discuss the different connections they can make between subtracting facts within 10 and subtracting whole tens. Allow plenty of discussion of alternative explanations and reasoning, e.g.:

70 is equivalent to 7 tens, and 40 is equivalent to 4 tens,
7 tens subtract 4 tens equals 3 tens (7 – 4 = 3),
3 tens are equivalent to 30, so
70 subtract 40 must equal 30.

Step 3

Use further examples, e.g. 80 – 50, 70 – 20, 90 – 40, asking children to explain what can help them solve the subtracting sentences before finding the answers.

Step 4

Look specifically at examples like 60 – 10 and 90 – 10, relating them to 6 – 1 and 9 – 1, as some children can find these more challenging.
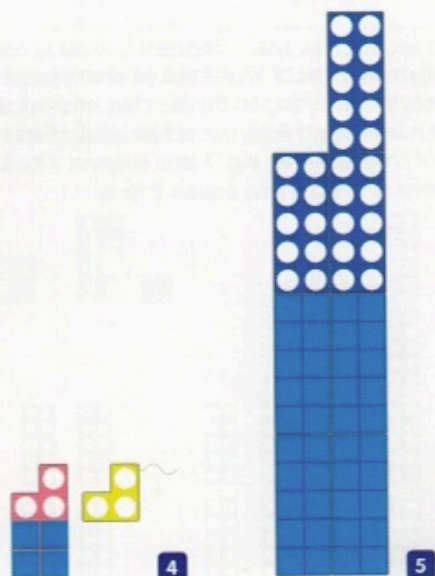
Activity 6: Using a tens and units frame for subtracting

Have ready: Numicon Shapes, Tens and Units Frame (photocopy master 47), *Numicon Software for the Interactive Whiteboard* (optional)

Step 1

Ask children how they would find the answer to 60 – 40. Look and listen for children suggesting 6 – 4 to answer 'six tens subtract four tens equals two tens'.

Step 2

Now ask children to show 60 – 40 using Numicon Shapes on the tens and units frame (photocopy master 47). Agree with children that all the 10-shapes are in the tens column of the frame and even when the 4 tens are subtracted there are still no units.

Step 3

Talk with children about how they might write 60 – 40 = 20 using the column idea of the tens and units frame and remind them of the importance of keeping the tens in one column, the units in another and where to write the answer (see **Fig. 6**).

Discuss how this could be read as 'sixty subtract forty equals twenty' or 'six tens subtract four tens equals two tens' which is also twenty.

Step 4

Try other examples.

4

5

Tens	Units

	Tens	Units
	6	0
−	4	0
	2	0

6

4

Activity 7: Finding the difference between whole tens numbers

Have ready: Numicon Shapes, *Numicon Software for the Interactive Whiteboard* (optional)

Step 1

Set the scene: on Wednesday, 90 children were sitting on benches on one side of the hall and 60 on the other. Ask children to find the difference between the number of children on each side. Look and listen for those who can use related facts within 10 to help them, and who say, 'the difference between nine tens and six tens is three tens, which is thirty children'.

Step 2

Illustrate the difference between 9, 6 and 3 (9 – 6 = 3) (see Fig. 7) using Shapes and talk with children about the relationship with 9 tens, 6 tens and 3 tens. Agree that: 'The difference between 9 and 6 is 3; the difference between 9 tens and 6 tens is 3 tens; so the difference between 90 and 60 is 30.'

Step 3

Remind children about earlier work on 'finding the difference' subtracting questions (Calculating 2, Activity 3) and ask them to write the number sentence for this problem. Look for those who write '90 – 60 = 30'.

Activity 8: Finding 'how many more?' with whole tens

Have ready: Numicon Shapes, Numicon 10s Number Line, Numicon Pan Balance, Parts and Wholes – Large (photocopy master 32) enlarged to A3 (optional), *Numicon Software for the Interactive Whiteboard* (optional), Explore More Copymaster 18: Memory

Step 1

Explain that benches have been set out for 80 children. So far, 60 children are sitting down. Ask children how they would find out how many more children can sit down. Look and listen for children who suggest using related adding or subtracting facts within 10, or use the part–whole relationships between 8, 6 and 2 to say 'two tens, so there is room for twenty children'. Others may suggest comparing the two numbers to find how many from 60 to 80 or to find the difference.

