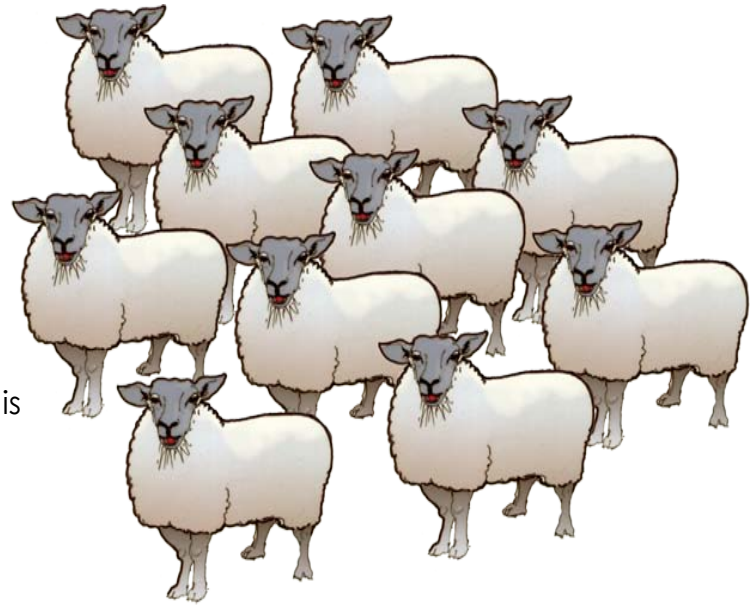
Lots of sheep



Information for teachers

Dividing numbers can appear very mechanical or meaningless to many students. If we bombard them with just numbers they start to believe that that is all that matters.

In real-life, division skills help us to solve problems. We don't need the number skills just for their own sake, we need them to be in a context that makes sense to us.

This division activity uses the sheep graphic from Maths Matters Resources as a stimulus for your students: http://mathsmattersresources.com/home/maths-graphics/place-value-graphics/

After a suitable 10 minutes of Mental Maths Warm-ups, tell them you are going to focus on division this week.

- What are 5 things the class can tell you about their current division skills? (check their understanding of the division sub-strand so you can plan for differentiation)
- What would you like to tell your class about the skills you would like them to develop next? (share the learning intentions in language suitable for your class).
- What are some examples of what you would like them to do by the end of this unit on division? (share the specific criteria for successful achievement of the learning intentions)

Next show the sheep graphic and ask everyone to tell a partner 3 things about it using their own division idea. (keep your maths introduction short and snappy)

e.g. How many sheep fit on the back of one truck? How many trucks will you need to transport 300 sheep?

Discuss several of their suggestions with the whole group. Are there any of these problems that they actually want to solve? Use the blank *Lots of sheep* worksheets to record these extra challenges (use a variety of student-centred resources)

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Explain that you will provide 4 different division sheep challenges to solve in pairs or small groups, but they can add extra challenges from their classmates too.(have high but realistic expectations for all students)

Ask them to try at least 2 division challenges. Who will they work with? What role will each person play? What equipment will they need? How will they record their actions? What other challenges can they suggest based in their discoveries? (cater for a range of blockages in the concept being explored)

Try to encourage your students to think for themselves. Try not to do all the organising for them. To think like a mathematician they need to work out what to do, in what order …

Give everyone about 20 minutes to work on their challenges. On a given signal, ask everyone to focus as a whole group and share some of their experiences (provide opportunities for students to share and reflect on strategies used and their own learnings)

To finish, ask everyone to tell the person next to them one thing they learnt about division today from this activity and one thing they still need to work on. (complete the session with an appropriate summary discussion and reflection)

