TEACHER RESOURCE BOOK · MATHS · 5TH CLASS

Lesson 33 NUMBER

Simplifying 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 **simplify** (or 'reduce') a fraction, divide the numerator and denominator by their **highest common factor**. The new fraction has the same value but uses smaller numbers.

→ **8/12 = 2/3** (divide top and bottom by 4).

→ **15/25 = 3/5** (divide top and bottom by 5).

LESSON ARC

Hook with 4/8 on the IWB — hands up for the simplest equivalent. Walk four worked examples on the fraction-strips interactive, locking the top strip and shrinking the bottom: 4/8→1/2, 6/9→2/3, 12/16→3/4, 15/20→3/4. Stack three strips together (eighths, quarters, halves) so shaded lengths line up. Pupils write the ÷n/n divider step in copies, then tackle the Class Challenge bank ending with 24/36.

TEACHING MOVES

1. **Getting Started.** Write 4/8 on the IWB before pupils settle. Take three hands — expect 2/4, 1/2, and 'a half'. Praise all as equivalent, then write 1/2 underneath and ask 'is that the simplest we can go?' Let the question hang.
2. **Watch and Notice.** Read the ÷4/4, ÷3/3 notation aloud as a single divider so pupils hear what they'll soon write. On 12/16, deliberately pause and pose 'could we have started smaller, with ÷2/2?' — show that ÷2/2 then ÷2/2 lands in the same place as one ÷4/4. On 15/20, name the surprise: different starting fractions, same simplest form.
3. **Try It Together.** Set the strips one at a time — 4/8, then 2/4, then 1/2 — and after each shading lands ask the watching class whether it 'lines up!' or needs a 'shift it' and take a quick answer. When all three align, revoice: 'three fractions, same shaded length — smallest numbers wins.' No marking this round.
4. **Work the divide-by step in your copy.** Walk the rows glancing at the divider notation. Either ÷4/4 as a single divider or separate top/bottom divisions is fine — what you're checking for is the same number dividing both. Pupils writing ÷2 only (forgetting the bottom) need a quick pointer back to the IWB heading.
5. **Class Challenge.** Pupils take turns at the board; keep it brisk and let the Check button do the confirming. Before each tap, ask the class to predict the divider and take a couple of answers. On 24/36, pause and ask 'what's the biggest number that divides both?' — 12 in one step, or repeated smaller divides; both are correct.
6. **What Did We Notice?.** Display-only. Listen for the greatest-common-factor idea in pupil words ('the biggest number that goes into both'). Revoice into the lesson's definition: 'when no number bigger than 1 divides both top and bottom, the fraction is in simplest form.' Reassure pupils who used repeated small divides — same answer, just longer.

COMMON MISCONCEPTIONS

⚠ Pupils divide only the top (or only the bottom): they write 6/8 ÷2 = 3/8 instead of 3/4.

⚠ Pupils stop simplifying too early — they write 12/16 ÷2/2 = 6/8 and underline 6/8 as the answer.

Slide the 6/8 strip under a halves strip on the IWB. Ask 'can we still divide top and bottom by the same number?' — yes, by 2 again. The simplest-form test is 'no number bigger than 1 divides both', not 'I divided once'.

⚠ Pupils try a divider that doesn't divide both numbers evenly — e.g. for 6/9 they try ÷2/2 and get stuck with 3/4.5.

Pause and ask 'does 2 divide into 9 evenly?' No. So 2 isn't a common factor of 6 and 9. Run through small numbers — 2? no. 3? yes. That's the divider. The divider must divide BOTH numbers exactly.

DIFFERENTIATION

EMERGING

- Stay with halving (÷2/2) only — 4/8, 6/8, 8/10 — so pupils get fluent with one divider before meeting ÷3/3 and ÷5/5.
- Pre-stack the strips on the IWB so pupils only have to read off the simpler fraction, not build it from scratch.

DEVELOPING

- After the copy practice, swap in 18/24 and ask: what's the biggest divider in one step? What if you only knew ÷2/2 and ÷3/3 — would two small steps still get you there?
- Give a missing-number variant: 12/16 = ?/4. Pupils work out the divider that fits.

PROFICIENT

- Direct fast finishers to the extension bank on their device while you circulate.
- Pose: 'find two different fractions, neither in simplest form, that share the simplest form 2/5'. Pupils justify in their copy.

Cross-curricular: Tie to PE — measure the long-jump pit in eighths of a metre, then write each pupil's jump in simplest form on the class results sheet.

ANSWER KEY

a) 8/12 = 2/3 (divide top and bottom by 4).

b) 6/10 = 3/5 (divide top and bottom by 2).

Q1: 21 (3/4 = 21/28)

Q2: 55 (11/12 = 55/60)

Q3: 18/24 = 3/4

Q4: 27/30 = 9/10

EXTENSION SHEET · STRETCH ANSWERS

S1: 15/20 = 3/4

S2: 72 (9/10 = 72/80)

S3: 15 (3/4 = 15/20)