Even and odd numbers

Can you put a pile into pairs with nothing left over? That tells you if its number is even or odd.

WORDS TO KNOW

Pair: two things that go together.

Even: the things pair up with nothing left over.

Odd: pairing the things up leaves one left over.

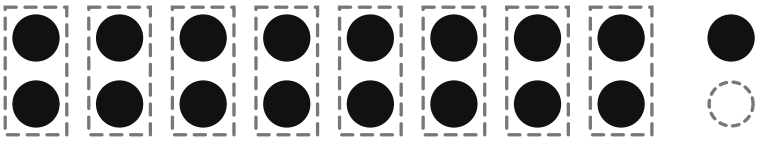
Double: a number added to itself, like 3 + 3.

KEY IDEAS

1. Pair them up

Put the things in pairs. Then look at what is left. Here 17 children make 8 pairs, and one child is left. So 17 is odd. You never have two left. Two left would make one more pair.

> Nothing left over: even. One left over: odd.
>
> An even number is a double. An odd number is a double and one more.

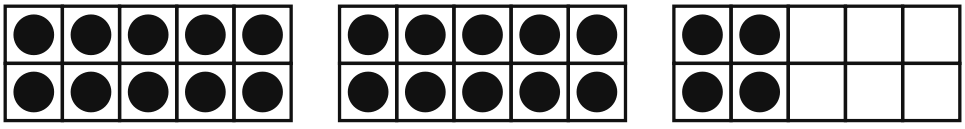


8 pairs 1 left over

2. Only the ones digit matters

A full ten frame is 5 pairs with nothing left. So every ten pairs up. Only the ones can leave one over.

> Ones digit 0, 2, 4, 6 or 8: even. Ones digit 1, 3, 5, 7 or 9: odd.



10 10 4

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3. Adding even and odd numbers

Pour two piles together. The pairs stay pairs. If both piles have one spare, the two spares make a pair.

> Even + even is even. Odd + odd is even. Even + odd is odd.

WATCH OUT

- **Zero is even.** Zero things make no pairs, and nothing is left over.
- **Do not look at the tens digit.** 74 is even, but 47 is odd.

WORKED EXAMPLES

Example 1. Kai has 14 crayons. Can he share them fairly with Lu?

1. Sharing between two is pairing. Each pair gives one crayon to each child.
2. 14 crayons make 7 pairs, with nothing left over.
3. So 14 is even, and 14 = 7 + 7.

Answer: Yes. Each child gets 7 crayons.

Example 2. Is 58 even or odd?

1. Each ten pairs up, so the 5 tens leave nothing over.
2. The ones digit is 8. Eight ones make 4 pairs, with nothing left.

Answer: 58 is even.

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