Lesson 28 NUMBER

Comparing and ordering fractions with unlike denominators

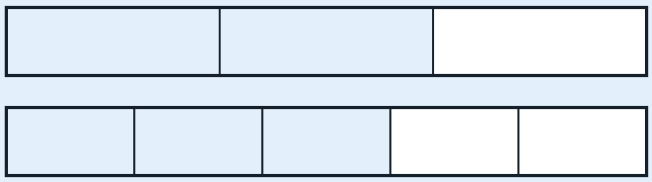
CURRICULUM ALIGNMENT

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 fractions with different bottoms, rewrite them with a **common denominator**, then compare the top numbers.



→ 2/3 vs 3/5 → 10/15 vs 9/15 → **2/3 is greater**.

→ A common denominator is a common multiple of the two bottoms.

MODEL THIS ON THE BOARD

WHICH IS GREATER, 2/3 OR 3/5?

1. Common denominator of 3 and 5 is **15**.
2. 2/3 = **10/15**; 3/5 = **9/15**.
3. 10/15 > 9/15, so **2/3 is greater**.

LESSON ARC

Write ⅔ and ¾ on the board and take three hands-up guesses before any renaming. On the fraction-strips interactive, rename both to twelfths (8/12 and 9/12) so the strips line up and the longer one settles it. Pupils rename three pairs in their copybook and add the < or > sign. The Class Challenge bank works sets of four fractions, agreeing the common denominator before ordering each set smallest to largest.

TEACHING MOVES

1. **Getting Started.** Write ⅔ and ¾ and take three hands-up answers, not call-outs. Listen for 'three-quarters is bigger because the numbers are bigger' and the better instinct 'we need the slices the same size first' — note both on the board but don't resolve it yet.
2. **Watch and Notice.** Rename ⅔ and ¾ to twelfths on the fraction-strips interactive and show 9/12 reaching past 8/12. Then do ⅚ vs 7/9 — flag that 7 looks bigger but ⅚ wins, and only renaming to eighteenths proves it. Re-voice the hook: 'the bigger top number was a fair clue, but only after we made the slices match.'
3. **Try It Together.** Call a pupil up to shade each of the three fractions, then ask the class 'what denominator lets us compare all three fairly?' before renaming. Push for reasoning: 'how do you know ½

beats ⅓ when 3 is the bigger number?' If a pupil orders by bottom number alone, pause and rename one pair to settle it.

4. **Compare the Pairs in Your Copy.** Walk the room checking pupils rename BOTH fractions before choosing the sign. Watch for the slip where they compare the renamed top numbers correctly but write the < or > against the wrong original fraction.
5. **Class Challenge.** Agree the printed common denominator with the class first, then send a pupil up to shade and order each set. Keep it brisk — by sets 3 and 4 the fractions sit close together, so head off eyeballing and use the Check button as confirmation, not a re-teach.
6. **What Did We Notice?.** Run the pizza-into-4 vs pizza-into-12 image and ask which slice they'd rather have. Re-voice a strong answer linking 'more pieces means smaller pieces' to why the bottom number alone can't tell you which fraction is bigger.

COMMON MISCONCEPTIONS

⚠ Pupils say '¾ is bigger than ⅚ because 6 and the bigger numbers are bigger' — they pick the fraction with the larger denominator or larger digits without renaming.

Rename both to a common denominator on the fraction-strips interactive and line the strips up. ⅚ becomes 15/18 and 7/9 becomes 14/18 — the strip length, not the original digits, decides it.

⚠ A pupil renames both fractions correctly, reads off which renamed numerator is larger, but writes the < or > sign the wrong way round against the original pair.

Have them point at the two shaded strips and say aloud 'this one reaches further, so it's bigger' before touching the sign. Match the sign's open end to the longer strip, then transfer it to the original fractions.

DIFFERENTIATION

EMERGING

- Stay with one renamed pair at a time on the interactive — shade both, line them up, decide, then move on, rather than juggling four fractions at once.
- Pre-name the common denominator for the copybook pairs so pupils put their effort into the renaming and the sign, not into hunting for the shared bottom number.

DEVELOPING

- After the copybook pairs, give ⅗ vs 5/8 where neither denominator is a multiple of the other — ask which common denominator works and why.
- Hand them a missing-number version: ⅔ = ?/12, then ?/2 < 7/12 — what could the top number be?

PROFICIENT

- While the class finishes the Class Challenge sets, ask: 'order ⅔, ¾ and ⅚ without renaming to a single common denominator — can you reason it from the size of one missing slice instead?' Have them jot the argument in their copy and explain it back.

Cross-curricular: Tie to home economics — share a tray-bake cut into different numbers of pieces and ask which cut gives the bigger slice.

ANSWER KEY

Warm-up: a) $1/4 > 1/12$ b) $1/5 > 1/8$ c) $1/2 > 1/5$ d) $1/12 < 1/5$

Q1: $2/5 < 7/8 < 11/12$

Q2: $2/5 < 7/10 < 9/10$

Q3: $1/5 < 3/4 < 7/8 < 11/12$

Q4: $1/8 < 2/5 < 7/10 < 9/10$

EXTENSION SHEET · STRETCH ANSWERS

S1: $1/12 < 1/8 < 7/12 < 3/4$

S2: $1/5 < 3/4 < 7/8$

S3: $1/12 < 7/12 < 3/4$