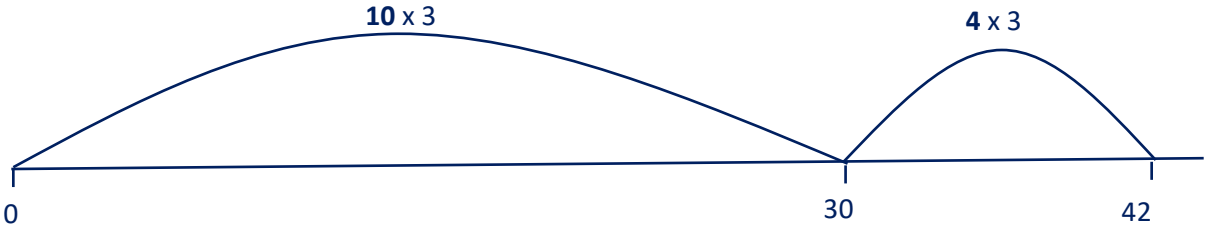
Chunking challenge

Activity 1

Focus of activity: Using chunking to divide, answers between 10 and 20, no remainders.

Working together: conceptual understanding

- Write 42 ÷ 3 and explain that this division is asking us to find how many groups of 3 there are in 42. Draw an empty number line from 0 to 42. *We could draw lots of hops of 3 to find how many 3s are in 42, but that would take a long time*. *Are there more than ten 3s in 42? How do you know?* Draw a big hop from 0 to 30 and labelling it (above the hop) 10 x 3. *We know that ten lots of 3 are 30; this big hop is instead of drawing ten little hops of 3.* Ask chn to work out how much is left (12). *How many 3s are in 12?* Draw a hop from 30 to 42 and label it 4 x 3. *So how many 3s are in 42? 10 and 4, 14.* Complete the division 42 ÷ 3 = 14.



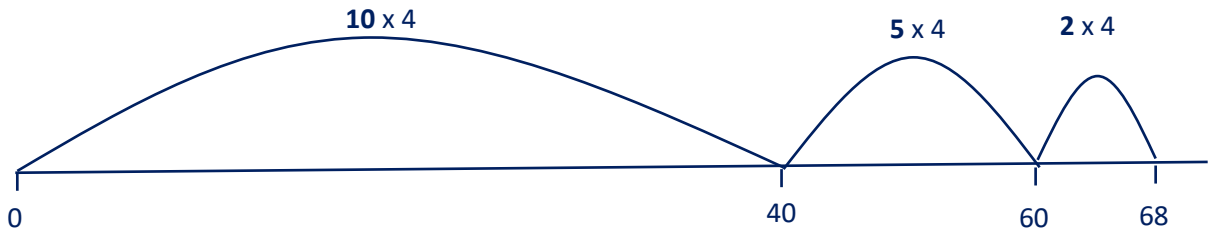
- Repeat for 64 ÷ 4, drawing a 0 to 64 line, then a hop from 0 to 40 labelled 10 x 4. Ask chn to work out the size of the gap between 40 and 64 and say how many 4s are in 24. Draw a hop from 40 to 64 labelled 6 x 4. Ask chn how many 4s are in 64 and complete the division.
- Ask chn to try using chunking on an ENL (empty number line) to work out 75 ÷ 5. They draw the number line jotting on their whiteboards. Help them with the first step. *What are ten 5s?*
- Ask chn to share their jottings. Talk through the stages if necessary.
- If they were unsure, ask them also to try 48 ÷ 3.

Up for a challenge?

How can we check our answers? Draw out using multiplication e.g. 14 x 3 to check 42 ÷ 3 = 14.

Now it's the children's turn:

- Chn practise using chunking on an ENL to divide by 3, 4 and 5. They choose a division, each work out the answer and then compare their jottings before choosing another. Some divisions have the first few steps drawn for them.
- Go round the group and mark their divisions as they do them, e.g. initially after two examples. If chn's times table knowledge is not secure they may need to draw more hops, e.g. when dividing 68 by 4, drawing a hop from 0 to 40 and seeing that there is 28 left, they may draw a hop of 5 x 4 (20) to reach 60, and then a hop of 2 x 4 (8) to 68. The more times tables facts they know by heart, the more efficient they will be at chunking.