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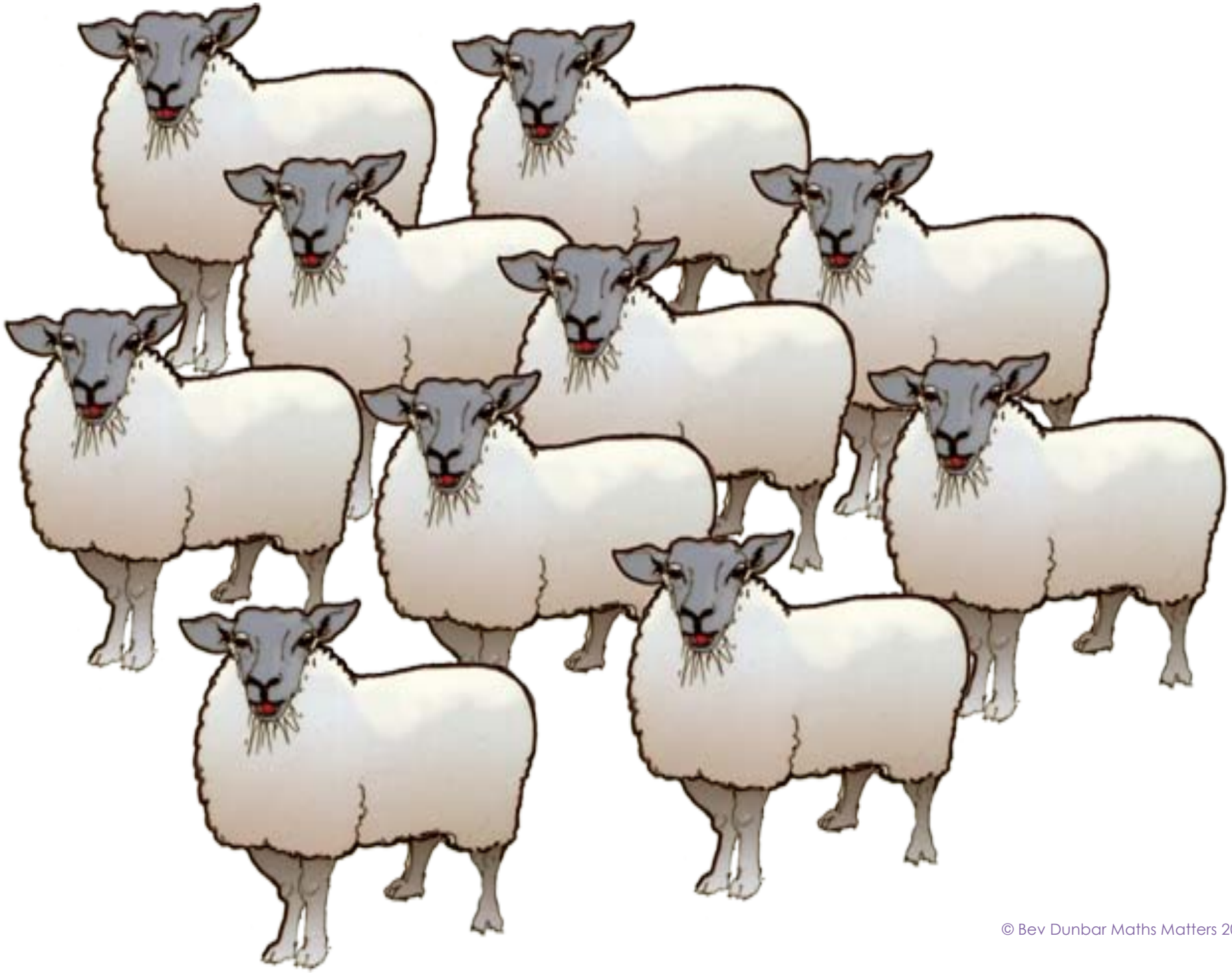

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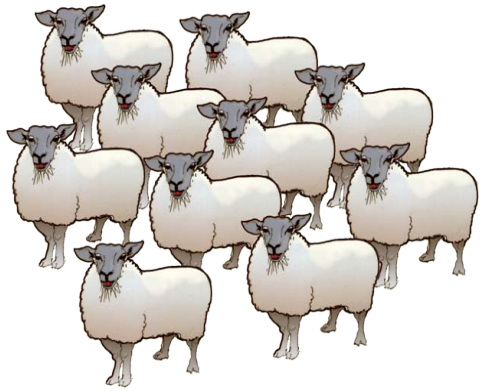
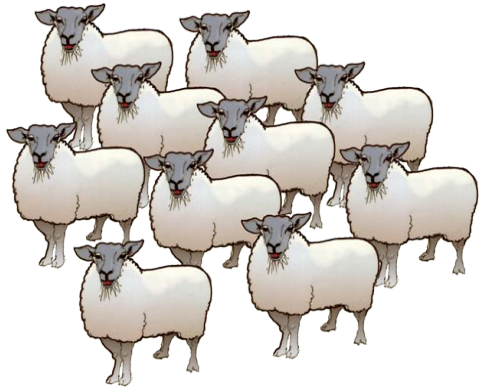
Lots of sheep
Challenge 1

A farmer owns 467 sheep.
Each paddock holds a maximum of 80 sheep.
How many sheep paddocks will this farmer need? Why?



