

Teacher notes: Composition of numbers to 8

Over about 3 weeks, children move from ten-frame images of numbers to a secure, flexible understanding of how 8 can be split into two parts. They practise finding 'how many more to make 8', explore the composition of 6 and 7 as stepping stones, then work systematically through every way to make 8, and finish by matching these to number bonds, including bonds involving zero and simple take-away stories.

eyfs.ma.number.1 Have a deep understanding of numbers to 10, including the composition of each number.

eyfs.ma.patterns.3 Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

Prior knowledge

- Children can subitise small groups and count a set of up to 8 objects reliably, touching or moving each one once.
- Children have used part-whole models (for example a whole shown as two parts on a plate or in two hoops) with smaller numbers.
- Children have filled and read ten frames for numbers up to 6 or 7, and can say how many more are needed to fill the frame.
- Children have begun to record their maths through marks, drawings or photographs during continuous provision.

Key vocabulary

whole, part, compose / make, altogether, ten frame, number bond, how many more, take away, zero, pair, the same as

Common misconceptions

A child believes there is only one correct way to make 8 (often the pair they meet first, such as 4 and 4) and stops looking once they find it.

Use a ten frame or part-whole mat and ask 'can we make 8 a different way?' Keep one part the same size each time, move one counter across, and record each new pair side by side so the child sees a growing set of possibilities rather than a single answer.

When working out bonds to 8, a child thinks that 0 and 8 is not really 'making 8' because one part looks empty.

Show 8 objects in a ten frame with an empty part-whole hoop next to it. Ask how many are in each part and how many altogether, confirming that an empty part is still a part, and the whole has not changed.

A child assumes that when one part gets bigger, the other part must also get bigger, rather than understanding that the two parts trade off to keep the whole at 8.

Act it out with 8 children or 8 objects splitting into two groups: move one object from one group to the other and ask the child to predict and then check what happens to each group, drawing attention to one part growing while the other shrinks.

For 'how many more to make 8', a child recounts from 1 each time instead of counting on from the number already shown.

Model counting on from the given amount using fingers or a number track, covering the counted part and saying 'we already have this many, so we only count the rest', then practise with small practical top-up games such as filling a ten frame to 8.

Assessing through observation

Watch children during ten-frame and part-whole activities in small groups and continuous provision. Note whether a child can find a hidden part when shown the whole and one part (for example, 8 counters under a cloth, 5 revealed, working out 3 are hidden), whether they can generate more than one way to make 8 without being told, and whether they use 'zero' and 'take away' appropriately in their talk. Listen for explanation, not just correct answers, and record evidence through brief observation notes, photographs of constructions, or a child's own marks.

What comes next

The next unit moves on to composition within numbers to 10, extending the same part-whole and ten-frame approaches to find every way to make 9 and then 10. Children will also begin to notice patterns within numbers, such as doubles and whether a number can be split into two equal parts, building directly towards exploring odd and even numbers and equal sharing.