

Calculating with Number: Whole Numbers, Fractions, Decimals & Estimation

Explicit teaching — I Do (~15 min)

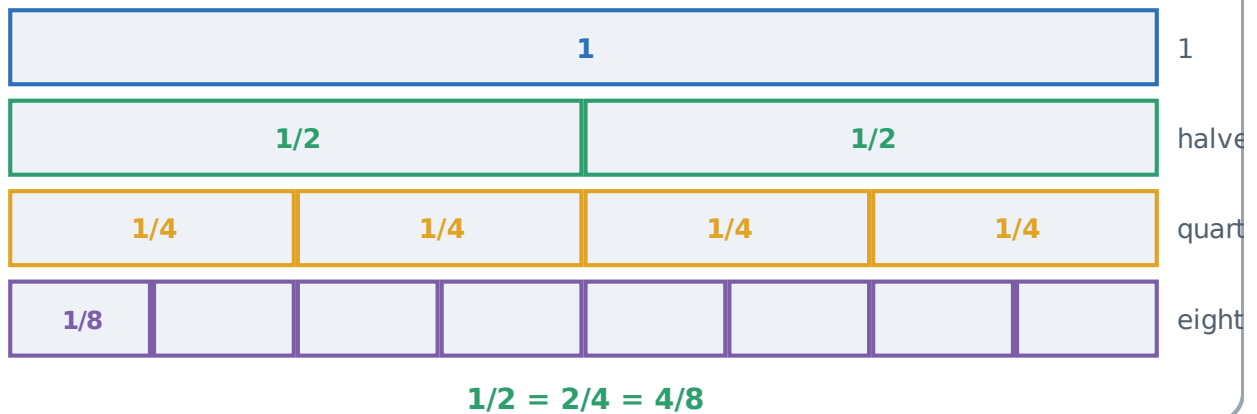
This component is broad (WA6MNAC1–C6). Treat the plan below as the opening lesson of a 3–4 lesson sub-sequence, focusing each day on one or two strategies.

1. Whole-number strategies [WA6MNAC1](#)

Worked example. $248 + 175$ by compensation: $250 + 175 = 425$, then subtract the extra 2 → 423. Choosing an efficient strategy depends on the numbers.

2. Fractions with related denominators [WA6MNAC2](#)

Fraction Wall (related denominators)



Rename to a common denominator using the wall before adding.

Model $\frac{1}{2} + \frac{1}{4}$ by converting $\frac{1}{2}$ to $\frac{2}{4}$, giving $\frac{3}{4}$.

3. Decimals [WA6MNAC3, C4](#)

Worked example. Add $3.45 + 2.8$ by aligning place value (write 2.8 as 2.80) → 6.25. Multiply $0.6 \times 4 = 2.4$. Show $2.5 \times 10 = 25$ — every digit shifts one place left.

4. Fraction/percentage of a quantity & 5. Estimation WA6MNAC5–C6

Worked example. 25% of $80 = \frac{1}{4} \times 80 = 20$. Estimate $312 \times 8 \approx 300 \times 8 = 2400$ and discuss whether the exact answer is reasonable.

Guided practice — We Do (~20 min)

1. **Strategy showcase.** Pose $397 + 248$. Collect three different strategies from the class and discuss which is most efficient and why.
2. **Fraction-wall work.** Together compute $\frac{2}{3} + \frac{1}{6}$ and $\frac{3}{4} - \frac{1}{2}$ using the wall.
3. **Decimal line-up.** Add $12.7 + 9.45$ with a place-value chart, then divide 45.0 by 10 and 100, watching the digits shift.
4. **Estimate then check.** Estimate five products or quotients, then check with exact calculation and compare.

Independent practice — You Do (~15 min)

Differentiated worksheet (sections map to *WA6MNAC1–C6*):

- solve whole-number problems, choosing and naming an efficient strategy;
- add and subtract fractions with related denominators;
- add/subtract decimals to 2 dp; multiply decimals by whole numbers; multiply/divide by 10, 100, 1000;
- find a fraction, decimal or percentage of a whole number;
- estimate first, then calculate, and comment on reasonableness.

Exit ticket. Estimate then calculate $4.75 + 3.6$, and find 50% of 64.

Teacher notes

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Curriculum links: WA6MNAC1–C6 (Calculating with number). This is the largest component in the unit — plan 3–4 sessions.

Materials: fraction walls, decimal MAB or grids, number expanders, calculators (for checking estimates only).

Suggested split

- **L4a** — whole-number strategies + estimation/rounding;
- **L4b** — fractions with related denominators;
- **L4c** — decimals (add/subtract, \times/\div by powers of 10);
- **L4d** — fraction/decimal/percentage of a quantity + consolidation.

Common misconceptions

- Misaligning decimal points when adding.
- "Multiplying always makes bigger" — challenge with $\times 0.1$.
- Adding numerators *and* denominators when adding fractions.
- Rounding the wrong digit.

Assessment for learning: require an estimate *before* each exact calculation so reasonableness becomes habitual.

Approaches

SCAFFOLDED · SCAFFOLDED / DIFFERENTIATED APPROACH

Scaffolded / differentiated approach

Support students who need more scaffolding and concrete grounding, while keeping the same core idea accessible to all.

Strategy menu card. Provide a card listing partitioning, compensation, jump and split so choosing a method is a visible decision, not guesswork.

Concrete defaults. Use fraction walls and decimal grids as the default representation before symbols, and keep them available throughout independent work.

Pre-aligned columns. Pre-fill place-value columns on the worksheet so decimals line up for students who transpose digits.

Low floor, high ceiling. Offer friendly single-step entry numbers and harder extension numbers on the same task, so every student works on the same idea at their level.

Pair estimation with every exact answer using a sentence stem: "My estimate is ___ because ___; my exact answer is ___; this is reasonable because ___."

Peer-Tutoring Game: Calculation Stations & “Teach Your Partner”

This approach pairs a confident student with a developing one and runs a rotating set of game-like stations. Explaining a method out loud is one of the strongest ways to deepen understanding, so the “tutor” learns as much as the “tutee”.

Station 1 — Fraction Match (cards). Players race to pair equivalent cards ($\frac{1}{2}$, $\frac{4}{8}$, 0.5 , 50%). The tutor checks each match and asks “how do you know?” before a point is scored.

Station 2 — Target 100. Roll three dice and combine the numbers with any operations to land as close to 100 as possible. Partners must agree the order of operations before writing the score.

Station 3 — Teach Your Partner. The tutor demonstrates one written method (e.g. short multiplication), then the tutee teaches it back. Only when the tutee can explain it does the pair move on.

Station 4 — Error Hunt. Pairs receive worked solutions containing one mistake each (e.g. ignoring order of operations) and earn points for finding and correcting them.

Why it works. Rotating stations keep energy high and let the teacher target support. The requirement to *explain and teach back* turns games into genuine reasoning practice and surfaces misconceptions quickly.