Numicon 2 Calculating 4: Adding and subtracting whole tens

Key mathematical ideas Adding, Subtracting, Pattern, Mathematical thinking and reasoning

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.

Review: Measuring in centimetres from last week and continue activities for those who did not finish in the rotation.
Measuring fish and caterpillars with rods,
Measuring ribbon and lengths of paper with centimetre rulers and number rods tracks.
Remind about measuring from '0'

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.

Focus activities

1. Beginning to use adding facts within 10 to add whole tens
2. Using adding facts within 10 to add whole tens
3. Using a 'tens' and 'ones' frame for adding
4. Beginning to use subtracting facts within 10 to subtract whole tens
5. Using subtracting facts within 10 to subtract whole tens
6. Using a 'tens' and 'ones' frame for subtracting
7. Finding the difference between whole tens numbers
8. Finding 'how many more?' with whole tens
9. Learning whole tens adding facts to 100
10. Learning whole tens subtracting facts from 100
11. Whole tens adding facts with money
12. Whole tens subtracting facts with money (take away structure)
13. 'More than' and 'less than' problems with whole tens facts

	Monday	Tuesday	Wednesday	Thursday	Friday
Resources Words printed as A3 flashcards to use in conversations and working wall	Numicon shapes, Cuisenaire rods, adding cards, 'tens ones' frames 1 between 2 chn, whiteboards/paper and pens Problem to solve of benches in assembly hall, see below PCM 5a, 5b, 6a, 6b	Shapes, rods, subtracting cards, whiteboards/paper, pens Subtracting covers HTO frames	Shapes, pan balance, 10's number line, parts and wholes, Explore More Memory	Shapes, rods, 10c 20c 50c coins	Shapes, rods, 10c 20c 50c coins Explorer progress books
Maintenance/Warm Up/Starters	Activity 1 Step 1 Review basic facts	Make up adding and subtracting stories to 10 Feely bag – hiding shapes that are recognised as a multiple of 10. Repeat with addition and subtraction stories as tens	Basic facts subtraction game and finding the equivalent tens	Adding and subtracting tens stories Money stories with ten-cent addition.	Money stories with ten-cent add and sub. More and less conversations
Focus Activities	Activity 1 Steps 2 – 5 Activity 2 Steps 1 – 4 Activity 3 Using the 'tens and ones' frame	Activity 4 introducing subtracting whole tens Activity 5 Subtracting to 10, 100 Activity 6 Using frame to subtract	Activity 7 Difference between tens Activity 8 How many more?	Activity 9 Learning whole tens facts - adding Activity 10 Learning whole tens facts – subtracting Activity 11 Whole tens with money adding	Activity 12 Whole tens with money subtracting Activity 13 More and less than < and >
Independent Activities **See cards**	Review activities from Measurement 1 A - Post box Game B - Finding pairs with adding facts to 10 and adding facts to 100 C - Feely Bag game D- Using the frames to tell stories of addition while using the tens shapes.	Review activities from Measurement 1 E - Subtraction card post box game F - Subtraction card post box game G – Shapes in feely bag game H – Subtracting using the 'tens ones' frames	I – Subtraction sentences game J – Empty box game	K – Subtracting game L – Spin and matching coins	M – Devising subtracting and difference game N – Who has more money?

Explore More **Explorer Progress**			Memory Game		Explorer Progress Book b pages 4 and 5
Organisation **Groups** **Individual children** **Closing conversations**					
Reflection What went well?					
What changes do you recommend?					
What did you learn from the children?					
What did you observe about their learning?					

Assessment grid for this activity group

ASSESSMENT OPPORTUNITIES Look and listen for children who:	**Name**	**Name**	**Name**	**Name**	**Name**	**Name**
• Use the words and terms for use in conversation effectively in discussion.						
• Have fluent recall of adding and subtracting facts within 10 and can use these to add and subtract 1-digit numbers to and from a 2-digit number.						
• Use their understanding of place value to add and subtract 1-digit numbers to and from 2-digit numbers.						
• Record adding and subtracting of 1-digit numbers to and from a 2-digit number in columns.						
Additional notes/ways forward.						

adding	subtracting	equals	tens
tens numbers	multiples of 10	ones	value
left over	difference	compare	so
whole tens	altogether	How many more?	

47 Tens and Units Frame

Name …… Date ……/……/……/

Ones	
Tens	

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Memory

How this will help your child

- This activity will help your child to use adding and subtracting facts when adding and subtracting whole tens.

Words and phrases to use

adding, subtracting, equals, tens, whole tens, tens numbers, multiples of ten, ones, units

You will need

- Scissors

During the activity, look at what your child can do

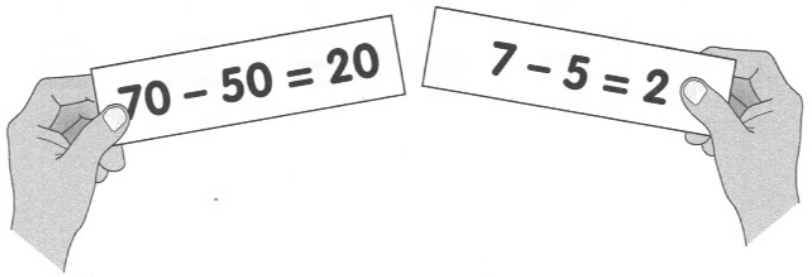
- Recall confidently some adding and subtracting facts.
- Use facts they already know to help them add and subtract whole tens, without counting.