Step 2

Discuss ways of finding how many more from 6 tens to reach 8 tens. Illustrate this with six 10-shapes along the 10s Number Line (see Fig. 8).
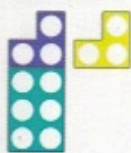
Step 3

Ask children if they can remember how we write number sentences when we need to find a 'missing number'. Look and listen for children who remember using the empty box, □ (Pattern and Algebra 3). Write '60 + □ = 80'. Discuss and agree that '60' represents the number of children sitting in the hall, '80' represents number of children who can sit in the hall and '□' stands for the number of children who are missing.
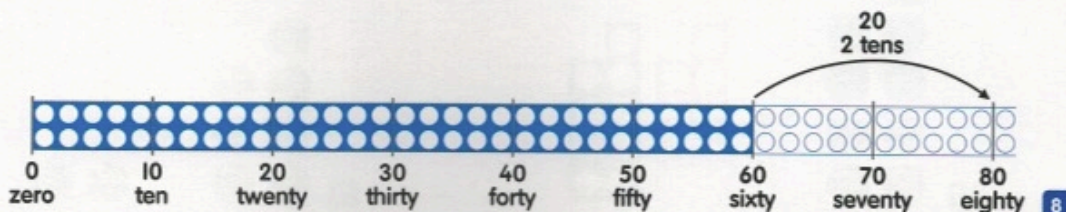
Step 4

Model the process of checking which number is missing using the Pan Balance. Place six 10-shapes in one pan and eight 10-shapes in the other. Then ask children which Shapes are needed to make the pans balance and show how many more can sit in the hall. Look and listen for children who suggest adding 2 tens to the pan with the 6 tens. Agree that this also shows the missing number was 2 tens or 20, i.e. 20 more children can sit in the hall.

🏠 After completing work on this activity, give children the opportunity to take home and complete Explore More Copymaster 18: Memory. This will help children to use adding and subtracting facts when adding and subtracting whole tens.

7

20
2 tens

| 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 |
| zero | ten | twenty | thirty | forty | fifty | sixty | seventy | eighty |

8

Calculating

4

Activity 9: Learning whole tens adding facts to 100

Have ready: Numicon Shapes, number rods

Step 1

Ask children to write, in order, all the ways to make 10 using two numbers, as adding sentences. Look and listen for children who know they have found all the combinations because they have written them in order. Agree the list, asking children to check with Shapes and rods if necessary.

Step 2

Now ask children to write alongside the adding facts for 10 all the ways to make 100 using two multiples of 10, e.g.

$1 + 9 = 10$	$10 + 90 = 100$
$2 + 8 = 10$	$20 + 80 = 100$
$3 + 7 = 10$	$30 + 70 = 100$
$4 + 6 = 10$	$40 + 60 = 100$
$5 + 5 = 10$	$50 + 50 = 100$
$6 + 4 = 10$	$60 + 40 = 100$
$7 + 3 = 10$	$70 + 30 = 100$
$8 + 2 = 10$	$80 + 20 = 100$
$9 + 1 = 10$	$90 + 10 = 100$

Step 3

Discuss the patterns children notice.

Step 4

Compare, e.g. $2 + 8 = 10$ and $20 + 80 = 100$. Ask children to find the Shapes and rods to illustrate both. Look and listen for children who can say, 'two add eight equals ten' and are then able to generalize, 'so two tens add eight tens equals ten tens' and those who then know, 'twenty add eighty equals one hundred'. Repeat using other examples. Look and listen for children who are confident that ten tens equal one hundred.

Activity 10: Learning whole tens subtracting facts from 100

Have ready: Numicon Shapes, number rods

Step 1

Ask children to write all the subtracting sentences from 10 in order from $10 - 1 = 9$, until they find the answer 0. Look and listen for children who know they have found every subtracting sentence. Agree on the list, asking children to check with Shapes and rods if necessary.

Step 2

Now ask children to write alongside the subtracting facts from 10, the subtracting facts from 100 for whole tens:

$10 - 1 = 9$	$100 - 10 = 90$
$10 - 2 = 8$	$100 - 20 = 80$
$10 - 3 = 7$	$100 - 30 = 70$
$10 - 4 = 6$	$100 - 40 = 60$
$10 - 5 = 5$	$100 - 50 = 50$
$10 - 6 = 4$	$100 - 60 = 40$
$10 - 7 = 3$	$100 - 70 = 30$
$10 - 8 = 2$	$100 - 80 = 20$
$10 - 9 = 1$	$100 - 90 = 10$
$10 - 10 = 0$	$100 - 100 = 0$

Step 3

Discuss the patterns children notice.

