Discussion Problem
Divide by 4

National Curriculum Objectives:

Mathematics Year 3: (3C6) Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
Mathematics Year 3: (3C7) Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods
Mathematics Year 3: (3C8) Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which *n* objects are connect to *m* objects

About this resource:

This resource has been designed to provide pupils with more opportunities to enhance their reasoning and problem solving skills through more challenging problems. Pupils can work in pairs or small groups to discuss with each other about how best to tackle the problem, as there is often more than one answer or more than one way to work through the problem.

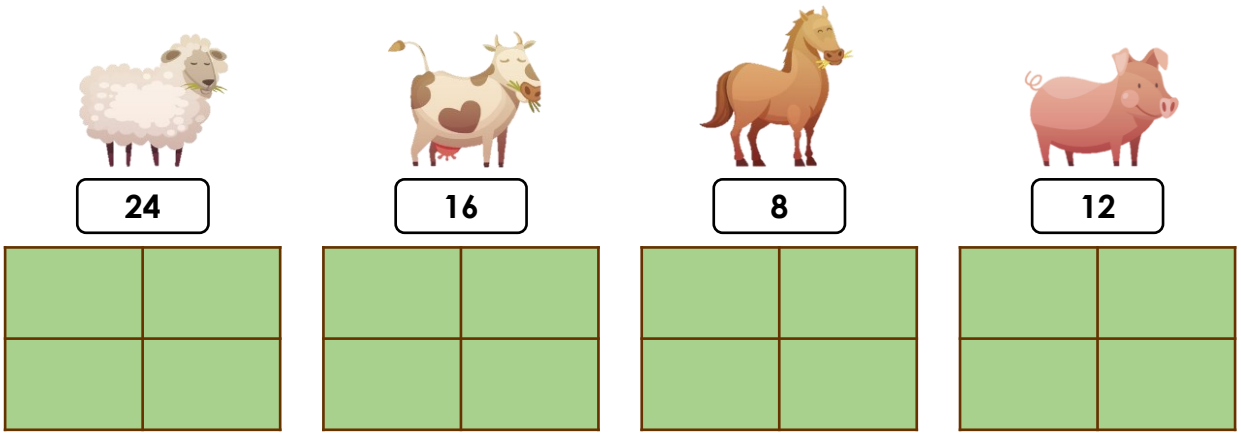
There may be various answers for each problem. Where this is the case, we have provided one example answer to guide discussion.

We recommend self or peer marking using the answer page provided to promote discussion and self-correction.

Divide by 4

1. Farmer James is organising his farm animals. He splits each set of animals into 4 pens.

Split each set of animals into 4 equal groups to fill all the pens.



A new group of animals arrive at the farm. He knows that there are either 16, 32 or 48 animals on the lorry. Explore how many animals could be added to each individual pen so that the groups remain equal.

DP

2. In a taxi queue there are between 36 and 48 people. The total number of people is a multiple of 4.

Taxis always carry 4 people at a time and 2 taxis arrive every 5 minutes.

Explore how many taxis it will take to clear the queue and how long will it take.

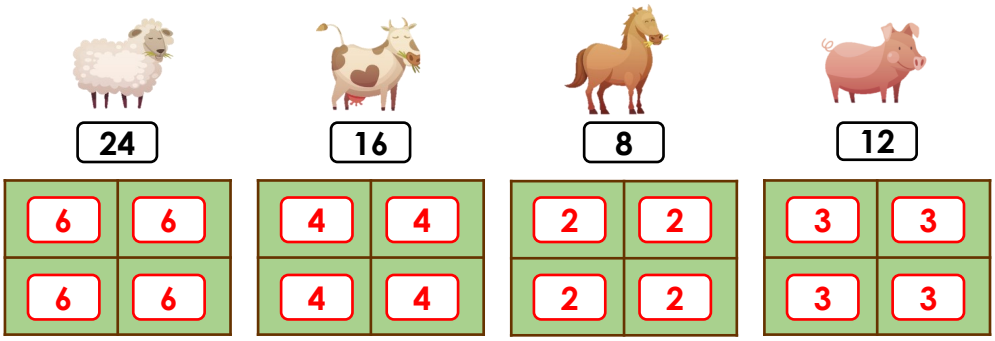
What if 4 taxis came every 5 minutes?

DP

Divide by 4

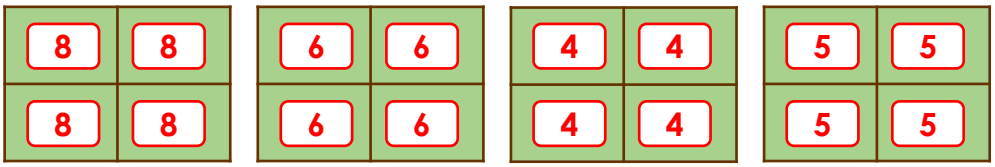
1. Farmer James is organising his farm animals. He splits each set of animals into 4 pens.

Split each set of animals into 4 equal groups to fill all the pens.



A new group of animals arrive at the farm. He knows that there are either 16, 32 or 48 animals on the lorry. Explore how many animals could be added to each individual pen so that the groups remain equal.

Various answers, for example for 32 animals: 32 ÷ 4 = 8. → 8 animals are added to each set → 2 animals are added to each individual pen.



DP

2. In a taxi queue there are between 36 and 48 people. The total number of people is a multiple of 4.

Taxis always carry 4 people at a time and 2 taxis arrive every 5 minutes.

Explore how many taxis it will take to clear the queue and how long will it take.

Various answers, for example: There could be 36 people in the queue, so they would need 9 taxis. The queue would clear in 25 minutes.

What if 4 taxis came every 5 minutes?

If 4 taxis came every 5 minutes, the queue would clear in 15 minutes.

DP