TEACHER RESOURCE BOOK · MATHS · 6TH CLASS

Lesson 2 NUMBER

Place value of decimals to thousandths

CURRICULUM ALIGNMENT

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

INTERACTIVES Place Value Chart (Sliding Digits) · display, explore | Place Value Blocks (Dienes) · challenge

WHAT THIS LESSON TEACHES

After the decimal point the places are **tenths, hundredths, thousandths** — each one **ten times smaller** than the one before.

→ **0.486** = 4 tenths + 8 hundredths + 6 thousandths.

→ **0.7 = 0.70 = 0.700** — adding trailing zeros doesn't change the value.

LESSON ARC

Open with 0.001 on the board and the question of how many make a whole — hold the answer back, it's what the lesson resolves. Build 0.4, 0.27 then 0.305 on the place-value-chart interactive, pausing on the zero holding the hundredths. Pupils take turns building 0.6 to 1.205 at the board, then sketch U/t/h/th columns in their copy and underline the thousandths digit. The Class Challenge runs zero-tricky decimals up to 3.090.

TEACHING MOVES

1. **Getting Started.** Display 0.001 as pupils settle and give five seconds of silent think-time before two or three hands. If a pupil says 'a thousand', revoice it as a prediction to test later — do not confirm it. This is the question the whole lesson answers.
2. **Watch and Notice.** Build each number on the place-value-chart interactive one at a time. On 0.305 stop on the zero and ask 'what is the 0 holding for us?' before revealing it holds the hundredths place. Read 2.408 as 'two and four hundred and eight thousandths' so pupils hear the th column named aloud.
3. **Try It Together.** Send one pupil per number to the board to build 0.6, 0.83, 0.409, 1.205 on the chart while the class names each column aloud. Listen for 0.409 read as 'four hundred and nine' — revoice it as 'four tenths, no hundredths, nine thousandths'. This round is for talking it through, not marking.
4. **Sketch the columns in your copy.** Walk the room glancing at the column labels and the underlined thousandths digit. Look for pupils lining the decimal points up neatly column under column — that alignment is what stops the zeros catching them out.
5. **Class Challenge.** Keep the board work brisk — pupils build each target and the class confirms before moving on, no re-explaining. On 3.090 ask 'does this 0 change the value?' and bank the answers for the wrap rather than resolving it here.
6. **What Did We Notice?.** Listen for pupils naming the steady 'ten times smaller' step from tenths to hundredths to thousandths. Revoice a strong answer: 'so the columns shrink by ten each step — the mirror of how they grow by ten on the whole-number side.'

COMMON MISCONCEPTIONS

⚠ Pupils read 0.409 as 'four hundred and nine' or 'zero point four hundred and nine' — they treat the digits after the point like a whole number.

Rebuild 0.409 on the chart and have the pupil name each column in turn: four tenths, no hundredths, nine thousandths. Point to the empty hundredths column so they see why it is not 'forty-nine'.

⚠ Pupils drop the zero in 0.305, writing it as 0.35 because 'the zero is nothing'.

Build 0.305 and 0.35 side by side on the chart. The 5 lands in different columns — thousandths versus hundredths. Ask which is bigger and why, so they see the zero is holding the 5 in its correct place.

⚠ On 3.090 pupils argue the trailing zero changes the value or makes the number 'longer/bigger'.

Strip the trailing zero on the chart so it reads 3.09 — the 9 stays in the hundredths column either way. The trailing zero in the thousandths place holds nothing, so the value is unchanged.

DIFFERENTIATION

EMERGING

- Pre-label the U/t/h/th columns on the IWB chart so these pupils place digits without inventing the structure.
- Stay with two-place decimals (0.4, 0.27) in the copybook sketch while the class moves to three places; build the third place with them at the chart.

DEVELOPING

- After the copybook sketch, ask which is bigger, 0.305 or 0.35, and have them justify it by column rather than by length.
- Give a missing-digit target: 'build a decimal with 6 in the thousandths and nothing in the tenths' — what does it look like?

PROFICIENT

- Pose: write three different decimals that all have a 5 in the thousandths column, and order them smallest to largest — explain how the other columns decided the order.
- While the class checks the Class Challenge, narrate a harder variant aloud for fast finishers: how many thousandths are in 0.05? Let them reason it out before you confirm.

Cross-curricular: Tie to PE — time a short sprint on a stopwatch reading to thousandths of a second and read the figure aloud by its columns.

ANSWER KEY

a) 4.<u>5</u>82: 5 tenths

b) 3.6<u>7</u>1: 7 hundredths

c) 0.09<u>4</u>: 4 thousandths

d) <u>2</u>.458: 2 units

Q1: $2.52 = 2 + 0.5 + 0.02$

Q2: $6.96 = 6 + 0.9 + 0.06$

Q3: between 4 and 5, closer to 4

Q4: between 3 and 4, closer to 3

EXTENSION SHEET · STRETCH ANSWERS

S1: between 3 and 4, closer to 3

S2: $5.71 = 5 + 0.7 + 0.01$

S3: $8.32 = 8 + 0.3 + 0.02$