

Lesson 27 **NUMBER****Division with remainders: a first look**

CURRICULUM ALIGNMENT

NUM.OPS.3

understand and apply flexibly the four operations; and the relationships between operations.

INTERACTIVES Equal Groups (Sharing) · challenge, display, explore

WHAT THIS LESSON TEACHES

When you share a quantity into equal groups as far as it will fairly go, the amount left over is the remainder. The remainder is always smaller than the number of groups.

→ 13 shared between 4 gives 3 each, remainder 1

→ Sharing into 5 groups can leave remainder 0, 1, 2, 3 or 4 only

MODEL THIS ON THE BOARD

SHARING 14 BUNS INTO 3 BAGS

- 1 Draw **14** dots for the buns on squared paper.
- 2 Share the dots one by one into **3** equal groups.
- 3 Each group gets **4** buns.
- 4 There is **2** left over that will not make another full group.
- 5 So we say 4 each, remainder **2**.

DISCUSSION STARTER

REFLECT When a fair share leaves some over, what could you do with the leftover?

LESSON ARC

Open with the 13-counter pile and four groups on the equal-groups interactive — pupils watch it deal one at a time and name the lonely leftover as the remainder. The worked examples pivot on one repeated check: can everyone get another one? Pupils deal three shares at the board in explore mode, then draw-and-ring two shares in their maths copy. Class Challenge builds to $29 \div 6$, remainder 5 — big-but-still-smaller-than-the-groups.

TEACHING MOVES

1. **Getting Started.** Put the 13-counter pile and four groups up before you say a word, then pose the puzzle. Give a full five seconds of quiet think-time, take two or three answers, and confirm nothing yet. If someone says 'cut the last one in four', park it warmly: 'today we keep whole counters.'
2. **Watch and Notice.** Deal each share one at a time and don't advance until the class has read it as '... each, remainder ...'. On $13 \div 4$ point to the single leftover and ask 'can everyone get another one?' — draw out that four groups need four counters. Land $20 \div 5$ deliberately: 'remainder zero means it shared out perfectly.'
3. **Try It Together.** Run the interactive in explore mode and re-key between each share — $19 \div 4$, reset, $15 \div 3$, reset, $21 \div 5$. Fresh pupil up each time; the rest predict the remainder before the last round is dealt. Watch for the pupil dealing on when only 2 counters remain across 4 groups — pause and ask the class 'can we give one to every group?'

4. **Work It in Your Copy.** Walk the room glancing for the ringed leftover and the '... each, remainder ...' wording. Any pupil whose leftover is as big as the group size hasn't finished dealing — prompt them to keep sharing rather than correcting the answer for them.
5. **Class Challenge.** Keep it brisk — pupils deal, hit Check, class reads the answer aloud, move on. The one to slow for is $29 \div 6$: 'is 5 still smaller than 6? Yes — so we cannot go round again.' Don't re-teach each share; this is consolidation.
6. **What Did We Notice?.** Listen for pupils arguing that a remainder of 6 could go round the 6 groups once more. Revoice the strong version: 'if the leftover is as big as the number of groups, we can always share it once more — so the remainder must be smaller.' Keep the divisor, not the starting pile, as the thing to compare against.

COMMON MISCONCEPTIONS

⚠ A pupil sharing into 4 groups leaves 2 counters and says 'remainder 2', but keeps trying to deal — or writes a remainder of 5 when sharing into 5 groups.

Freeze the deal and ask the class 'can we give one to EVERY group?' With 2 left across 4 groups the answer is no, so 2 stays. Rebuild on the counters and land the check: the leftover is always fewer than the number of groups.

⚠ After several leftovers, pupils start expecting a remainder every time and are thrown by $15 \div 3$ or $20 \div 5$ coming out even.

Deal the exact share slowly and name it plainly: 'remainder zero means it shared out perfectly — sometimes there's nothing left.' The clean shares are planted on purpose; don't skip past them.

⚠ A pupil compares the leftover to the starting pile ('1 is tiny next to 22, so it barely counts') rather than to the number of groups.

On $22 \div 3$, cover the pile and point only at the three groups. 'We check the leftover against the GROUPS, not the pile — is 1 smaller than 3?' Repeat the comparison against the divisor every time.

DIFFERENTIATION

EMERGING

- Stay with the smallest shares — $13 \div 4$ and $11 \div 2$ — and let these pupils deal the on-screen counters one at a time before any copybook drawing.
- In the maths copy, pre-draw the group circles so pupils only deal the dots into them, not build the structure.

DEVELOPING

- After the copybook shares, ask: 'what's the biggest remainder you could ever get sharing into 3 groups? Into 5?' Have them justify each answer.
- Give a missing-number share: 'something $\div 4$ gives 4 each, remainder 3 — what did we start with?'

PROFICIENT

- Between Class Challenge shares, narrate a harder variant aloud: 'sharing into 7 groups, what's the largest possible remainder, and how do you know it's 6 and not 7?' Ask them to prove it the way they'd explain it to a younger pupil.
- Pull them ahead into the Student Activity Book and let the rest of the class finish the board work.

✚ **Cross-curricular:** Tie to the Irish school day — share 29 children into PE teams of 6 and ask what to do with the leftover, linking remainders to a real fair-teams decision.

ANSWER KEY

Scaffold: visual check on the page

Q1: 2 each, remainder 3

Q2: 5 each, remainder 1

Q3: 3 in each, remainder 1

Spot: The remainder must always be smaller than the divisor (4). $4 \times 3 = 12$ and $14 - 12 = 2$, so $14 \div 4 = 3$ remainder 2.

EXTENSION SHEET · STRETCH ANSWERS

S1: 19 r 2

S2: 10 r 2

S3: 6 r 5

Investigation: What happens to the leftovers? — open-ended; scan pupils' working for valid solution paths rather than a single answer.