Lesson 1 NUMBER

What we already know — place value to millions

CURRICULUM ALIGNMENT

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

ALG.PRR.4a identify, explain and apply generalisations, including properties of operations, mathematical models and patterns.

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

WHAT THIS LESSON TEACHES

Each digit in a whole number sits in a **place**. Reading from the right: **Units**, **Tens**, **Hundreds**, **Thousands**. Each place is **ten times** the one to its right.

→ **3 482** → 3 thousands, 4 hundreds, 8 tens, 2 units.

→ **70 050** → 7 ten-thousands, 0 thousands, 0 hundreds, 5 tens, 0 units.

LESSON ARC

Open with the empty six-column frame already on the IWB and take three hands-up nominations of 'biggest number you've ever seen'. Walk four worked examples (4,073 → 9,999 → 12,508 → 405,612) with the class naming the column names aloud. Pupils take turns building five numbers at the board, then sketch the frame and the four worked numbers in their copybook. Class Challenge bank (3,072; 70,309; 105,008; 800,070) reruns at home.

TEACHING MOVES

1. **Getting Started.** Have the six-column frame on the IWB before pupils walk in. Take hands-up — don't take open call-outs or you'll lose the room. If someone offers a billion, write the numeral off to the side and say 'that one needs more columns than today's frame — we'll meet bigger frames later'. Don't dismiss it.
2. **Watch and Notice.** Between each of the four examples, point at the column headers and have the class name both the full name and abbreviation aloud: 'hundred-thousands, HTh; ten-thousands, TTh…'. On 9,999 stop before revealing 10,000 and ask 'what comes next?' — wait. That pause primes the TTh column better than any explanation.
3. **Try It Together.** Rotate five different pupils to the board across the round. After each build, give three seconds of silent thinking, then have the class read it back aloud. If a column is wrong, ask the watching class to name which column needs fixing — don't point yourself.
4. **Sketch the columns in your copy.** Walk the room glancing at two things: are the units digits anchored on the right edge, and is the placeholder zero in 4,073 actually written? Pupils who write 4_73 are the ones to catch now. Four minutes; don't extend.
5. **Class Challenge.** Keep this brisk — the same bank reruns as tonight's homework, so over-explaining now costs the consolidation later. Before the builder taps Check, they say the placeholder zeros out loud and the class agrees. Watch 800,070: pupils will try to drop the 8 into TTh. Revoice: 'eight hundred thousand, so the 8 lives in HTh.'
6. **What Did We Notice?.** Expect money first (100 cent in a euro), measurement next (10 mm in a cm). If neither comes, prompt directly. Revoice: 'every step left is ×10 — that's what base ten means.' Plant the seed: tomorrow the ×10 rule runs the other way.

COMMON MISCONCEPTIONS

⚠ Pupils write 4,073 as 4_73 — they drop the placeholder zero because 'there are no hundreds anyway'.

Stop the class and rebuild 4,073 with place-value blocks beside 473. Same digits, totally different number. Ask the pupil who dropped the zero to read both off the column mat. The zero isn't decoration — it's holding the 4 in the thousands column.

⚠ On 800,070 or 70,309, pupils drop the leading digit into the TTh column instead of HTh — they count digits from the left instead of placing from the right.

Rebuild from the right. Place the units digit first, then T, then H, working leftward. Revoice: 'eight hundred thousand — say it slowly — the 8 has to live in the HTh column'. Then have the class name the column names right-to-left as you point.

⚠ When sketching numbers with fewer digits than columns (e.g. 4,073 in a six-column frame), pupils let the digits drift left to fill the frame.

Show the difference on the IWB: drop 4,073 in left-aligned and read it — it becomes 407,300. The units digit must always sit on the right edge; empty columns sit on the left, not the right.

DIFFERENTIATION

EMERGING

- Pre-label the copybook frame for these pupils — give them a printed six-column strip to glue in so they only place digits, not invent the structure.
- Stay in four columns (Th, H, T, U) for the Try It Together builds with this group; only bring TTh and HTh into their copybook work once the four-column builds feel secure.

DEVELOPING

- After the Class Challenge, ask: in 800,070, which digit is worth ten times more than the 7? Then which is worth a hundred times more?
- Pose a missing-digit puzzle on a mini-build: 'I'm thinking of a number with a 3 in the HTh column and a 9 in the T column, and zeros everywhere else. Write it.'

PROFICIENT

- Direct fast finishers to the extension bank on their device while you circulate.
- Pose: 'how many ×10 steps from the U column to the HTh column? What about from the U column to a million?' Pupils work it out in their copybook and explain to a neighbour.

Cross-curricular: Tie to Geography — populations of Irish counties (Dublin ~1.45 million, Cork ~580,000, Galway ~277,000) all fit in today's frame. Pupils place one in the columns.

ANSWER KEY

a) Row 1 (3,072): Th = 3, H = 0, T = 7, U = 2 — HTh and TTh stay blank.

b) Row 2 (70,309): TTh = 7, Th = 0, H = 3, T = 0, U = 9 — HTh stays blank.

c) Row 3 (105,008): HTh = 1, TTh = 0, Th = 5, H = 0, T = 0, U = 8.

d) Row 4 (800,070): HTh = 8, TTh = 0, Th = 0, H = 0, T = 7, U = 0.

Q1: 485,708 = 400,000 + 80,000 + 5,000 + 700 + 8

Q2: 377,265 = 300,000 + 70,000 + 7,000 + 200 + 60 + 5

Q3: 200,000 (2 hundred thousands)

Q4: €4.8 (write both as cent: 460 cent vs 480 cent)