

## Comparing two fractions

### CURRICULUM ALIGNMENT

NUM.FRC.4a

explore (model, compare and convert) the relationships between fractions, decimals and percentages.

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

### WHAT THIS LESSON TEACHES

To compare two fractions with **different denominators**, rewrite them both with the **same** denominator, then compare numerators.

→  $1/3$  vs  $2/5$ : rewrite as  $5/15$  and  $6/15$ .  $6/15$  is bigger, so  $2/5 > 1/3$ .

→  $3/4$  vs  $5/8$ : rewrite  $3/4$  as  $6/8$ .  $6/8 > 5/8$ , so  $3/4$  is bigger.

### LESSON ARC

Open with the board-game scenario —  $3/4$  versus  $5/6$  — and hold the question open. At the IWB, walk through four worked examples on the fraction-strips interactive: two needing common denominator, one settled by the half-benchmark, one by matching numerators. Pupils try  $5/8$  vs  $2/3$  together at the board, then work two common-denominator comparisons in their copybook. Class Challenge bank of five problems closes the round; Student Activity Book practice follows.

### TEACHING MOVES

- Getting Started.** Read the board-game scenario aloud and take three hands. Don't confirm any answer yet — say 'hold that thought, we'll come back to it with three different ways to settle it.' Keeps tension live for the demo.
- Watch and Notice.** Land the 'quickest case' line in 20 seconds — matching bottoms means just compare tops. Then trace each example on the fraction-strips interactive with your finger before computing. After each one, ask 'what was the strategy?' and take a couple of answers. The naming is what makes it stick.
- Try It Together.** Before any computing, run the spotting protocol aloud: 'do the tops match? Is one above half and one below?' Only when both shortcuts are ruled out do you reach for common denominator. A pupil builds  $15/24$  and  $16/24$  on the strips at the board; class confirms  $2/3$  wins.
- Class Challenge.** Pupils take turns at the board, build each pair on the strips, name the strategy, then tap Check. Keep it brisk — this is practice, not re-teaching. On  $2/7$  vs  $5/9$  resist a common denominator if someone suggests one; the half-split is the move. On  $4/9$  vs  $4/11$ , point to the matching tops first.
- What Did We Notice?.** Display-only — nobody writes. Push for the giveaway in each case: matching bottoms, half-split, matching tops. Close by revoicing: 'common denominator always works, but looking at the numbers first saves work.'

## COMMON MISCONCEPTIONS

⚠ Pupils see  $4/9$  vs  $4/11$  and call  $4/11$  the bigger fraction — they're carrying over 'bigger bottom number means bigger fraction' from whole-number thinking.

Stop and build both on the fraction-strips interactive side by side. Point to one piece of each: 'one ninth is a bigger slice than one eleventh. Four of the bigger slices beats four of the smaller slices.' Name the counter-intuitive bit out loud.

⚠ Pupils reach for common denominator on every pair, including  $2/7$  vs  $5/9$  where the half-benchmark settles it in two seconds.

Pause the pupil mid-computation. Cover the working with your hand and ask: 'where does  $2/7$  sit on the strip — above or below half? And  $5/9$ ?' Once both are placed relative to the halfway mark, the comparison is done. Revoice: 'the numbers told us we didn't need to compute.'

⚠ Pupils write  $3/4 = 9/12$  correctly but then write  $5/6 = 10/15$  — they multiply top and bottom by different numbers.

Build  $5/6$  on the strips and ask: 'how many twelfths fit into one sixth?' Two. So every sixth becomes two twelfths — multiply top and bottom by the same number. Have the pupil rewrite alongside the strip count.

## DIFFERENTIATION

### EMERGING

- Stay on matching-bottom pairs ( $5/12$  vs  $7/12$ ) and one half-benchmark pair ( $1/3$  vs  $4/5$ ) in the copybook moment — skip the common-denominator rewrites until the strategy-spotting is solid.
- Pre-build one of the two fractions on the strips at the board so the pupil only places the second and reads off the comparison.

### DEVELOPING

- After the copybook pair, ask: 'could you have settled  $2/3$  vs  $3/5$  with the half-benchmark? Why not?' Pushes pupils to articulate why one strategy fits and another doesn't.
- Direct fast finishers to the extension bank on their device while you circulate.

### PROFICIENT

- Pose: 'find a pair of fractions where common denominator, common numerator, and the half-benchmark all work — and a pair where only common denominator works.' Build the answers on the strips in the copybook.

- **Cross-curricular:** Tie to PE — after a relay, compare what fraction of the lap each pupil ran (e.g.  $3/8$  vs  $5/12$ ) and pick the fastest strategy to settle it.

## ANSWER KEY

a)  $1/3 < 2/5$  ( $1/3 \approx 0.33$ ,  $2/5 = 0.4$ ).

b)  $3/4 > 5/8$  ( $3/4 = 6/8 > 5/8$ ).

Q1:  $1/12 < 7/12 < 3/4$

Q2:  $1/5 < 3/4 < 7/8$

Q3:  $1/12 < 1/8 < 7/12 < 3/4$

Q4:  $1/5 < 3/4 < 7/8 < 11/12$

## EXTENSION SHEET · STRETCH ANSWERS

S1:  $1/8 < 2/5 < 7/10 < 9/10$

S2:  $2/5 < 7/8 < 11/12$

S3:  $2/5 < 7/10 < 9/10$