Lots of sheep
Challenge 2

In 2011, there were 4.42 million people in New Zealand.
There were also 34 200 000 sheep. How many sheep were there for each person?



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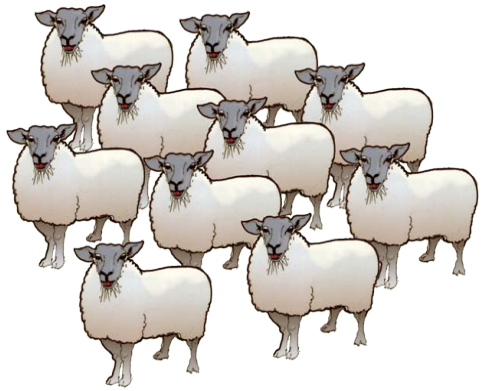
Lots of sheep
Challenge 3

An adult sheep drinks about 5 litres of water daily.
Farmer Flo has a sheep water trough that holds 300 litres.
She has 120 sheep. How many times will she need to fill the water trough each day?

Lots of sheep
Challenge 4

One adult sheep eats about 1200 g fodder each day.
You have a delivery of 650 kg of fodder to last 1 week.
How many sheep will this feed?



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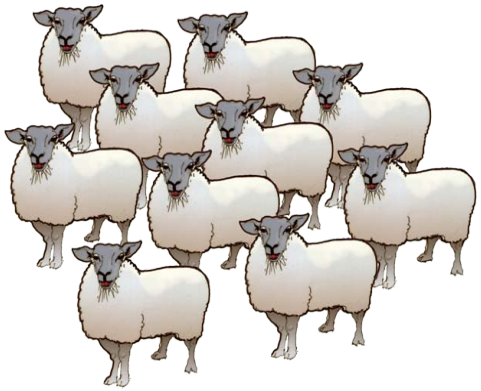
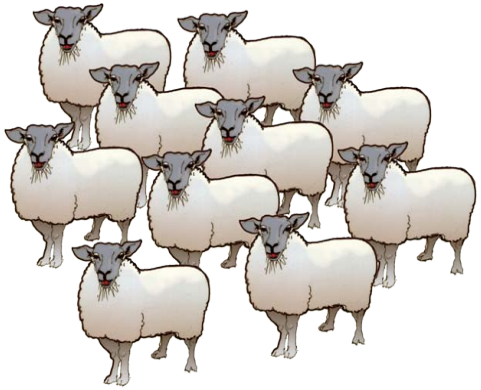
Lots of sheep
Challenge 5



Lots of sheep
Challenge 6



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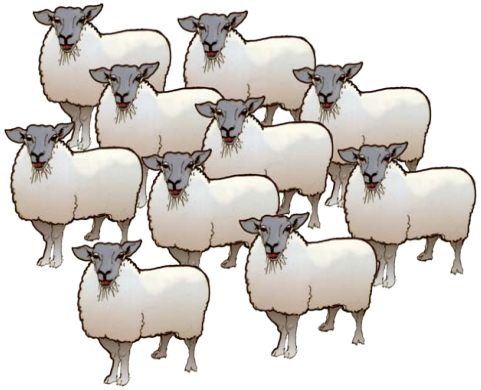
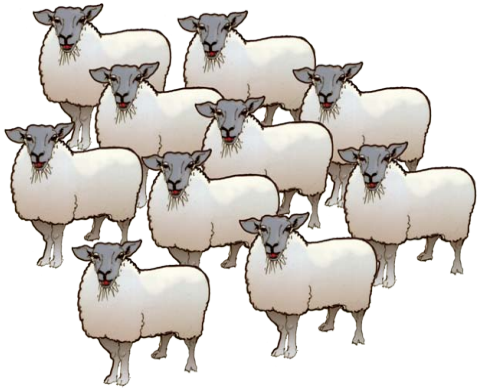
Lots of sheep
Challenge 7