Step 4

Compare, e.g. $10 - 3 = 7$ and $100 - 30 = 70$. Ask children to find the Shapes and rods to illustrate both. Look and listen for children who can say, 'ten subtract three equals seven' and are then able to generalize, 'so ten tens subtract three tens equals seven tens' and those who then know 'one hundred subtract thirty equals seventy'. Repeat, comparing other examples.

Use NZ coins. The principles are the same.

4

Activity 11: Whole tens adding facts with money

Have ready: Numicon Shapes, number rods, 10p, 20p and 50p coins, *Numicon Software for the Interactive Whiteboard* (optional)

Step 1
Set the scene: find out how much Sophie had altogether if she had a 50p coin and was given a 20p coin. Ask children what they know that could help them calculate how much altogether. Look and listen for children who explain that knowing the adding facts for numbers below 10 can help when they are adding whole tens (5 + 2 = 7, so 5 tens add 2 tens equals 7 tens, so 50p + 20p = 70p).

Step 2
Ask children how the coins and their total could be shown with Shapes or rods. Model their suggestions with apparatus or using the *Numicon Software for the Interactive Whiteboard*, to help children see the equivalence between two 10p coins and the 20p coin (see Fig. 9) and five 10p coins and the 50p coin (see Fig. 10).

Step 3
Now ask children if they could rearrange the 10p coins into Numicon Shape patterns to see the total number of 10p coins without counting. Look and listen for children arranging the coins into the 5- and 2-patterns, then combining them into the 7-pattern (see Fig. 11).

Step 4
Ask children to write one adding sentence to show how much Sophie had and another to show the adding fact that helped. Look and listen for children who write '50p + 20p = 70p' and '5 + 2 = 7'.
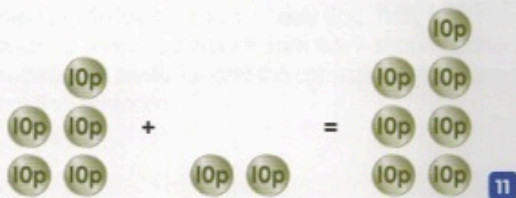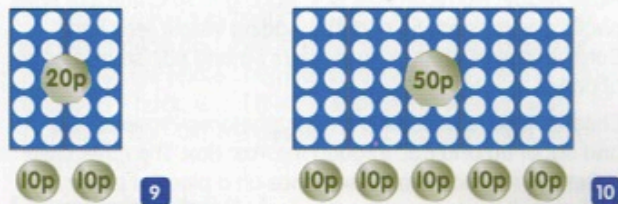
Activity 12: Whole tens subtracting facts with money (take away structure)

Have ready: Numicon Shapes, Numicon 10s Number Line, 10p coins, Subtracting Covers (cut from photocopy master 43), Parts and Wholes – Large (photocopy master 32) enlarged to A3 (optional), *Numicon Software for the Interactive Whiteboard* (optional)

Step 1
Set the scene: 'Last week Hamza went shopping with 70p. He spent 30p. How much does he have left?' Ask children what they know that could help them. Look and listen for children who explain that knowing subtracting facts for numbers within 10 (or knowing the part-whole relationship of 7, 3 and 4) can help when they are subtracting whole tens.

Step 2
Illustrate the problem using Shapes and 10p coins and agree that Hamza would have 40p left (see Fig. 12). Discuss and agree that 7 – 3 = 4, so 7 tens subtract 3 tens equals 4 tens, so 70p – 30p = 40p.

Step 3
Continue: 'This week Hamza went shopping but did not spend much money and had 90p left'. Ask children how we could find the difference between what he had left last week (40p) and this week. Discuss and agree that we can use the relationship between 9, 4 and 5 to find the difference.

Step 4
Illustrate with Shapes and coins and agree that the difference is 50p (see Fig. 13). Some children may need to use 10-shapes on the 10s Number Line.
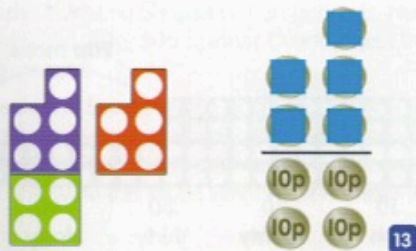
Calculating

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Activity 13: 'More than' and 'less than' problems with whole tens facts

Have ready: Numicon Shapes, Numicon 10s Number Line, Numicon 1–100 cm Number Rod Track, number rods, 50p, 20p and 10p coins, *Numicon Software for the Interactive Whiteboard* (optional)

Step 1

Explain to children that Rosie has saved 50p and Isla has saved 30p. Ask children to use the '<' or '>' symbol to write who has more. Look and listen for children who are confident about using money values and write 50p > 30p.