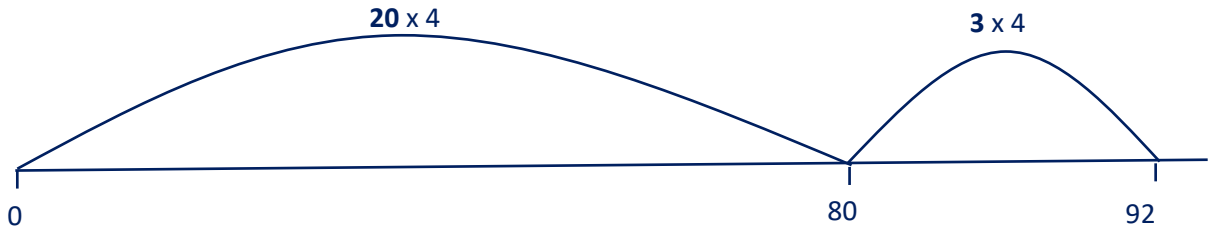


S-t-r-e-t-c-h:

If chn cope well, ask them to check some of their divisions with multiplication.

Things to remember

Remember that we don't need to draw little hops to divide. We can be more efficient than that! We can draw one big hop of 10 times the number we are dividing by, and then use our times tables to divide what is left. Explain that when dividing bigger numbers we will be able to draw hops of 20 times 3, 4 or 5! Give an example, e.g. 92 ÷ 4. *What is 10 times 4? 20 times 4? 92 is bigger than 80 so we know that there are more than twenty 4s in 92, so we can draw one big hop of 20 x 4.* Do this, then ask chn to work out how much is left still to be divided. Ask how many 4s are in 12, and then how many 4s are in 92.



You may want to add something that has emerged from the activity. This may refer to misconceptions or mistakes made.

Resources	**Outcomes**
• Large piece of paper to draw ENL jottings • Mini whiteboards and pens • Divisions questions cut up from child instructions • Glue stick so that chn can stick these into their books or onto paper	1. Chn can use chunking on the ENL to divide by 3, 4 and 5 (answers between 10 and 20, no remainders). 2. Chn begin to use multiplication to check their division.

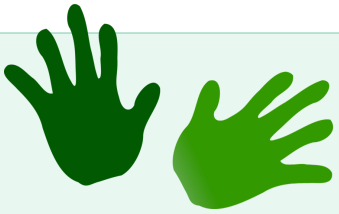
Chunking challenge

Activity 1

Work in pairs

Things you will need:

- A set of division questions
- A pencil
- Glue stick



What to do:

- Choose a division.

  Work out the answer separately, then compare your jottings.

  Did you get the same answer? If not, can you see where there is a mistake?

  Put it right!

  When you are sure you are right, stick the division into your book.

- Now choose another division.

  Each of you work out the answer. Share your jottings.

  When you are sure you have the right answer, stick the division into your book.

- How many divisions can you work out before it's time to stop?

S-t-r-e-t-c-h:

Check some of your divisions with multiplication.

Learning outcomes:

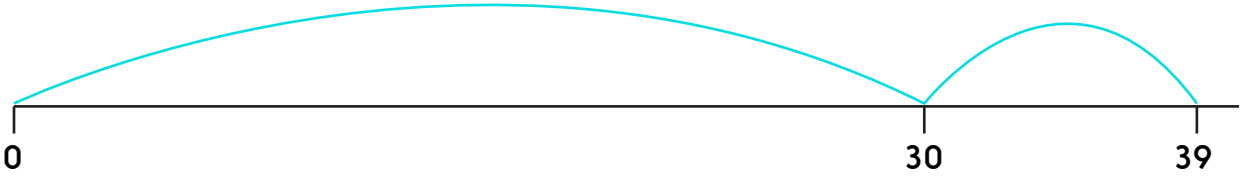
- I can use chunking on the ENL to divide by 3, 4, 5 (answer between 10 and 20, no remainders).
- I am beginning to use multiplication to check my divisions.

