

Teaching guidance & background

What it looks like:

Counting collections accurately

- I can count each object one time.
- I say one number for each object.
- The last number I say tells how many there are.
- I counted ___ objects.

Recognising small quantities quickly without counting

- I know it is ___ without counting.
- I saw ___ dots.
- I recognised the pattern.

Recognising groups within larger quantities (groupitising)

- I saw ___ and ___, so it makes ___.
- I saw two groups that make ___.
- I used groups to help me work it out.

Matching quantities to numerals

- This quantity matches numeral ___.
- I counted ___, so I write ___.
- I can see ___, so I write ___.

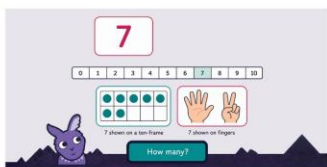
Explaining how they know the quantity

- I counted each object.
- I recognised the pattern.
- I used groups to help me work it out.
- I checked by counting.

Why does it matter?

Counting, subitising, and groupitising are foundational early numeracy competencies that support later mathematics achievement in the following ways:

- Counting is an essential route to quantifying collections. Children need to learn to count each object once, use the number sequence accurately, and understand that the last number counted tells how many there are.
- Subitising and groupitising help children quantify more efficiently. Children can often recognise small quantities quickly without counting and, for larger quantities, use groups or familiar patterns to work out "how many."
- Children need flexible ways to quantify. Ongoing reliance on counting-by-ones, especially when more efficient strategies are available, may indicate difficulty with later mathematics learning. However, counting remains important for checking, for unfamiliar arrangements, and for quantities that cannot be recognised instantly.
- Developing fluency with counting, subitising, and groupitising frees working memory for more complex mathematical thinking. When children can quantify efficiently and accurately, they can focus more attention on comparing, combining, partitioning, and reasoning about numbers.
- Most children and adults can instantly recognise small quantities, usually up to about 4 or 5, before relying on counting or grouping strategies for larger quantities.
- Numeral–quantity matching helps students connect verbal number names, quantities, and numerals. This supports understanding that numerals represent specific quantities.



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Key concepts for interpreting Numeral–Quantity Match

Term	Teacher-facing definition	What to look/listen for
One-to-one correspondence	Each object counted is matched with one number word.	Student touches, moves, points to, or tracks each object once while saying one number word.
Stable order	Number words are said in the same correct order each time.	Student counts in order: 1, 2, 3, 4...
Cardinality	The last number counted tells how many are in the set.	After counting "1, 2, 3, 4," student knows there are 4 altogether.
Subitising	Recognising a small quantity without counting each item.	Student sees 3 or 4 dots and knows how many without counting.
Groupitising	Using smaller visible groups to work out a larger quantity.	Student says, "I saw 5 and 2 more, so it is 7."

Goals of instruction

The **goal of instruction** is to help students accurately and efficiently determine "how many" by using a range of quantifying strategies. Students need to develop accurate counting, recognise small structured quantities through subitising, and use grouping strategies to quantify larger or less structured quantities. Over time, instruction should support students to move from counting every item when needed, towards more efficient quantity recognition and grouping strategies when appropriate.

Effective instruction gradually increases difficulty through:

- progressing from smaller to larger quantities
- moving from structured, to semi-structured, to random arrangements
- explicitly teaching accurate counting, including one-to-one correspondence, stable number order, and cardinality
- helping students connect counted quantities to spoken number names and written numerals
- supporting students to move beyond counting-by-ones when more efficient subitising or grouping strategies are available

Students may initially need to count collections to determine the quantity. Counting should be modelled carefully so that students touch, move, or track each object once, say one number word for each object, and understand that the last number counted tells how many there are. Teachers should also model how counting can be used to check a quantity after it has been recognised through a pattern or group.

Reading numerals in order supports numeral recognition, but targeted work on before, after, between, and missing numbers is addressed in **Number Sequence**. Accurate quantifying and numeral recognition support comparison, but deciding which number or quantity is more, less, or the same is addressed in **Magnitude Comparison**.

Students may recognise larger quantities more efficiently in structured arrangements before demonstrating the same efficiency with less structured or random arrangements. Structured patterns such as fingers, dice, dominoes, rekenreks, and ten-frames help students recognise quantities through visible grouping, while less structured arrangements, such as randomly arranged counters or dot cards, require students to count accurately or identify and organise groups independently.

Instruction should therefore begin with smaller quantities within 1–4, where students can practise both counting and recognising quantities without counting. It should then move to structured arrangements within 10 and 20, before gradually reducing visual grouping supports and introducing less structured arrangements within 10.



INSTRUCTIONAL GUIDANCE: COUNTING, QUANTIFYING & NUMERAL RECOGNITION

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Teachers **explicitly model** counting, subitising, and groupitising strategies using a **Teacher Modelling / Guided Practice / Supported Independent Practice** approach. Instruction should include counting routines with objects, quick-image routines using structured and unstructured dot arrangements, and opportunities for students to explain whether they counted, recognised a pattern, or used groups to work out the quantity.

Concrete and visual materials such as fingers, counters, dice patterns, dominoes, rekenreks, ten-frames, dot cards, number cards, numeral cards, and digital applications should be used to strengthen counting accuracy, quantity recognition, grouping strategies, and numeral–quantity matching.

Guided practice should include **multiple opportunities to respond, immediate feedback**, and **regular checks for understanding** to determine whether students are counting accurately, subitising, groupitising, or relying on counting-by-ones when a more efficient strategy is available.

Supported independent practice and review activities should provide repeated practice counting, recognising, and matching quantities using varied visual arrangements to build accuracy, efficiency, fluency, and long-term retention.