Step 2

Now ask children to find out how much more Rosie saved than Isla using apparatus or the *Numicon Software for the Interactive Whiteboard*. Discuss their ideas. Look and listen for children who apply the below 10 facts and the relationship between 5, 3 and 2 to explain the answer will be 2 tens, which is 20, therefore Rosie saved 20p more (see **Fig. 14**).

Discuss and agree how to write this as an 'empty box' number sentence (30 + □ = 50, or 3 tens + □ = 5 tens).

Step 3

Discuss how it is also possible to show this using 10-shapes along the 10s Number Line. Discuss children's ideas. Look and listen for those who remember the 'how many more?' structure and for those who 'see' the difference by adding on, without counting in ones (see **Fig. 15**).

Step 4

Try other problems such as: 'How much money does Malaikah have if she has 30p less than Joel, who has 40p?'
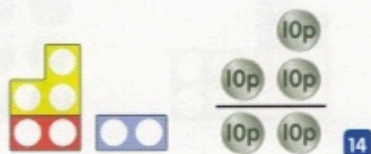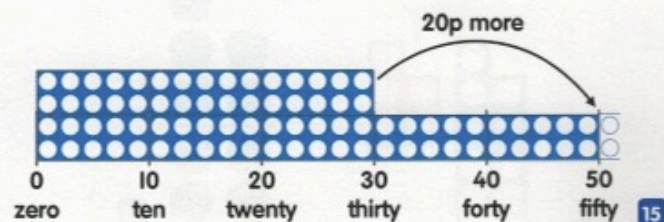
Practice and discussion

Whole-class

- Discuss with children how and when the mathematics they have been learning could help them in solving problems.
- Ask children to make up a tens adding or subtracting story or have some pictures available for them to prompt their choice of a topic, e.g. cars in a car park, groups of animals, groups of children.
- Put two Numicon Shapes totalling 10 or less into a Numicon Feely Bag. Ask one or two children to feel and identify the Shapes. Pretend they are amounts of 'tens', e.g. the 3-shape and 4-shape become 3 tens and 4 tens. Ask children to find the total. (Some children may still need their own set of 1–10 Shapes but most should have recall of the facts.)
- Hold up a Numicon Shape and ask children to make up a whole tens subtracting sentence involving it, e.g. for a 7-shape, children might say, 'seven tens subtract four tens equals three tens'.
- Hold up some of the Adding and Subtracting to 10 Cards (cut from photocopy masters 5a and 5b, and 44a and 44b) one at a time for children to write the related whole tens adding or subtracting number sentences, e.g. hold up '4 + 3 =' so children write '40 + 30 =' or hold up '7 – 5 =' so children write '70 – 50 ='.
- Ask children some money problems involving whole tens, e.g. I spent 30p and then another 50p. How much did I spend altogether? (Keep the values less than £1.)
- Ask children some money problems involving whole tens where they have to find the change from 50p, e.g. Sarah went to the shops with 50p. She spent 20p. How much change did she receive? Discuss how they found the answers and illustrate with Numicon Shapes, number rods and 10p coins.
- Children share their own take away and difference money word problems for each other to solve.

Independent

A   **Paired work for Activity 2**

Have ready: Numicon Post Box, Adding to 10 Cards (cut from photocopy masters 5a and 5b), Adding Whole Tens Facts Cards (cut from photocopy masters 6a and 6b), small pieces of paper

Children take turns to post a card (photocopy masters 5a and 5b, or 6a and 6b), through the Post Box. The other child writes the related number sentence on a piece of paper and posts it back, e.g. if 2 + 5 = is posted '20 + 50 = 70' is written; if 20 + 50 = , is posted '2 + 5 = 7' is written. Both children check.

