Lesson 7 NUMBER

Placing and estimating numbers on a number line

CURRICULUM ALIGNMENT

NUM.PVT.3 explore equivalent numerical expressions of numbers using the base ten system.

INTERACTIVES Number Line · challenge, display, explore

WHAT THIS LESSON TEACHES

A number line is a straight line where numbers sit in order. Use landmarks you already know, like the start, the middle and the end, to judge roughly where a number belongs.

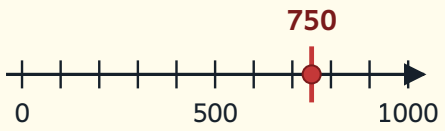
→ On a line from 0 to 1,000, the number 500 sits exactly in the middle.

→ 4,400 on a 0-to-6,000 line sits between the 4,000 and 5,000 marks, nearer 4,000.

MODEL THIS ON THE BOARD

PLACING 750 ON A 0–1,000 LINE

1. The line runs from **0** to **1,000**, so the middle landmark is **500**.
2. **750** is bigger than **500**, so it sits between **500** and **1,000**.
3. **750** is halfway from **500** to **1,000**, so mark it in the middle of that half.



DISCUSSION STARTER

REFLECT What landmarks on a number line help you place a number quickly?

LESSON ARC

Open with the 0-to-1,000 line showing only 0, 500 and 1,000, and get an instinct on where 750 lands. On the number-line interactive, walk three snapshots — 500 (halfway), 2,500 (half of 5,000), 7,000 (nearest-thousands) — to build two landmark strategies. Pupils sketch a 0-to-1,000 line in copybook and place 250, 640, 880. Class Challenge scales up to a 0-to-6,000 line for four placements including the near-half trap 2,950.

TEACHING MOVES

1. **Getting Started.** Show the 0-to-1,000 line with only 0, 500 and 1,000 marked. Give five seconds of silent think-time, then take three hands-up answers — not open call-outs. You only want the instinct 'past the middle, most of the way to the end'; don't confirm an exact spot yet.
2. **Watch and Notice.** Walk the three snapshots one at a time on the number-line interactive. On 500, ask 'what's the middle here?' and press that halfway-along means halfway between the end numbers. On 2,500, ask 'what's half of 5,000?' before revealing so pupils link the middle to a calculation. On 7,000, point to the 6,000 and 8,000 marks first — this is where nearest-thousands enters as a second landmark.
3. **Sketch the Line in Your Copy.** Pupils draw a 0-to-1,000 line marked in hundreds, then place 250, 640, 880. Walk the room watching for unevenly spaced hundreds — that throws every estimate off. Prompt each pupil to whisper which landmark helped. No marking; this is whole-class copybook practice.

4. **Try It Together.** Set the interactive to explore mode on the one 0-to-1,000 line. Call 300, 750, 480, 920 in turn; a pupil drags the marker and — before anyone checks — ask the class 'which landmark did you lean on?' 750 is the hook number returning, so let them recognise it. This round is for talking it through, not marking.
5. **Class Challenge.** Switch to the 0-to-6,000 line marked every thousand. Pupils take turns placing 1,500, 3,000, 4,400 then 2,950, naming the landmark aloud before pressing Check. Keep it brisk — confirm and move on rather than re-explaining. On 2,950, ask 'which landmark told you it's not quite the middle?'
6. **What Did We Notice?.** Ask how the landmark choice changes when the line runs to thousands. Revoice a strong answer: 'so when the number was near half you used the middle, but when it wasn't you found the closest thousand on either side.' Head off the idea that halfway is the only landmark that counts.

COMMON MISCONCEPTIONS

⚠ Pupils space the hundred marks unevenly on their sketched line — bunching 0–500 up and stretching 500–1,000 — so every estimate that follows lands in the wrong place.

Stop at the sketch step and hold up a printed number-line strip beside a lopsided one. Show that equal jumps must look equal. Have the pupil fold or eyeball the halfway point first, then fill hundreds outward from 0, 500 and 1,000.

⚠ Pupils treat 'the middle' as the only landmark, so on the 0-to-6,000 line they place 4,400 near the middle instead of using the 4,000 and 5,000 marks.

Point to the thousand marks already on the interactive and ask 'which two thousands is 4,400 caught between?' Let them slot it between 4,000 and 5,000, nearer 4,000. Name this the nearest-thousand landmark out loud so it sits alongside halfway.

⚠ Pupils place 2,950 exactly on the 3,000 halfway mark because it 'sounds like half'.

Ask 'is 2,950 more or less than 3,000?' Once they say less, nudge the marker a hair to the left of the middle. Reinforce that a landmark tells you which side of it a number sits, not just that it's close.

DIFFERENTIATION

EMERGING

- On the copybook line, pre-agree the halfway mark (500) with the class before pupils place anything, so they only judge left-or-right of the middle.
- Keep these pupils on the 0-to-1,000 line during the Class Challenge; place their numbers with the hundred marks already visible rather than the thousands-only scale.

DEVELOPING

- After 2,950, ask them to place 2,970 and say what's changed — same side of the middle, but even closer.
- Give a reverse task: 'the marker is two-thirds of the way along the 0-to-6,000 line — roughly what number is it?'

PROFICIENT

- Pose: 'give me a number on the 0-to-6,000 line where neither the middle nor a nearest-thousand is the obvious landmark — then explain what you'd use instead.' Let them justify in a copybook moment before sharing.
- Ahead of the group, ask them to sketch the same four placements on a line relabelled 0 to 60,000 and describe what stays the same.

↗ **Cross-curricular:** Tie to Geography: mark the heights of Irish mountains (Carrauntoohil 1,038 m, Lugnaquilla 925 m) on a 0-to-2,000 m line, using the middle mark (1,000 m) as the landmark: Carrauntoohil sits just past it and Lugnaquilla just before it.

ANSWER KEY

b) 500

Q1: just past the middle (at 550)

Q2: between 0 and the middle, nearer 0 (at 150)

Q3: just before 100 (near start)

Q4: almost at the end, just before 1,000

a) Always : 500 is half of 1,000, so it is always the midpoint.

b) Always : Any value above the middle landmark lies between 500 and 1,000.

c) Sometimes : Sometimes a nearest-thousand or nearest-hundred landmark helps more than the middle.

d) Never : 88 is far less than 500, so it always stays in the first small part near 0.

EXTENSION SHEET · STRETCH ANSWERS

S1: 1,070

S2: 2,600 just past the middle (2,500); 4,850 just before 5,000

S3: between 6,000 and 7,000, nearer 7,000

S4: 3,500; 3,400 is just before it

S5: 2,500