Chapter 9
Lesson 6

Using Subtraction to Divide

You will need
- number lines

GOAL

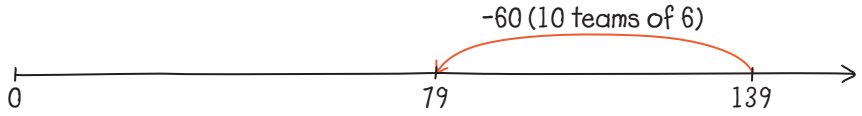
Divide by subtracting repeatedly.

139 sled dogs are available for an amateur sled dog race. The dogs will be divided into teams of 6.

How many teams of 6 can be made with 139 sled dogs?

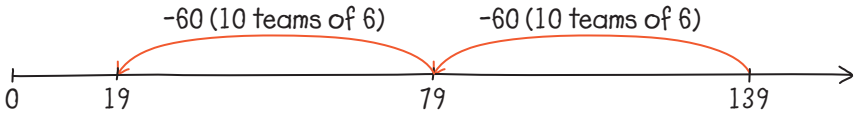
Cara's Division

I'll subtract 6s from 139 to see how many teams there will be. I'll start with 10 teams. I'll use 60 dogs for 10 teams, so I'll subtract 60 from 139.



$$\begin{array}{r|l} 6\overline{)139} & \\ -\ 60 & 10 \text{ teams} \\ \hline 79 & \end{array}$$

There are still a lot of dogs left, so I'll make another 10 teams with another 60 dogs.



$$\begin{array}{r|l} 6\overline{)139} & \\ -\ 60 & 10 \text{ teams} \\ \hline 79 & \\ -\ 60 & 10 \text{ teams} \\ \hline 19 & \end{array}$$

There are only 19 dogs left.

A. How many more teams of 6 dogs can be made with 19 dogs?

B. Continue Cara's recording to show the step in Part A.

C. How many teams of 6 dogs can be made with 139 dogs?

Reflecting

D. Cara started by subtracting the number of dogs in 10 teams. Why was this a good choice? Why could she have used 20 teams instead?

E. What does the remainder in the division represent?

Checking

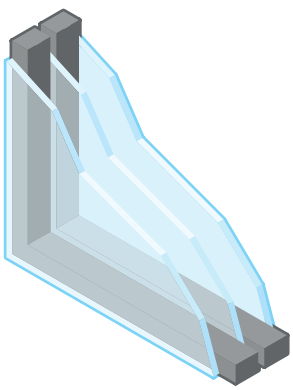
1. How many teams of 8 dogs can be made with 342 dogs? Will there be any extra dogs? Sketch a number line to show your thinking.

Practising

2. **a)** Estimate the number of teams of 5 dogs that can be made with 215 dogs.
b) Calculate the number of 5-dog teams.

3. Calculate each quotient. Draw a number line or record the division with numbers.

a) 248 ÷ 8
b) 546 ÷ 7
c) 537 ÷ 6
d) 333 ÷ 3
e) 811 ÷ 6
f) 933 ÷ 9



4. A window factory uses 3 panes of glass to make each window. How many windows can be made with 220 panes of glass? Will there be any extra panes?

5. Jessica has $150 in toonies. How many toonies does she have?

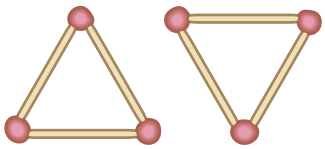
6. Four soapstone sculptures cost $128. How much does each sculpture cost if they all cost the same amount?

7. Chloe's mother worked 197 days this year.

a) If she worked 6 days a week, how many weeks did she work?

b) If she worked 5 days a week, how many weeks did she work?

8. Andrea has 310 toothpicks and 325 pieces of modelling clay. How many triangles can she make? How many pieces of modelling clay and how many toothpicks will she have left over?



9. 212 students sit at lunch tables in groups of 4. How many tables do they fill?

10. Alana divided 417 by 7 and got 102. How can she estimate to check her answer?

11. To divide 367 by 5, Jack subtracted one group of 5 at a time. How might he have used this subtraction strategy more efficiently?

12. How do you use both multiplication and subtraction in a division calculation? Use an example to explain.

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5)367
 - 5 | 1 group
 362
 - 5 | 1 group
 357
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