What to do

- Cut out the cards from the Memory sheet and play a memory game.
- The aim is to find pairs of cards that go together, e.g. 30 + 40 = 70 and 3 + 4 = 7.
- Spread out the cards face down on the table.
- You could make the game easier by arranging the cards in two columns (a column of whole tens adding sentences and a column of 1-digit adding sentences) and placing the cards face up.
- The first person turns over a card from each column. If they have a pair, they keep them 1. If not, they turn them back over and the next person has their turn.
- The winner is the person with the most pairs when all the cards have been used.

Next steps...

- Your child might like to make up some of their own pairs of whole tens and 1-digit facts to include in the game.
- Talk about money problems where children need to add and subtract whole tens, e.g. 'I went shopping and bought an apple for 50p and a drink for 40p. How much did I spend?'



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Name ..... Date ...../...../.....

Memory

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

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5a Adding to 10 Cards

0 + 0 =	1 + 1 =	2 + 3 =
0 + 1 =	1 + 2 =	2 + 4 =
0 + 2 =	1 + 3 =	2 + 5 =
0 + 3 =	1 + 4 =	2 + 6 =
0 + 4 =	1 + 5 =	2 + 7 =
0 + 5 =	1 + 6 =	2 + 8 =
0 + 6 =	1 + 7 =	3 + 0 =
0 + 7 =	1 + 8 =	3 + 1 =
0 + 8 =	1 + 9 =	3 + 2 =
0 + 9 =	2 + 0 =	3 + 3 =
0 + 10 =	2 + 1 =	3 + 4 =
1 + 0 =	2 + 2 =	3 + 5 =

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3 + 6 =	5 + 3 =	8 + 0 =
3 + 7 =	5 + 4 =	8 + 1 =
4 + 0 =	5 + 5 =	8 + 2 =
4 + 1 =	6 + 0 =	9 + 0 =
4 + 2 =	6 + 1 =	9 + 1 =
4 + 3 =	6 + 2 =	10 + 0 =
4 + 4 =	6 + 3 =	□ + □ =
4 + 5 =	6 + 4 =	□ + □ =
4 + 6 =	7 + 0 =	□ + □ =
5 + 0 =	7 + 1 =	□ + □ =
5 + 1 =	7 + 2 =	□ + □ =
5 + 2 =	7 + 3 =	□ + □ =

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6a Adding Whole Tens Facts Cards

0 + 10 =	10 + 20 =	20 + 40 =
0 + 20 =	10 + 30 =	20 + 50 =
0 + 30 =	10 + 40 =	20 + 60 =
0 + 40 =	10 + 50 =	20 + 70 =
0 + 50 =	10 + 60 =	20 + 80 =
0 + 60 =	10 + 70 =	30 + 0 =
0 + 70 =	10 + 80 =	30 + 10 =
0 + 80 =	10 + 90 =	30 + 20 =
0 + 90 =	20 + 0 =	30 + 30 =
0 + 100 =	20 + 10 =	30 + 40 =
10 + 0 =	20 + 20 =	30 + 50 =
10 + 10 =	20 + 30 =	30 + 60 =

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30 + 70 =	50 + 40 =	80 + 10 =
40 + 0 =	50 + 50 =	80 + 20 =
40 + 10 =	60 + 0 =	90 + 0 =
40 + 20 =	60 + 10 =	90 + 10 =
40 + 30 =	60 + 20 =	100 + 0 =
40 + 40 =	60 + 30 =	+ =
40 + 50 =	60 + 40 =	+ =
40 + 60 =	70 + 0 =	+ =
50 + 0 =	70 + 10 =	+ =
50 + 10 =	70 + 20 =	+ =
50 + 20 =	70 + 30 =	+ =
50 + 30 =	80 + 0 =	+ =

