

EYFS · PRE-K / RECEPTION / K

Counting Progression

From reciting to cardinality

What 'counting' actually is

When we say a child 'can count,' we often mean they can recite numbers in order. But mathematical counting involves at least 5 distinct sub-skills — and a child can have one without the others. The 5 'counting principles' (Gelman & Gallistel, 1978, still standard in early-number research): 1. ONE-TO-ONE — each object gets exactly one number 2. STABLE ORDER — numbers always come in the same order 3. CARDINALITY — the LAST number said is HOW MANY 4. ABSTRACTION — you can count anything (sounds, ideas, abstract sets) 5. ORDER IRRELEVANCE — you can count a set in any order, you still get the same answer Knowing where a child is in this progression tells you what to teach next.

Stage 1 — Reciting (around age 2-3)

Looks like	Doesn't yet
Says 'one, two, three, four, five' on demand	Knows what each number means
May skip numbers ('one, two, four')	Can match numbers to objects
Loves counting songs	Stops at the right place

Stage 2 — One-to-one correspondence (around age 3-4)

Looks like	Doesn't yet
Touches one object as they say one number	Always says the right number
May get stuck/lose track for 5+ objects	Knows the LAST number is how many
Counts confidently to 3, then breaks down	Counts large groups accurately



Stage 3 — Cardinality (around age 4-5)

Looks like	Doesn't yet
Counts 5 objects, says 'five' confidently	Has cardinality for larger groups
When asked 'how many?' gives the last number	Holds quantity in mind without recounting
Notices if you re-arrange — often re-counts	Trusts that arrangement doesn't change quantity

Stage 4 — Abstraction (around age 4-6)

Looks like	Doesn't yet
Counts sounds (claps, drum beats)	Counts items they can't see
Counts events (jumps, taps)	Counts abstract sets without prompting
Counts mixed-type things (apples + pears)	Counts things in their imagination

Stage 5 — Order irrelevance (around age 5-6)

Looks like	Doesn't yet
Knows you can count from any direction	Trusts the principle without testing
Can re-count from a different start	Sees that quantity is invariant
Says 'it's still 5' if you rearrange	Doesn't yet need to re-test

Quick assessment

1. ORAL COUNT. 'Can you count for me?' How far do they get? Where do they wobble? 2. ONE-TO-ONE. Put 5 cars in a line. 'Can you count them?' Watch — are they touching one car per number? Do they get exactly 5? 3. CARDINALITY. Right after counting 5 cars: 'How many cars are there?' If they say 'five' confidently — cardinality is there. If they re-count — cardinality is emerging. 4. ABSTRACTION. 'I'm going to clap. Count the claps.' Clap 4 times. Can they tell you how many? 5. ORDER IRRELEVANCE. 5 cars in a line. They count: 5. Move them around. 'How many now?' If they re-count — order irrelevance not yet secure. If they say 'still 5' — they have it.

What to do if a child is stuck

Don't push to a higher stage. Build the current one with more variety: • Stuck on RECITING: number songs, daily counting, point-and-count of stairs, fingers, etc. • Stuck on ONE-TO-ONE:



counting with manipulation. 'Give me 3 cars.' 'Move 4 buttons into the box.' Forces touching as they count. • Stuck on CARDINALITY: emphasise the last number every time. 'You counted 5 cars. There are 5 cars. Five.' Repeated for weeks. • Stuck on ABSTRACTION: practise counting non-objects. Claps, jumps, words in a sentence. • Stuck on ORDER IRRELEVANCE: rearrange after counting. 'It's still 5, isn't it?' Encourage trust in the answer.