Chunking challenge

Activity 1

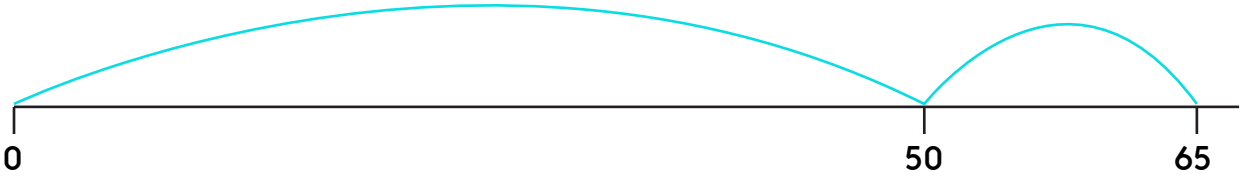
39 ÷ 3 =

10 x 3



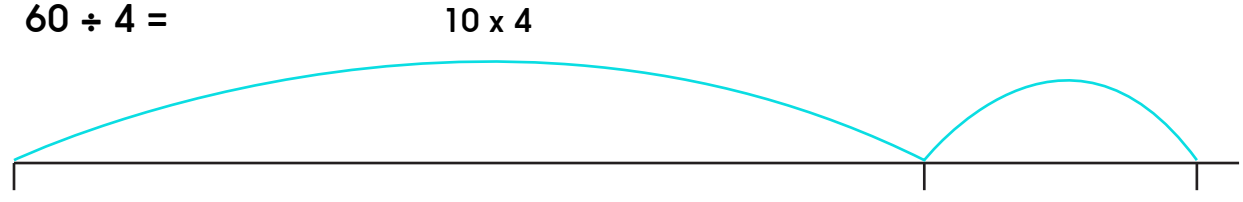
65 ÷ 5 =

10 x 5

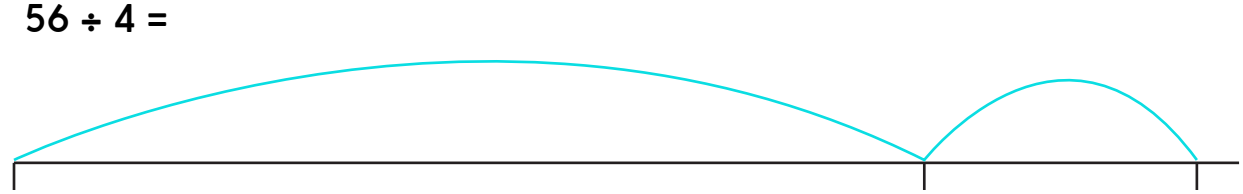


60 ÷ 4 =

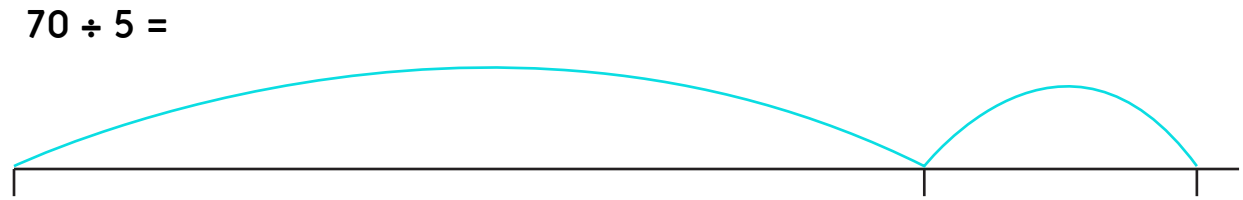
10 x 4



56 ÷ 4 =



70 ÷ 5 =



Chunking challenge

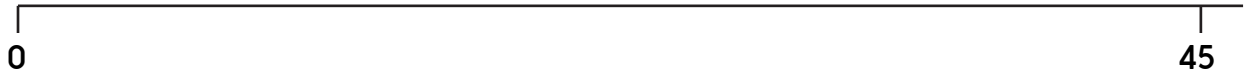
Activity 1

$80 \div 5 =$

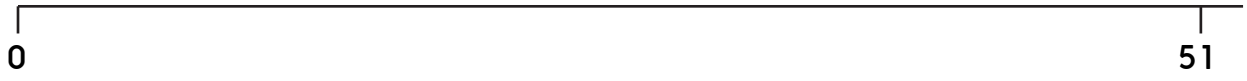
$68 \div 4 =$

$52 \div 4 =$

$45 \div 3 =$



$51 \div 3 =$



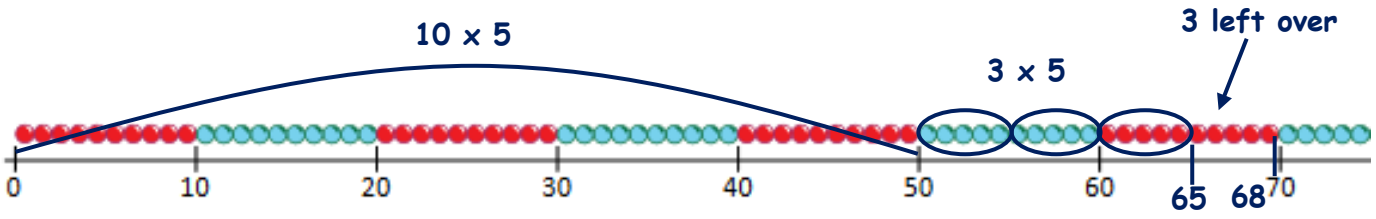
Left overs

Activity 2

Focus of activity: Using chunking to divide, answers between 10 and 20, with remainders.

