TEACHER RESOURCE BOOK · MATHS · 6TH CLASS

Lesson 3 NUMBER

Modelling thousandths with concrete and visual tools

CURRICULUM ALIGNMENT

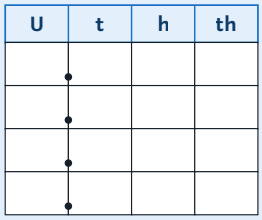
NUM.PVT.4 investigate how decimals and percentages (and fractions) can be compared, ordered and expressed in related terms.

NUM.FRC.4a explore (model, compare and convert) the relationships between fractions, decimals and percentages.

INTERACTIVES Place Value Blocks (Dienes) · challenge, display, explore

WHAT THIS LESSON TEACHES

A **thousandth** is one of **1000 equal parts**. Splitting a whole into ten, then ten again, then ten again gives tenths, hundredths and thousandths.



→ If a flat (10×10 square) is **1**, one small cube is **0.001**.

→ **1 mm** is **0.001** of a metre, because a metre is 1000 mm.

LESSON ARC

Display the relabelled place-value-blocks interactive as pupils settle — big cube is now 1, flat is 0.1 — and ask them to predict the small cube's value. Build 0.003, 0.034, 0.207 and 1.045 aloud, pivoting on the place-holder zero. Pupils sketch the four U/t/h/th columns and matching blocks in their copybook, then read decimals at the board in the Class Challenge. The relabel — small cube = one thousandth — is the idea carried into the next comparing-and-ordering lesson.

TEACHING MOVES

1. **Getting Started.** Have the relabelled blocks already on screen with the two anchors showing (big cube = 1, flat = 0.1). Take three hands-up readings for the little cube — not open call-outs — and resist confirming. This is a genuine prediction you test in Watch and Notice; holding the suspense is the whole point of the beat.
2. **Watch and Notice.** Build each decimal one at a time, pointing at the blocks. On 0.034, put the hundredths and thousandths blocks side by side and ask 'which is worth more?' — push for 'a hundredth, because a thousandth is ten times smaller.' On 0.207, name the hundredths zero as a place holder out loud before revealing the written form.
3. **Try It Together.** Before any pupil builds, ask the whole class which column the LAST digit lands in. Watch for the slip of dropping the thousandths digit into the tenths column. Revoice a strong answer: 'so the 7 in 0.207 sits in thousandths because there are no hundredths.' Talk it through — don't mark it.
4. **Sketch the Columns in Your Copy.** Walk the room glancing at column labels and whether each block sits in the right column. Zero in on the 0.207 sketch — is the hundredths column actually left empty, or has the pupil slid the 7 left to fill it? No marking; this is copybook practice.
5. **Class Challenge.** A pupil builds each decimal at the board; the class confirms before moving on. Before each build, ask the whole class 'which column is empty?' — this quick prompt keeps the back rows with

you on 0.306 and 1.009. Keep it brisk, use the on-screen Check tick as narration, don't re-explain each one.

6. **What Did We Notice?.** Listen for 'a thousandth is ten times smaller than a tenth' — that's the half-right answer to chase. Revoice the full picture: each step right makes the block ten times smaller, and a thousandth is three steps from the whole, so a hundred times smaller than a tenth. Display-only — no written answers.

COMMON MISCONCEPTIONS

⚠ Pupils read 0.207 and build the 7 in the tenths or hundredths column — they ignore the zero and slide the digits left to 'fill the gap'.

Stop and rebuild 0.207 next to 0.27 on the interactive. Same-looking digits, different blocks in different columns. Name the zero aloud as a place holder that holds the hundredths column open, then have the pupil read each column left to right.

⚠ Pupils say a thousandth is 'ten times smaller than a tenth' — they only count one step instead of two.

On the blocks, walk the steps physically: tenth to hundredth is one ten-times-smaller step, hundredth to thousandth is another. Two steps from the tenth, so a hundred times smaller. Count the steps out loud with the class as you point.

⚠ When the relabel changes, pupils still read the small cube as 'one' because that's what it meant in 4th-class whole-number work.

Put the big cube and small cube side by side and ask how many small cubes make the whole. If the big cube is now 1, the small cube can't also be 1 — name it as one thousandth and re-anchor against the flat (0.1) already on screen.

DIFFERENTIATION

EMERGING

- Stay in tenths and hundredths on the mat while the class moves to thousandths — pupils build 0.05 and 0.4 first, then join the thousandths builds once the two-column read is secure.
- Pre-label the U/t/h/th columns on the copybook page so pupils only place blocks, not draw the column structure as well.

DEVELOPING

- After the copybook page, give a missing-block puzzle: 'I built a decimal with one flat, no rods and six small cubes — what is it?' (0.106). Ask them to write it the ordinary way.
- Swap two digits in 1.045 to make 1.405 and ask which got bigger and by how many tenths.

PROFICIENT

- During the Class Challenge, narrate a harder variant for fast finishers: 'build the decimal that is one thousandth less than 0.306' — they reason it down to 0.305 and justify the column that changed.
- Pose: 'how many small cubes would you need to make one flat? And to make the big cube?' — let them reason 10 and 1000 from the relabel rather than being told.

Cross-curricular: Tie to the science strand — pupils measure a classroom object in metres and write the length to thousandths (e.g. 1.045 m), reading each column aloud.

ANSWER KEY

Warm-up: a) 9 (tenths digit of 2.9) b) 9 (tenths digit of 2.9) c) 5 (tenths digit of 8.5) d) 9 (tenths digit of 6.9)

Q1: $5.71 = 5 + 0.7 + 0.01$

Q2: $8.32 = 8 + 0.3 + 0.02$

Q3: between 3 and 4, closer to 3

Q4: between 3 and 4, closer to 3

EXTENSION SHEET · STRETCH ANSWERS

S1: between 4 and 5, closer to 4

S2: $6.96 = 6 + 0.9 + 0.06$

S3: $2.52 = 2 + 0.5 + 0.02$