

Teacher notes: Odds, evens and doubles to 10

Across three weeks children explore whether counters can always find a partner, discovering that some amounts (2, 4, 6, 8, 10) pair up exactly while others (1, 3, 5, 7, 9) always leave one counter without a partner. They build doubles by making a second identical group alongside the first (double 1 is 2, double 2 is 4, double 3 is 6, double 4 is 8, double 5 is 10), then move on to sharing objects fairly between two people, noticing that even amounts share out exactly (half of 2 is 1, half of 4 is 2, half of 6 is 3, half of 8 is 4, half of 10 is 5) while odd amounts leave 1 left over. By the end of the unit children can look at a small group of up to 10 objects and say whether it is odd or even by pairing, without needing to count every time.

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

- Counts a group of objects accurately to 10 and matches the count to the correct numeral.
- Uses one-to-one correspondence to match objects, for example giving one cup to each teddy.
- Has experience of sharing objects out informally during play, such as giving out snack pieces or paintbrushes.
- Can subitise small amounts (recognising 2 or 3 objects without counting) and compare two groups to say which has more or the same.

Key vocabulary

odd, even, pair, partner, double, the same again, share, fair, equal, left over

Common misconceptions

Children think an odd amount simply has 'some left over' without checking that it is exactly one counter without a partner.

Line counters up in twos with the child and count how many are left outside a pair. With amounts such as 5, 7 or 9 there is always exactly 1 counter without a partner, so model saying 'one is left over' each time rather than a vaguer 'some'.

Children think doubling means counting on a small amount rather than making a whole second identical group.

Build the first group (for example 3 objects), then build a matching second group next to it and push them together, counting the total out loud: double 3 is 6. Repeat with other amounts such as double 2 is 4 or double 4 is 8 so children see 'the same again' rather than 'add a bit more'.

Children assume sharing between two people always comes out exactly equal and do not check for anything left over.

Share an odd amount, such as 7 objects, one at a time between two children and ask them to look and feel whether their piles match. Show that 7 shared between 2 is 3 each with 1 left over, and talk about what to do with the extra one (for example, saving it or giving it to an adult).

Children muddle doubling and halving, for example making a group smaller when asked to double it.

Keep the language distinct in play: 'double' always means building the same amount again so the group grows (double 5 is 10), while 'half' always means sharing fairly between two so the group gets smaller (half of 10 is 5). Use matching resources, such as two identical trays, so children see doubling and halving as opposite actions.

Children overlook 0, skipping it when sorting amounts into odd and even because they think 'nothing there' cannot be checked.

If it comes up naturally, show an empty tray and ask if any counters are left without a partner — since there are none to pair, 0 is even. Keep this light and move on quickly rather than dwelling on it, as the EYFS guidance suggests.

Assessing through observation

During continuous provision, observe children pairing counters, buttons or natural objects and listen for whether they say 'every one has a partner' (even) or 'one is left on its own' (odd), rather than simply counting. Watch doubling play, such as building with construction bricks or clapping patterns, for children using 'the same again' language and checking their two groups match before counting the total. During sharing activities, such as handing out snack or craft resources between two children, note whether a child checks fairness by comparing piles and can say what is left over when sharing an odd amount. Capture these observations through photographs, brief notes or children's own explanations, focusing on whether they can justify their answer (for example, by pairing or matching) rather than just stating odd or even correctly.

What comes next

This unit lays the groundwork for Year 1 learning, where children will extend odd and even number recognition beyond 10, use doubling and halving facts to help with addition and subtraction, and begin sharing and grouping objects into equal groups as an early step towards multiplication and division.