

Equivalent fractions and simplest form

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

Fractions that name the same amount even though the top and bottom numbers look different. To simplify divide top and bottom by the same number until they cannot go any smaller.

→ $2/4$, $3/6$ and $4/8$ all show exactly half of a pizza.

→ $8/12$ simplifies to $2/3$ once you divide top and bottom by 4.

MODEL THIS ON THE BOARD

SIMPLIFY ON THE FRACTION STRIP

- 1 Start with $8/12$ and shade eight twelfths on the strip.
- 2 Divide top and bottom by 4 to reach the simplest form $2/3$.
- 3 Check the strip reaches the same length as two thirds.

LESSON ARC

Open with three pizza slices on the IWB — $2/4$, $3/6$, $4/8$ — and ask whether they're the same amount. Switch to the fraction-strips interactive and line all three up against $1/2$ to settle it. The worked examples pivot on dividing top and bottom by the biggest common factor in one step. Pupils write four simplifications in their copy, naming the dividing number each time. The Student Activity Book page on simplest form is their paper practice.

TEACHING MOVES

1. **Getting Started.** Show the three pizza slices and take three hands-up answers, not call-outs — let pupils argue both ways before any reveal. Listen for 'bigger numbers means more pizza' and head it off by reminding the class the whole pizza is the same size each time.
2. **Watch and Notice.** On the fraction-strips interactive, line $2/4$, $3/6$ and $4/8$ against $1/2$ one at a time, pointing at where the lengths match. For $8/12$, stress dividing by 4 — the biggest common factor — gets you to simplest form in one step rather than halving twice. For $15/20$, ask the class to name the dividing number before you say it.
3. **Try It Together.** Invite a pupil to build $4/8$ on the strips, then a second to drag a tidier strip beside it until the lengths match. Ask 'what common factor did you divide top and bottom by?' each time. Watch for pupils who halve only once when $9/12$ could go further — push them to check whether the new fraction still divides.
4. **Write the simplest form in your copy.** Pupils write each fraction, the dividing number, then the simplest form circled. Walk the room glancing for that middle number — if it's missing, the pupil has guessed the answer rather than divided. This is practice, not marking.
5. **Class Challenge.** Brisk turns at the board: $4/6$, $9/12$, then $16/24$. The trap is $16/24$ — a pupil who divides only by 2 lands on $8/12$, which still simplifies; ask 'is that as simple as it goes?' and let the class

spot 8 is the biggest common factor. Finish with the oral 3/5 stretch — take 6/10, 9/15, 12/20 and ask what each pupil multiplied by.

6. **What Did We Notice?** Listen for pupils saying the top and bottom share no common factor other than 1. Revoice a strong answer: 'so once there's no number that divides into both, we've reached the simplest form.' Head off the idea that a fraction is simplest just because it looks small.

COMMON MISCONCEPTIONS

⚠ Pupils look at 4/8 and 1/2 and say 4/8 is more pizza because '4 and 8 are bigger numbers'.

Line 4/8 and 1/2 up on the fraction-strips interactive so the lengths visibly match. Same length means same amount — the numbers describe how many slices, not how much pizza.

⚠ Pupils simplify 16/24 by dividing only by 2, write 8/12 and stop, thinking they're done.

Ask 'can 8 and 12 still be divided by the same number?' Let the class find 4. Then show that dividing 16/24 by 8 in one step lands straight on 2/3 — the biggest common factor saves a step.

⚠ Pupils think a fraction is in simplest form just because it looks small or has been divided once.

Hold up 8/12: small-looking but not simplest. Set the test out loud — a fraction is simplest only when no number except 1 divides into both top and bottom. Have a pupil check each fraction against that rule.

DIFFERENTIATION

EMERGING

- Stay with halving only — 4/6, 4/8, 6/8 — where pupils divide top and bottom by 2 once, before the class moves to fractions needing factors of 3 or 4.
- On the copybook page, pre-write the dividing number beside one fraction so the pupil completes the simplest form rather than inventing both.

DEVELOPING

- After the copybook moment, give a fraction that needs two passes (e.g. 12/16) and ask: which single number could you have divided by to do it in one step?
- Pose a missing-number version: $9/12 = ?/4$ — what did you divide the bottom by, and does the same number work on top?

PROFICIENT

- Once they finish the board work, ask: 'How could you tell, without simplifying, whether 14/21 is already in simplest form?' — push them to reason about shared factors before dividing.
- Narrate a harder variant of the oral stretch: name a fraction equal to 3/5 with a denominator over 50, and say what you multiplied by.

✓ **Cross-curricular:** Tie to home economics or cookery — halving a recipe that serves 8 down to serve 4, and spotting which ingredient fractions stay equivalent.

ANSWER KEY

Scaffold: visual check on the page

Q1: 2/5

Q2: 5/6

Q3: 5/7

Q4: 3/5

Q5: 3/7

Q6: 7/9

a) Always : They name the same amount after dividing by 4.

b) Sometimes : True for 3/4; false for 6/8, which simplifies to 3/4.

c) Always : Both equal one half after simplifying.

d) Never : It simplifies to 2/3 by dividing by 3.

EXTENSION SHEET · STRETCH ANSWERS

S1: $18/24 = 3/4$

S2: $15/20 = 3/4$

S3: $27/30 = 9/10$

S4: $72 (9/10 = 72/80)$

S5: $21 (3/4 = 21/28)$