

Fractions of a length and of a set

CURRICULUM ALIGNMENT

NUM.FRC.3b calculate the fraction of quantities and express in multiple ways.

INTERACTIVES [Fraction Strips · display, explore](#)

LESSON ARC

Open with the GAA-sliotars sharing puzzle, then bring up the fraction-strips interactive and split a whole strip into equal parts before shading — halves, quarters, thirds. Pivot on 'split into equal parts first, then take what you need', and show that sharing counters into equal groups is the same move. Pupils ring fractions of dot rows in their copy, then work counters and a 12 cm folding strip at their desks. The number-line is next lesson's bridge.

TEACHING MOVES

- Getting Started.** Pose the twelve-sliotars-between-two-teams question and hold five seconds of silent think-time before any hands. Take two or three first instincts without confirming — some will say six, some will count. Don't reveal the sharing method yet; you want the fair-share idea surfaced, not the answer.
- Watch and Notice.** On the fraction-strips interactive, point to the split lines BEFORE the shading every time — 'first we cut into equal parts, then we shade.' On the quarter, ask 'which is smaller, a half or a quarter — why?' Don't move on until the class can chorus the rule back: split into equal parts, then take the parts you want.
- Try It Together.** Send one pupil up per strip to shade — half, quarter, third, then two quarters — while the class agrees or corrects aloud. Each time ask 'are the parts equal? how do you know?' On the last strip, draw out that two quarters reaches the exact same edge as one half. Watch for shading-at-random instead of counting from the left.
- Ring the Fractions in Your Copy.** Pupils draw 8 dots and ring one half, then 6 dots and ring one third, writing the count beside each. Walk the room glancing for equal groups rather than any four dots circled. Prompt anyone stuck with 'share them into equal groups first' — this is practice, not marking.
- Class Challenge.** One pupil leads each of the four tasks at the board while every pupil works the same one with their own counters and 12 cm strip; the class confirms each answer before moving on. Keep it brisk — circulate and catch unequal groups on the spot rather than re-explaining. The fold task: one fold gives two 6 cm halves.
- What Did We Notice?.** Ask what was the same about taking one half of a length and one half of a set. Listen for the shared first step and revoice a strong answer: 'so whether it's a strip or a pile of counters, we make equal parts first, then take the ones we want.' Head off anyone treating the strip and the counters as two different jobs.

COMMON MISCONCEPTIONS

⚠ Pupils shade or ring at random — 'I coloured in three bits' — rather than counting equal parts from one end, so a third of a strip ends up as three uneven chunks.

Stop on the Try It Together strip and ask 'are those three parts the same size?' Slide the interactive's split lines so the parts are visibly equal, then have the pupil re-shade counting from the left. The bottom number names how many EQUAL parts.

⚠ Pupils treat 'fraction of a length' and 'fraction of a set' as two unrelated jobs and look lost when the lesson swaps strips for counters.

Lay one shaded half-strip above a pile of 10 counters shared into two groups of 5. Same move both times — split or share into equal parts first. Point back to this pairing during the maths-talk.

⚠ When sharing counters, pupils make unequal groups — say 4 and 6 for one half of 10 — and still call it 'a half'.

In the Class Challenge, have them physically deal the counters one-to-each-group like dealing cards until the piles match. A half only means a half when both groups are identical.

DIFFERENTIATION

EMERGING

- Stay on halves only — one half of a strip, one half of a set — while the class moves to thirds. Let the pupil deal counters one-at-a-time into two hoops drawn on paper.
- For the copybook ring, give 4 dots for one half so the equal groups are tiny and obvious before scaling up to 8.

DEVELOPING

- After the Class Challenge, ask for three quarters of 8 counters — same sharing, but take three groups instead of one.
- Pose a missing-whole twist: 'one third of my counters is 3 — how many did I start with?'

PROFICIENT

- Hand a fast finisher one half of 12 counters AND one quarter of 12, then ask which is bigger and by how many — explain using the equal-groups idea, not just the answers.
- Ask: could you find one half of a 9 cm strip by folding? What goes wrong, and what does that tell you about odd lengths? Let them try the fold before explaining.

↗ **Cross-curricular:** Tie to PE — share a set of 12 bibs equally between teams, then split the pitch length in half and in quarters to mark out a drill grid.

ANSWER KEY

a) Count the shaded parts out of the whole strip.

Q2: 3/11

b) The longer shaded bar is the bigger fraction.

Q3: 57

c) e.g. one half lines up with two quarters.

Q4: 12 parts ($4/5 = 12/15$)

Q1: 8

EXTENSION SHEET · STRETCH ANSWERS

S1: 5/7

S2: 32