

Doubling and halving

Notes and guidance

In this small step, children double and halve numbers.

Introduce the concept using concrete resources and pictures to show halves and doubles. Guide them towards the connection that when they double a number, they multiply by 2 and when they halve a number, they divide by 2

Children also use pictures to identify when a number has or has not been doubled or halved; misconceptions, such as thinking that doubling means adding 2, could be explored at this point.

Once children are secure in their understanding of doubling and halving, they can look for patterns and try to predict answers based on known facts, for example “If I know what double 2 is, I can find double 20”

Some children may try to halve odd numbers, which is something that can be explored with concrete resources.

Things to look out for

- Children may not make the connection between doubling and halving and the 2 times-table.
- Children may be over-reliant on manipulatives or pictures to double or halve, rather than multiplying or dividing by 2

Key questions

- What does “double” mean?
- What does “halve” mean?
- How do you double a number?
- How do you halve a number?
- How can you use counters to help you double a number?
- Can you write this as a number sentence?
- How is doubling linked to the 2 times-table?
- How is halving linked to the 2 times-table?

Possible sentence stems

- Double _____ is _____
- Half of _____ is _____
- Double _____ is _____, so double _____ is _____
- Half of _____ is _____, so half of _____ is _____

National Curriculum links

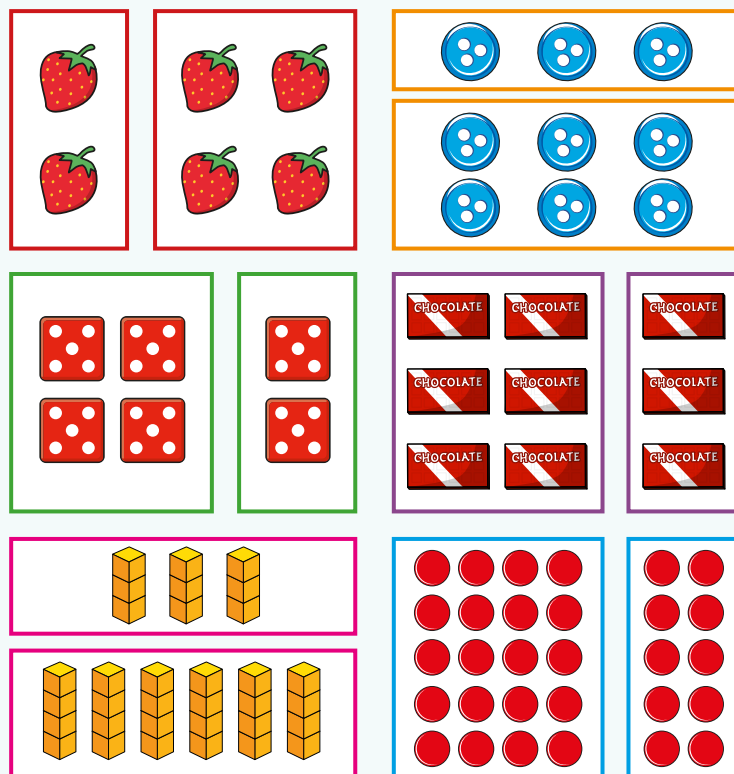
- Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers

Doubling and halving

Key learning



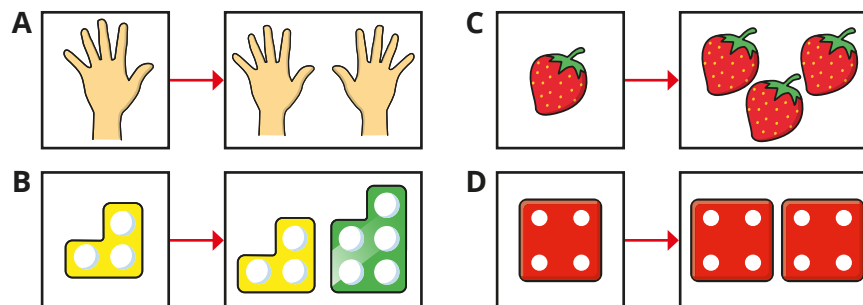
Show children the sets of pictures.



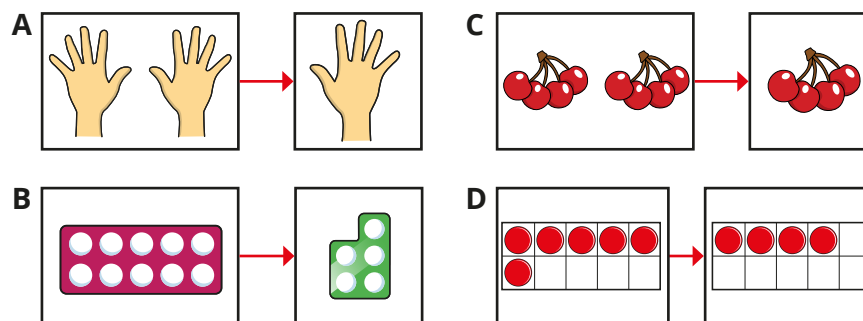
Discuss what the pictures show.

Identify with children whether each set of pictures shows doubling, halving or neither.

- Which pictures show doubling?



- Which pictures show halving?



- Write a multiplication or division number sentence to match the labels.

double 7

half of 14

double 12

half of 24

What do you notice about your answers?

Doubling and halving

Reasoning and problem solving



As a class, complete the table.

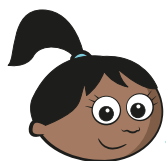
Number	1	2	3	4	5	6	7	8	9	10
Double										

Ask children to describe any patterns that they spot.

Discuss what other numbers they could double using the same patterns.

multiple possible answers

Sam is doubling and halving numbers.



If I can multiply or divide a number by 2, then I can double and halve the number.

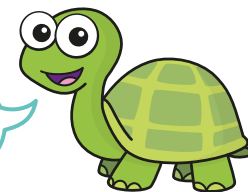
Do you agree with Sam? Explain your answer.

Yes

Tiny has 12 leaves.

Tiny eats half the leaves.

I must have 24 leaves left.



What mistake has Tiny made?

Tiny has doubled the starting number rather than halving it.

Tiny will have 6 leaves left.

Think of a number.

- Double it.
- Add 4
- Halve the answer.
- Take away the number you first thought of.

What number do you finish with?

Try this with a different number.

Why does this always happen?

finishing number is always 2