

Teacher notes: Composition of numbers to 7

This three-week unit deepens children's understanding of numbers to 7 by exploring how each number can be split into two parts and recombined. Children use ten frames to see 7 as a whole and work out how many more are needed to fill it, then move into part-whole thinking for 5 and 6, before finding every way to make 7, and finally practising number bonds to 7, including bonds that use 0 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 count a small group of objects accurately, touching or moving each one once, and know that the last number counted tells them how many are in the group (up to around 6).
- Children can subitise very small groups (up to about 3) without counting, and recognise some larger amounts on a dice, fingers or a ten frame.
- Children have explored the composition of smaller numbers in earlier Reception learning, such as finding two parts that make 4, so they already have some experience of splitting a group into two smaller groups.
- Children recognise numerals and can match a numeral to a group of objects for numbers up to about 6.

Key vocabulary

part, whole, ten frame, altogether, how many more, make, number bond, zero, take away, equal to, same as, empty

Common misconceptions

Children believe a ten frame has to be filled in a fixed order (for example, left to right along the top row only) and recount from the start every time, rather than seeing the pattern of how many are there and how many spaces are left.

Model filling ten frames in different ways and ask children to subitise the full row first, then count on only the remaining spaces. Encourage them to say 'I can see 5 and 2 more spaces' rather than recounting every dot.

Children think 0 is not a 'proper' number and forget that 0 and 7 make 7, treating an empty part as though it doesn't count.

Model this explicitly with real objects: show 7 counters on one side and an empty plate on the other, and say together '0 and 7 make 7'. Ask children to find the empty part during part-whole activities so it becomes a familiar, expected answer rather than an exception.

Children think 3 and 4 making 7 is a different fact from 4 and 3 making 7, because the groups look different or are in a different order.

Physically swap the two groups in front of the child (for example, swap which hand holds 3 and which holds 4) and recount the whole each time to show the total stays 7. Use the same resources in both arrangements so only the order changes.

When taking away, children always count back from 7 one at a time, even when a part-whole picture already shows the parts, so they lose track of the starting amount or miscount.

Pair take-away stories with the part-whole model children already know: show the whole of 7, physically remove a part, and ask 'how many are left?' rather than only counting backwards aloud, so children can check their answer against what they can see.

Assessing through observation

Assess mainly through observation during continuous provision and adult-led sessions rather than written recording. Watch whether children can represent a given number up to 7 on a ten frame and say how many more are needed to make 7 without recounting from 1. During part-whole activities, note whether children can split a group of up to 7 objects into two parts in more than one way, and whether they can find all the ways to make 7 when given time and resources such as two-sided counters, ten frames or a part-whole mat. Listen for children using vocabulary such as 'part', 'whole' and 'altogether' unprompted, and check whether they can respond confidently to bonds to 7 said aloud, including ones involving 0 (such as '7 and 0 make 7') and simple take-away questions (such as 'there are 7, take away 3, how many are left?').

What comes next

This unit prepares children for extending the same part-whole and number bond thinking to numbers to 10, building directly towards a deep understanding of the composition of each number to 10 as described in the Early Learning Goal. The practical experience of finding every way to make 7 also lays the groundwork for later pattern work within numbers, including exploring doubles and how a quantity can be split into two equal groups.