Working together: conceptual understanding

- Write 68 ÷ 5 and ask chn how we can start to work out this division. Draw a line from 0 to 68, and a hop from 0 to 50 labelled 10 x 5. Ask chn to work out how much is left to divide. *How many 5s do you think are in 18?* Point out that 18 is not in the 5 times table! *This means we are going to have some left over, a remainder.* Show this on a beaded line, see below. Point out the 10 groups of 5, the 3 groups of 5, and the 3 left over which aren't enough to make another group of 5. Agree the answer as 13 r 3, reminding chn that r stands for remainder, the number left over.



- Complete the ENL jotting for 68 ÷ 5: draw a hop from 50 to 65 labelled 3 x 5, and then an arrow point to between 65 and 68 labelled r3. *If we had 68 oranges and they were to be packed in packs of 5 oranges, how many packs would we have? How many oranges wouldn't get packed?*
- Use the beaded line to help work out 47 ÷ 3, and then draw an ENL jotting to match. *If a toy factory was making trikes which have three wheels each, how many trikes could they build with 47 wheels? How many wheels would be left over?*
- Ask chn to use an ENL jotting to work out 53 ÷ 4.
- Share their jottings asking chn to talk through their steps.

Up for a challenge?

Write 57, 83, 65, 72 and 90. *Which of these numbers do you think will leave a remainder when divided by 5? Why?* Discuss how they are not multiples of 5, not in the 5 times table, so will leave some left over.

Now it's the children's turn:

- Chn work in pairs to choose a division to work out (some will give remainders but a few won't). They work out the answer individually then share their jottings with each other. Repeat at least four more times. They score 10 points for each remainder!
- Go round the group and mark their divisions as they do them, e.g. initially after two examples. If chn are struggling to draw their ENL jottings, suggest they use a beaded line instead.

S-t-r-e-t-c-h:

If chn cope well, ask them to choose a number between 50 and 100 which they think when divided by 5 will give a remainder. They work out the answer to check.

Things to remember

Remember that division sometimes leaves some left over. Then we need to find the number in our times tables which is just before the number we are trying to get to. Ask a volunteer to share how they worked out a division as a way of reinforcing the steps in chunking.

You may want to add something that has emerged from the activity. This may refer to misconceptions or mistakes made.

Resources	**Outcomes**
• A large 0 to 100 beaded line (e.g. copy the one in child instructions onto A3 paper) • 0 to 100 beaded lines (see child instructions) • Mini whiteboard and pens	1. Chn can use chunking on beaded lines or ENLs to divide by 3, 4, and 5 (answer between 10 and 20, with remainders). 2. Chn begin to spot when there will be a remainder.

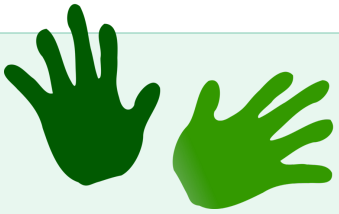
Left overs

Activity 2

Work in pairs

Things you will need:

- A pencil



What to do:

- Choose a division to work out - some will give remainders but a few won't!
- Work out the answer individually.
- Now share your jottings with each other.
- Repeat at least four more times.
- You score 10 points for each remainder!

57 ÷ 5

37 ÷ 3

53 ÷ 4

48 ÷ 4

90 ÷ 5

51 ÷ 4

41 ÷ 3

39 ÷ 3

63 ÷ 5

S-t-r-e-t-c-h:

Choose a number between 50 and 100 which you think will give a remainder when divided by 5. Work out the answer to check.

Learning outcomes:

- I can use chunking on beaded lines or ENLs to divide by 3, 4, 5 (answer between 10 and 20, with remainders).
- I am beginning to spot when there will be a remainder.

Left overs

Activity 2