4

B Paired work for Activity 2

Have ready: Adding to 10 Cards (cut from photocopy masters 5a and 5b), Adding Whole Tens Facts Cards (cut from photocopy masters 6a and 6b)

Shuffle the cards (photocopy masters 5a and 5b, and 6a and 6b) and spread them out face down on a table. Children take turns to try to find a pair (i.e. an adding to 10 card with the related adding whole tens card) by turning over two cards. If successful they keep the pair, if not they turn the cards back over. The winner is the one with the most pairs when all the cards have been collected.

C Individual work for Activity 2

Have ready: Numicon Feely Bag with two sets of Numicon Shapes 1–5

Children choose two Shapes from the Feely Bag and write an adding sentence and the related whole tens adding sentence, e.g. for a 3-shape and a 2-shape, they write '3 + 2 = 5' and '30 + 20 = 50'.

D Paired work for Activity 3

Have ready: nine Numicon 10-shapes, Tens and Units Frame (photocopy master 47)

Children choose some 10-shapes each, say the adding sentence (including the total) and then place their 10-shapes on the tens and units frame. They write the addition in columns.

E Paired work for Activity 4

Have ready: Numicon Shapes or number rods, Numicon Post Box, Subtracting to 10 Cards (cut from photocopy masters 44a and 44b), pieces of paper (about 4 cm square)

Children take turns to choose and post a subtracting card (photocopy masters 44a and 44b) through the Post Box for the other child to write the answer on a piece of paper and post back. Both check with Shapes or rods.

F Paired work for Activity 5

Have ready: Numicon Shapes or number rods, Numicon Post Box, Subtracting to 10 Cards (cut from photocopy masters 44a and 44b), Subtracting Whole Tens Facts Cards (cut from photocopy masters 45a and 45b), small pieces of paper

Children take turns to post a card (photocopy masters 44a and 44b, or 45a and 45b) through the Post Box. The other child writes the related number sentence on a piece of paper and posts it back, e.g. if 8 – 2 = is posted, '80 – 20 = 60' is written; if 80 – 20 = is posted, '8 – 2 = 6' is written. Both children check.

G Paired work for Activity 5

Have ready: Numicon Shapes 1–9, Numicon Feely Bag

Children put Shapes 1–8 in the Feely Bag. They take turns to choose a Shape, subtract it from the 9-shape and write the subtracting sentence and the corresponding whole tens subtracting sentence.

H Paired work for Activity 6

Have ready: nine Numicon 10-shapes, Tens and Units Frame (photocopy master 47)

The first child chooses some 10-shapes. The second child decides how many will be subtracted and both say the subtracting sentence with the answer. Children then model the subtraction on the tens and units frame and write the subtraction in columns.

I Paired work for Activity 7

Have ready: Numicon Shapes or number rods, Numicon Feely Bag

Children each take a Shape or rod from the Feely Bag and compare them to find the difference. They then write the corresponding whole tens difference number sentence.

J Paired work for Activity 8

Have ready: Numicon Shapes or number rods, Numicon Pan Balance, Adding Whole Tens Facts Cards (cut from photocopy masters 6a and 6b) shuffled and face down

Children take turns to take a card (photocopy masters 6a and 6b) and write an empty box adding sentence for the other child to solve, e.g. for 20 + 30 =, they write '20 + □ = 50'.

Children check by using Shapes or rods to represent the within-10 fact or by using the Pan Balance.

K Paired work for Activity 10

Have ready: Numicon Shapes or number rods

Children find two Shapes or rods that equal 10 and write the subtracting facts for 10 and the corresponding whole tens subtracting number sentences. Encourage children to write both subtracting possibilities, e.g. 10 – 4 = 6 and 10 – 6 = 4.

L Individual work for Activity 11

Have ready: Numicon Shapes or number rods, two Numicon Spinners with 10p, 20p, 50p and 1p, 2p, 5p Spinner Overlays (cut from photocopy master 39), 50p, 20p, 10p, 5p, 2p, 1p coins

Children spin and find the matching coin. They then find another way to make the amount using other coins.

M Individual work for Activity 12

Have ready: Adding Whole Tens Facts Cards (cut from photocopy masters 6a and 6b)

Children use each card (photocopy masters 6a and 6b) to devise subtracting and difference money word problems for others to solve during whole-class practice.

N Paired work for Activity 13

Have ready: Numicon Shapes or number rods, Numicon Spinner with 10p, 20p, 50p Spinner Overlays (cut from photocopy master 39)

Children spin the Spinner twice each and find the total of their own scores. They compare their amounts to see who has more. They then find how much more one of them has than the other and write this as an empty box number sentence.