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

The value of a digit depends on which column it sits in. Each column to the left is worth ten times the column on its right.

→ In 70,309 the 7 means 7 ten-thousands.

→ In 4,073 the 7 means 7 tens.

MODEL THIS ON THE BOARD

PLACE 70,309 ON THE MAT

1. Write the columns HTh TTh Th H T U.
2. Put **7** in the TTh column (seven ten-thousands).
3. Put **0** in the Th column to hold the place.
4. Put **3** in the H column, **0** in the T column and **9** in the U column.
5. Read the number: seventy thousand three hundred and nine.

LESSON ARC

Open with a real number: the class guesses how many children were in 5th class in Ireland in 2025 to 2026, then 70,728, 545,726 and 1,025 go into a six-column place-value frame on the IWB. Build 4,073 then 9,999 with the place-value-blocks interactive, pivoting on what the zero holds and what rolls over at 9,999. Pupils build 3,072 through 800,070 together at the board, reading each aloud, then sketch the same four numbers into labelled columns in their copy. The Class Challenge pushes zero-heavy numbers like 700,005.

TEACHING MOVES

1. **Getting Started.** Take three hands-up guesses at how many children were in 5th class in Ireland in 2025 to 2026, then reveal 70,728 and write it into a six-column frame: what is the 0 doing? Add 545,726 (every primary pupil that year) and 1,025 (Ireland's biggest primary school) so the columns spread out, and leave the frame up for Watch and Notice.
2. **Watch and Notice.** Build from the smaller numbers up so the columns grow leftward. On 4,073 point straight at the zero in the hundreds column and ask what's holding that place. On 9,999 ask 'what comes next?', pause at the empty TTh column, then reveal the whole row rolling over into 10,000.
3. **Try It Together.** Call one number at a time — 3,072, 70,309, 105,008, 800,070 — and have the whole class read it aloud before the builder finishes. Watch for pupils who drop a zero and slide the other digits over; revoice 'the zero holds the column open and keeps every other digit in its place.'

4. **Sketch the Columns in Your Copy.** Walk the room glancing only at column labels and digit alignment — no marking. The thing to spot is a zero written in the wrong column or skipped entirely, which slides everything one place out.
5. **Class Challenge.** Keep it brisk — one quick 'what's tricky about this one?' per target, then a pupil builds and the class confirms. Don't re-teach each number; the zeros in 200,109 and 700,005 do the work. Let stronger pupils predict the column count before the build starts.
6. **What Did We Notice?** Run the 'what if it was five times?' prompt as open thinking, not a one-answer question. Listen for pupils naming the ten-times jump as the engine; revoice 'because each column is ten times the last, ten of one always rolls into one of the next.'

COMMON MISCONCEPTIONS

⚠ Reading 70,309 aloud, a pupil says 'seven thousand, three hundred and nine' — they skip over the empty thousands column the zero is holding open.

Rebuild 70,309 in the columns and point to each filled column in turn: seven ten-thousands, no thousands, three hundreds. Then build 7,309 beside it so the class sees how dropping the zero shrinks the whole number.

⚠ Building 105,008, a pupil places the digits 1, 5, 8 in adjacent columns and ignores the zeros, ending up with 158.

Stop and read the number aloud as a class first, then build it digit by digit against the called-out places. Put an empty block-space in each zero column so pupils see the gap is doing a job, not nothing.

DIFFERENTIATION

EMERGING

- Pre-label the six columns on the IWB and in copies so pupils only place digits, not invent the HTh–U structure.
- Keep these pupils on the four-digit numbers (3,072) while the class moves up to six digits; they build in the same blocks with you at the board.

DEVELOPING

- After the copybook four, ask which of their numbers is the largest and how they can tell from the columns alone, before reading any of them.
- Hand a missing-digit variant: 'I built a number with a 6 in TTh and a 4 in units and zeros everywhere else — what is it?'

PROFICIENT

- During the Class Challenge, have them predict the exact column count and which columns hold zeros before anyone builds, then justify the prediction aloud to the class.
- Pose: build the smallest and the largest six-digit number you can using the digits 7, 0, 0, 5 and two more zeros — explain why your largest is largest.

↗ **Cross-curricular:** Tie to Geography — look up the populations of a few Irish counties or cities (e.g. Cork, Galway) and slot each into the six-column frame.

ANSWER KEY

a) 003072

b) 070309

c) 105008

Q1: 3,000

Q2: 8,000

Q3: sixty thousand and thirty

Q4: 100,000

Q5: €700,000

a) Always : The 7 sits in the ten-thousands column so its value is 70,000.

b) Never : A zero only holds the place; it does not change the value of the other digits.

c) Always : Place value means each column multiplies the digit by a different power of ten.

d) Never : In 700,005 the 5 is in the units column so it is worth five ones.

EXTENSION SHEET · STRETCH ANSWERS

S1: 80 (8 tens)

S2: 20 (2 tens)

S3: 200,000 (2 hundred thousands)

S4: 50,000 (5 ten thousands)

S5: 4 (4 ones)