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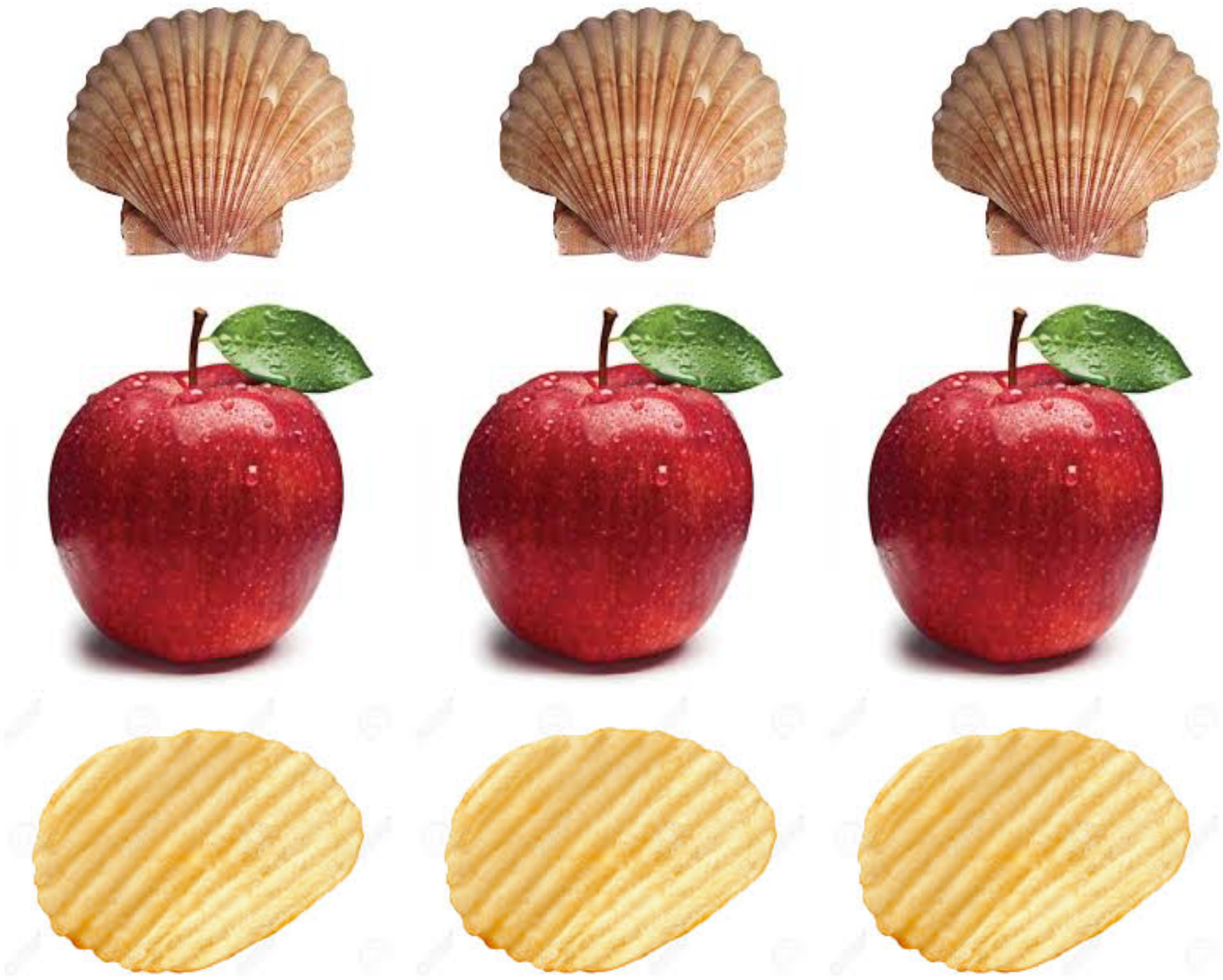
Problem to solve

In a special school assembly, long seats or benches are to be set out.

Each seat or bench seats 10 people.
There will be 3 seats or benches on one side of the hall and the same on the other side.

How many people in total will be seated?



School Hall

40 children

40 children

4 + 4 = 8

4 tens and 4 tens equals 8 tens

40 add 40 equals 80

40 + 40 = 80

44a **Subtracting to 10 Cards**

Print to A3 size

0 – 0 =	4 – 2 =	6 – 3 =
1 – 0 =	4 – 3 =	6 – 4 =
1 – 1 =	4 – 4 =	6 – 5 =
2 – 0 =	5 – 0 =	6 – 6 =
2 – 1 =	5 – 1 =	7 – 0 =
2 – 2 =	5 – 2 =	7 – 1 =
3 – 0 =	5 – 3 =	7 – 2 =
3 – 1 =	5 – 4 =	7 – 3 =
3 – 2 =	5 – 5 =	7 – 4 =
3 – 3 =	6 – 0 =	7 – 5 =
4 – 0 =	6 – 1 =	7 – 6 =
4 – 1 =	6 – 2 =	7 – 7 =

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8 – 0 =	9 – 3 =	10 – 5 =
8 – 1 =	9 – 4 =	10 – 6 =
8 – 2 =	9 – 5 =	10 – 7 =
8 – 3 =	9 – 6 =	10 – 8 =
8 – 4 =	9 – 7 =	10 – 9 =
8 – 5 =	9 – 8 =	10 – 10 =
8 – 6 =	9 – 9 =	□ – □ =
8 – 7 =	10 – 0 =	□ – □ =
8 – 8 =	10 – 1 =	□ – □ =
9 – 0 =	10 – 2 =	□ – □ =
9 – 1 =	10 – 3 =	□ – □ =
9 – 2 =	10 – 4 =	□ – □ =

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90 children in the hall.

60 children go back to their classes

9 – 6 = 3

90 – 60 – 30

What is always happening in the stories?