

Place value to 100: tens and units

CURRICULUM ALIGNMENT

NUM.PVT.3

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

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

WHAT THIS LESSON TEACHES

In a two-digit number the left-hand digit sits in the tens column and is worth that many tens; the right-hand digit sits in the units column and is worth that many single units. Each ten-rod equals ten units.

→ In 47 the 4 is in the tens column so it is worth 40.

→ In 47 the 7 is in the units column so it is worth 7.

MODEL THIS ON THE BOARD

BUILDING 47 ON THE PLACE-VALUE BOARD

- 1 Look at the number **47**.
- 2 The left digit **4** is in the tens place so place **4** ten-rods.
- 3 The right digit **7** is in the units place so place **7** unit cubes.
- 4 Check: four tens make 40 and seven units make 7, giving 47.

LESSON ARC

Open by asking how many pupils are in the room today, then read a suggested two-digit number aloud as so-many-tens-and-so-many-units. Move to the place-value-blocks interactive and narrate 24, 40, 7 and 86 — tens column first, then units, flagging the empty columns. Pupils take turns building numbers at the board, then sketch T and U columns in their copy for 24, 40, 7 and 86. Class Challenge builds 30, 47, 80, 99 together.

TEACHING MOVES

1. **Getting Started.** Give five seconds of quiet think-time before any hands go up, then take exactly three hands-up answers — no open call-outs. Write each two-digit number and read it aloud the long way: 'twenty-four is two tens and four units.'
2. **Watch and Notice.** On the place-value-blocks interactive, narrate each example tens-column-first, then units. On 40, pause for two or three hands before confirming, and point hard at the empty units column; on 7, point at the empty tens column. The empty columns are the whole point — don't rush past them.
3. **Try It Together.** Call a number under 100, send one pupil up to build it on the interactive, then ask the room 'how many tens and how many units?' before confirming. Rotate four pupils; between turns revoice an answer back ('so two tens and four units is twenty-four') to keep the watchers thinking.
4. **Sketch the Columns in Your Copy.** Walk the room glancing at the column labels and whether the 7 lands in units with nothing in tens. This is whole-class copybook practice, not marking — a quick glance per pupil, not a correction.
5. **Class Challenge.** Brisk board work — ask 'how many tens and how many units?' before each build, confirm, move on. Watch 99 closely: have the class count the nine rods aloud in tens (10, 20, 30...) so nobody loses count. Don't re-explain place value here — this is consolidation.

6. What Did We Notice?. Ask why the 4 in 47 and the 4 in 74 aren't worth the same. Listen for pupils naming the position as what decides value. Revoice a strong answer: 'same digit, different place, different value.'

COMMON MISCONCEPTIONS

⚠️ Asked to build 24, a pupil makes four ten-rods and two cubes — they grab blocks in the order they hear the digits and ignore which column comes first.

Stop and ask 'which column do we read first, left or right?' Rebuild left-to-right: two ten-rods in tens, then four cubes in units. Point at the T and U labels as you place each.

⚠️ A pupil reads 7 or 40 as needing 'something' in the empty column and tries to fill it, or says a two-digit number is always bigger than a one-digit one because it 'has more.'

Show 7 with an empty tens column on the interactive and say the empty column still holds a place — it just holds zero tens. For 40, point to the empty units column: no cubes, but the four tens still make forty.

DIFFERENTIATION

EMERGING

- Stay with numbers under 30 when this pupil's turn comes at the board, so the rod count stays small and countable.
- Pre-label the T and U columns on the interactive (or call them out as the pupil builds) so they place blocks rather than invent the structure.

DEVELOPING

- After the copybook sketch, ask: what's the biggest two-digit number you can build, and how many of each block does it take?
- Swap the digits — if 47 is four tens and seven units, what is 74? Build both side by side and compare.

PROFICIENT

- During Class Challenge, narrate a harder variant for fast finishers: 'I have six tens and no units — what number, and how many cubes would I add to reach 65?' Keep them building in their head while the board works.
- Pose: explain to someone in 1st class why the 4 in 47 isn't the same as the 4 in 74, using only the words tens and units.

✦ **Cross-curricular:** Tie to the data strand — pupils count items in two classroom collections (e.g. crayons, books) and write each tally as so many tens and units.

ANSWER KEY

a) T:2 U:4

b) T:4 U:7

c) T:8 U:6

Q1: 2 tens + 4 units

Q2: 4 tens + 0 units

Q3: 0 tens + 7 units

Q4: 3 tens + 0 units

Q5: 8 tens + 6 units

Q6: 4 units

Spot: Mia swapped the columns. The 4 sits in the tens place and the 2 sits in the units place, so $42 = 4 \text{ tens} + 2 \text{ units}$ ($40 + 2$).

EXTENSION SHEET · STRETCH ANSWERS

S1: $3,772 = 3,000 + 700 + 70 + 2$

S2: 2 (2 ones)

S3: 4,000 (4 thousands)