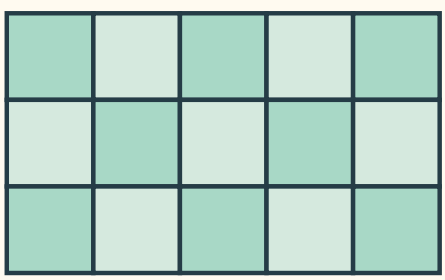
MATHS FIELD GUIDE · GRADE 3

Division, equal groups and remainders

OPENING PROBLEM

Fifteen counters, five per box. How many full boxes?



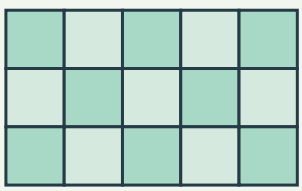
02 Decide what to do with the leftovers
03 Rules and worked cases
04 Seats for the team
05 Same total, two division questions
06 Check your reasoning

ILLUSTRATED PROBLEM SHEET

Decide what to do with the leftovers

Write total = group size × whole groups + remainder. The remainder is smaller than the group size.

1



Fifteen counters, five per box. How many full boxes?

Three, with zero spare.

2

$$17 = 3 \times 5 + 2$$

Seventeen counters, five per bag. What does the two count?

Two loose counters after three full bags.

3

$$29 = 4 \times 5 + 9$$
$$\downarrow$$
$$29 = 5 \times 5 + 4$$

Why is the second division answer finished?

Nine spare can fill another group. Four spare cannot fill a group of five.

4

23 people
↓
5 seats per car
↓
4 full cars + 3 people

How many cars are needed?

Five cars. Four is the number of full groups, but three passengers still need seats.

32 ÷ 6
5 remainder 2.

34 ÷ 6
5 remainder 4.

CHAPTER PROBLEM

Why is “17 divided by 5 gives 2 remainder 7” not finished?

Seven is enough to make another group of five. The finished result is three remainder two.

MATHS REFERENCE · GRADE 3

Division, equal groups and remainders

A remainder is what is left after making as many full equal groups as possible. The remainder must be smaller than one more full group.

Division still describes total, group size and number of groups. A remainder records an amount that has not fitted a full group.

Four cases to recognise

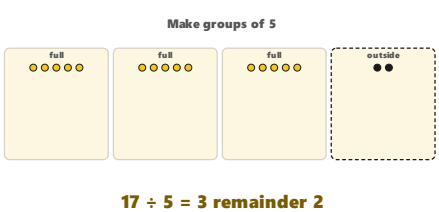
Situation	What to do and why
26 buttons in groups of four	Six groups use 24, leaving two.
26 riders, four seats per car	Six cars leave two riders. Seven cars carry everyone.
26 cm ribbon, four cm per bow	Only six whole bows fit. Two cm remains.
A pupil writes 29 ÷ 5 = 4 remainder 9	Regroup five of the nine. Correct result: five remainder four.

Read the model

Build the idea

Put seventeen counters into groups of five. Make one group, then another, then a third. Two counters remain.

We can write 17 = 3 × 5 + 2. The three full groups contain fifteen, and the two extra counters complete the total.



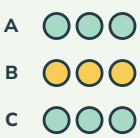
Division with a remainder

Why it works

If five or more counters remained, we could make another group. That is why a remainder when dividing by five must be below five.

The context decides what to do with a remainder. Leftover beads, spare seats and shared food need different interpretations.

dividend The total being divided.
divisor The group size or number of groups.
remainder The amount left after full groups are made.



Three bags, three marbles each. How many?

Three plus three plus three is nine.

WORKED INVESTIGATION

Seats for the team

Twenty-three players travel in cars with five passenger seats each. Four full cars carry twenty, leaving three players.

Look at this part	What it tells you
4 × 5	20 seats
23 – 20	3 players
One more car	everyone travels

Work it through

If the task is to pack 23 balls into full bags of five, report four full bags and three loose balls. The division is identical, but the question changes the answer.

Catch the mistake

A remainder of eight after making groups of five means another whole group can still be made.

Compare the cases

Follow an example

Seventeen children travel in cars with five child seats each. Three cars hold only fifteen children.

A fourth car is needed for the remaining two. The answer to the transport question is four cars, not three remainder two cars.

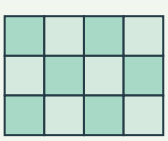
What changes? What stays true?

For sharing indivisible objects, the leftover amount may stay unshared. For sharing a divisible amount, later learning can express the share as a fraction.

Check the total by multiplying the full groups and then adding the remainder.

Change one condition

With 25 players the remainder is zero and exactly five cars suffice. With 26 players a sixth car is needed.



How does a rectangle show twelve?

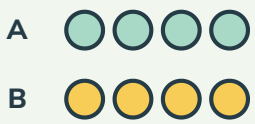
Three rows of four. You can also see four columns of three.

ILLUSTRATED PROBLEM SHEET

Same total, two division questions

Sharing tells how many each gets. Grouping tells how many groups fit.

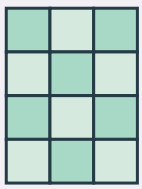
1



Share eight equally between two children. How many each?

Four. Each pair of turns gives both children one.

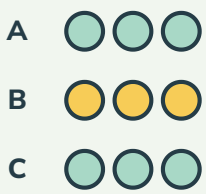
2



Twelve counters go into groups of three. How many groups?

Four complete rows.

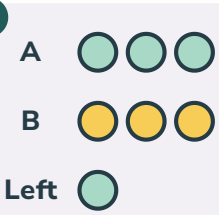
3



Nine are shared among three. How can you check?

Three groups of three rebuild nine.

4



Seven buttons go on cards, three to a card. What remains?

Two complete cards and one spare button.

Six shared among three
two per child.

Six put two per plate
three plates.

CHAPTER PROBLEM

Put 31 pupils into teams of 4. How many full teams can play, and how many pupils are left?

7 full teams use 28 pupils. There are 3 left, which is too few for one more full team.

QUESTION BANK · FOLD OR COVER THE RIGHT COLUMN

Check your reasoning

Try the problem	Solution and reasoning
01 A 23 cm ribbon makes 5 cm bows. How many complete bows?	Four complete bows, with 3 cm left. This time the leftover cannot make another bow.
02 Eight apples, two per plate. Is the answer two or four plates?	Four plates. The two tells how many go on each plate.
03 Thirty-one guests sit at tables of six. How many tables must be available?	Five tables seat 30 and leave one guest. A sixth table provides the extra seat.
04 A lift takes six children per trip. How many trips for 32?	Five trips take 30 and leave two. Six trips are needed.
05 Write 38 as groups of seven plus a remainder.	Five sevens make 35, leaving three. Three is smaller than seven.



Can you count these as three twos?

One group is short. There are five, one fewer than six.

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