Lesson 42 NUMBER

Sharing a quantity in a given ratio

CURRICULUM ALIGNMENT

NUM.FRC.4b investigate proportionality and ratios of quantities (sets).

NUM.OPS.4 build upon, select and make use of a range of operation strategies.

INTERACTIVES Ratio Bars · challenge, display, explore

WHAT THIS LESSON TEACHES

To share in a ratio, **add the parts** to find how many shares there are, divide to find one share, then multiply.

€20 in 2 : 3

→ Share €20 as 2 : 3 → 5 parts → €4 each → **€8 and €12**.

MODEL THIS ON THE BOARD

SHARE €30 BETWEEN TWO PEOPLE IN THE RATIO 2 : 3

1. Add the parts: 2 + 3 = **5 shares**.
2. One share = €30 ÷ 5 = **€6**.
3. 2 × €6 = €12 and 3 × €6 = €18 → **€12 and €18** (check: €12 + €18 = €30).

LESSON ARC

Open with the €20 shared-in-3:1 puzzle and collect three hands-up guesses without confirming. Then build the ratio-bars interactive: add the parts, divide the total by total parts, build each amount — running 12 in 2:1, the €20 hook answered, a three-way share, and a 5:4 difference. Pupils take turns at the board for 18 in 4:5, then write the three-step layout in their copybooks. Class Challenge steps through four sharing problems ending on a 'how much more' subtraction.

TEACHING MOVES

1. **Getting Started.** Take exactly three hands-up answers on the €20 in 3:1 puzzle — no open call-outs, no confirming yet. Listen for whoever blurts '€15 and €5' by guessing versus a pupil who actually counts parts; you'll come back to both later.
2. **Watch and Notice.** Run the four examples one at a time on the ratio-bars interactive, chanting 'add the parts, find one part, build each amount' every single time. When you reach €20 in 3:1, pause and say 'this is our puzzle from the start' so the class connects it back. On the €90 in 5:4, name the extra subtraction step out loud (€50 − €40 = €10) — they meet it again in the Class Challenge.
3. **Try It Together.** Set the bars to 4 and 5, then the total to 18, and have the class call out '4 + 5 = 9 parts, 18 ÷ 9 = 2'. Circle the 9 on the board and ask 'why 9 and not 2?' — head off dividing by the two people before anyone writes it. Rotate two or three pupils to set and read the bars.
4. **Work It in Your Copy.** Pupils write 'total parts = ___, one part = ___' then each share for the three problems. Walk the room and praise the check-back line specifically — pupils who add 12 + 4 = 16 back to the total are building the habit you want.

5. **Class Challenge.** Step through the four problems briskly, bars then total, class confirming each answer before moving on — don't re-teach each one. On the final €90 in 5:4, read €50 and €40 off the bars yourself and compute €50 − €40 = €10 aloud, because the interactive won't do the subtraction.
6. **What Did We Notice?.** Ask why we add the parts before sharing. Re-voice a strong answer: 'so the parts tell us how many equal shares to cut the total into, no matter how many people there are.' Display-only — no written answers.

COMMON MISCONCEPTIONS

⚠ Pupils divide the total by the number of people instead of the number of parts — for 18 in 4:5 they do 18 ÷ 2 = 9 because two people are sharing.

Build the 4-bar and 5-bar on the interactive and count the segments aloud — nine parts, not two people. 'The people don't tell us how to cut; the parts do.' Have the pupil re-divide by 9.

⚠ On a 'how much more' question pupils give the larger share (€50) as the answer instead of the difference.

Reread the question and underline 'more'. On the bars, line €50 up against €40 and point to the bit that sticks out — that extra strip is the €10 answer, not the whole €50 bar.

DIFFERENTIATION

EMERGING

- Keep these pupils on two-part ratios with a total that divides cleanly (16 in 3:1) while the class moves to three-way shares; mirror each on the bars before they write.
- Pre-write the 'total parts = ___, one part = ___' frame in their copybook so they fill values rather than recall the layout.

DEVELOPING

- After the copybook three, ask: in 35 shared as 2:3, which person gets more and how many more — bring in the difference step early.
- Give a missing-total twist: if one part is 6 and the ratio is 2:3, what was the total shared?

PROFICIENT

- Once they finish the Class Challenge bank, narrate a harder variant from the front: share €72 in 1:3:5 and ask them to find the difference between the largest and smallest share, or pull them ahead into the Student Activity Book page.

Cross-curricular: Tie to baking in the home strand — share a 24-spoon flour-to-sugar mix in 2:1 and read off how many spoons of each.

ANSWER KEY

W1: $5 + 15$

W2: $8 + 16$

Q1: $12 + 60$

Q2: $720\ \text{g}$

Q3: €18 + €27 + €45

Q4: €24 + €36 + €60

EXTENSION SHEET · STRETCH ANSWERS

S1: €20 + €30 + €50

S2: $20 + 50$

S3: $5 + 10 + 20$

S4: $9 + 45$