

## Ordering simple fractions

### CURRICULUM ALIGNMENT

**NUM.FRC.3a** compare and express in equivalent terms; and order fractions.

**INTERACTIVES** Number Line · challenge, display, explore

### WHAT THIS LESSON TEACHES

When fractions share the same bottom number the whole is cut into equal pieces of one size. Order them by the top numbers: the smaller top number is the smaller fraction.

→  $1/5$ ,  $2/5$ ,  $4/5$  climb from least to most

→  $2/8$  is smaller than  $5/8$  because 2 is less than 5

### MODEL THIS ON THE BOARD

#### ORDER THE EIGHTHS

- 1 Look at the three strips: two eighths, five eighths and seven eighths.
- 2 All bottoms are 8 so every piece is the same size.
- 3 Compare only the top numbers: **2**, **5** and **7**.
- 4 2 is least, then 5, then 7 is most.
- 5 Smallest to biggest is therefore  $2/8$ ,  $5/8$ ,  $7/8$ .

### DISCUSSION STARTER

**REFLECT** When fractions share the same bottom number, how do you tell which is bigger?

### LESSON ARC

Open with the pre-marked eighths number-line interactive — three jumbled points — and ask which sits nearest 0 and nearest 1 before naming anything. Walk four lines (fifths, quarters, eighths, tenths) so pupils spot that matching bottom numbers mean you compare only the top numbers. Pupils draw a fifths line in their copy and order  $1/5$ ,  $2/5$ ,  $4/5$ . Class Challenge places one fraction at a time on a self-adjusting line, then the activity-book page follows.

### TEACHING MOVES

1. **Getting Started.** Give five seconds of silent think-time, then take three hands-up answers — not open call-outs. Listen for 'how far along the line' reasoning, not guessing, and revoice: 'so the one closest to 0 has the smallest top number.'
2. **Watch and Notice.** Work each of the four lines left to right. On the fifths line, hold out for a pupil to name the marker nearest 0 rather than reading it yourself. Pause on the quarters line and ask why  $2/4$  lands exactly halfway. On tenths, count the jumps from 0 aloud — the steps are fine and pupils misjudge them.
3. **Try It Together.** Rotate four pupils so a different one drags the markers each round; the class agrees or corrects out loud. After all three are placed, read the line left to right and ask 'is the order the same as if we'd just looked at the top numbers?' On eighths and tenths, get pupils counting jumps from 0 so they don't drop a marker on the wrong tick.

4. **Order the Fifths in Your Copy.** Walk the room glancing for roughly equal steps and each fraction on the right jump from 0. This is whole-class copybook practice, not marking — a quick sweep, not a red pen.
5. **Class Challenge.** Keep it brisk — pupils take turns placing one fraction, the class confirms, move on. Before each placement ask for a prediction: nearer 0, nearer 1, or the middle? Between placements keep the ordering thread live: 'is this one bigger or smaller than the last, and how can you tell from the line?'
6. **What Did We Notice?.** Listen for pupils naming the top number as the thing to compare. Revoice it, then push once: 'why does that trick stop working when the bottom numbers are different?' Head off the slip that a bigger bottom number always means a bigger fraction.

### COMMON MISCONCEPTIONS

⚠ Pupils order by the bottom number — they call  $\frac{1}{8}$  bigger than  $\frac{1}{5}$  because 'eight is more than five'. On the number-line interactive, place  $\frac{1}{8}$  and  $\frac{1}{5}$  on their own lines side by side and count jumps from 0. The eighth is a shorter jump. Say it plainly: more slices means smaller slices when the top number stays at one.

⚠ On the finer eighths and tenths lines, pupils drop a marker between ticks or one tick out, then read the wrong order off the line. Stop and have the pupil count the equal jumps aloud from 0 to the tick they want. Anchor at 0 every time rather than eyeballing from the middle of the line.

### DIFFERENTIATION

#### EMERGING

- Keep these pupils on the fifths and quarters lines while the class moves to eighths and tenths — fewer, wider steps are easier to count from 0.
- In the copybook moment, pre-draw the fifths line with the five ticks already marked so pupils only place the three fractions, not build the line.

#### DEVELOPING

- After the copybook fifths, add a fourth fraction to order (say  $\frac{3}{5}$ ) and ask where it slots in between the ones already placed.
- Give a missing-order puzzle: 'I placed three eighths and the order left to right is  $\frac{1}{8}$ , ?,  $\frac{7}{8}$  — what could the middle one be, and is there more than one answer?'

#### PROFICIENT

- During Class Challenge fast-finish, narrate a harder variant from the front: order  $\frac{2}{6}$ ,  $\frac{5}{6}$  and  $\frac{1}{6}$ , then ask whether  $\frac{3}{6}$  lands on the same spot as  $\frac{2}{4}$  from the quarters line — and how they could check on the number line.

➤ **Cross-curricular:** Tie to PE — mark 0 to 1 along the yard, and pupils stand on the fraction of the distance you call out, then order themselves smallest to biggest.

### ANSWER KEY

a)  $\frac{1}{5}$ ,  $\frac{2}{5}$ ,  $\frac{4}{5}$

b)  $\frac{1}{8}$ ,  $\frac{4}{8}$ ,  $\frac{6}{8}$

c)  $\frac{1}{4}$ ,  $\frac{2}{4}$ ,  $\frac{3}{4}$

Q1:  $\frac{1}{5}$ ,  $\frac{2}{5}$ ,  $\frac{4}{5}$

Q2:  $\frac{1}{4}$ ,  $\frac{2}{4}$ ,  $\frac{3}{4}$

Q3:  $\frac{1}{8}$

Q4:  $\frac{2}{8}$ ,  $\frac{5}{8}$ ,  $\frac{7}{8}$

Q5:  $\frac{1}{5}$ ,  $\frac{3}{5}$ ,  $\frac{4}{5}$

Q6:  $\frac{7}{8}$ ,  $\frac{5}{8}$ ,  $\frac{3}{8}$

a) **Always** : Same-size pieces mean more pieces always make a bigger amount.

b) **Always** : Matching bottoms keep every piece equal so only the count of pieces matters.

c) **Never** : Different counts of identical pieces can never be the same size.

d) **Never** : With the same bottom number, 2 parts are more than 1 part.

### EXTENSION SHEET · STRETCH ANSWERS

**Investigation:** Jumps on the fraction line — open-ended; scan pupils' working for valid solution paths rather than a single answer.