Lots of sheep
Challenge 8



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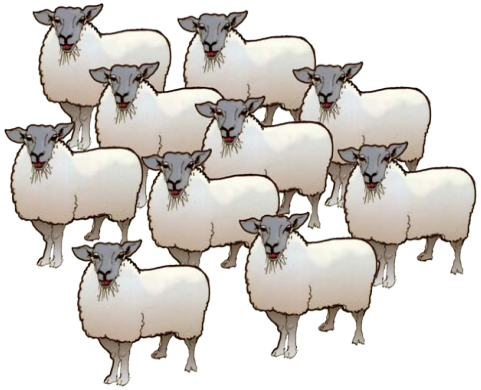
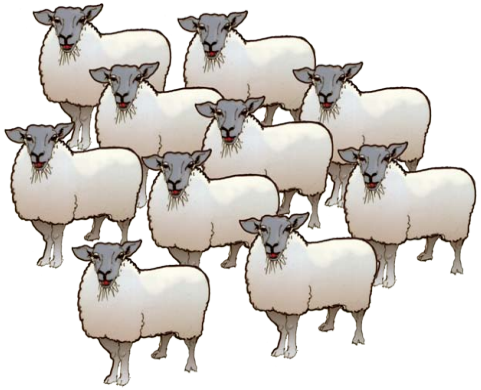
Lots of sheep
Challenge 9



Lots of sheep
Challenge 10



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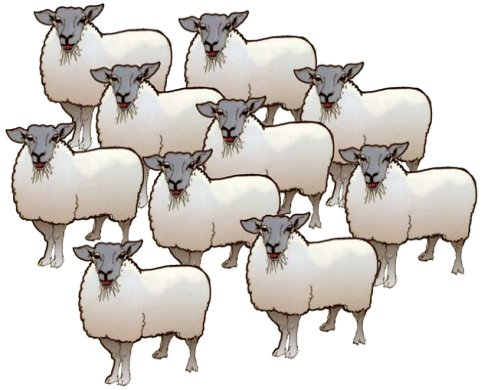
Lots of sheep



Answers

Challenge 1:

467 ÷ 80 = 5.8375
This is more than 5 paddocks. The farmer will need 6 paddocks to hold 467 sheep.
About 78 sheep will go in each paddock.

Challenge 2:

There were 4.42 million people.
There were also 34 200 000 sheep.
Keep all the numbers at the same place value.
34 200 000 = 34.2 million sheep
How many sheep were there for each person?
34.2 ÷ 4.42 = 7.738
That means there were almost 8 sheep for every human living in New Zealand in 2011.

Challenge 3:

300 ÷ 5 L = 60 so 60 sheep will drink about 300 litres of water in one day.
But Farmer Flo has 120 sheep. So she will need twice 300 L each day.
She will need to fill the water trough 2 times a day.

Challenge 4:

Make all the measurements the same unit so it is easier to compare and work with them.
1200 grams = 1.2 kg
Each sheep eats about 1.2 kg of fodder in one day.
There is 650 kg of fodder.
This has to last one week. There are 7 days in one week.
So how long will 650 kg last over 7 days?
650 kg ÷ 7 = 92.86 kg
You can feed the sheep 92.86 kg each day.
So how many sheep will that feed in one day?
Remember each sheep eats 1.2 kg each day.
92.86 ÷ 1.2 = 77.38
So you can feed about 77 sheep each day for a week if you only have 650 kg of fodder to last a week.

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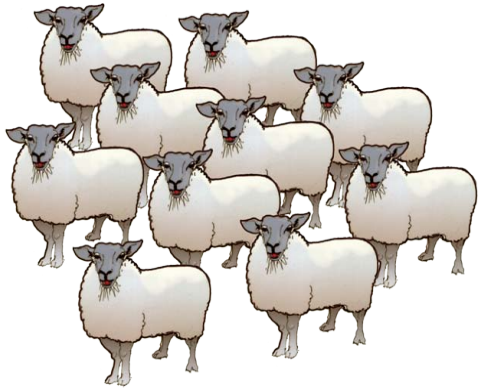
Lots of sheep

Answers



Challenge 5:

Challenge 6:

Challenge 7:

Challenge 8:

Challenge 9:

Challenge 10:

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