When halving, makes two unequal groups or splits a single object unequally

Opportunity for: exploring a real-life context

Resources

- Cubes or sweets, chocolate bar, modelling material buns or sausages
- Apples and a blunt knife
- Biscuits
- Piece of string and scissors
- Jug of water and two beakers

Key vocabulary

half	fair
halve it	equal
half of	same amount

Teaching activity

Time 10–15 minutes

Explain to the child that the activity today will help them to find out more about halving things.

Put some of the things to halve on the table, including the cubes.

? **What do you think 'half' means?**

Talk about phrases with half in them, for example half an hour, half an apple, a half moon, a half-back in sports, half-baked, half a mo, too clever by half.

? **Can you give me half of these four cubes and you have the other half? Is it fair?**

Repeat with different numbers.

> If the child finds halving numbers of objects hard, it might be that halving quantities will be easier and will help with understanding the concept of what 'half' means.

Put out some of the items for halving, for example a sausage or a bun, and ask the child to halve them.

? **Can you explain to me why you cut the sausage there?**

? **Can you half-fill this beaker with water? Why do you think that is half-full?**

? **Can you cut this string in half? Is that fair? Are the two pieces the same size?**
(They have to be, to be called halves! If something is 'halved' but ends up rather different sizes, for example, if someone is trying to break a crumbly biscuit in half, you could talk about it if the child seems to be able to cope with this. You can simply say how hard it is to divide a biscuit into accurate halves, so we can just say it has been divided into two pieces.)

? **How many people can share an apple if they have half each?**

> If the child seems not to be understanding halving quantities, you will need to use some more examples, perhaps with modelling material made into a range of pretend food, but also try to halve real things like apples, cakes, chocolate bars, and so on.

If you have time, try halving some larger numbers.

? **Can you halve these twelve sweets so that I have half and you have half? Is it fair? How many groups did you split the sweets into?**

Challenge children with the numbers you use. If they can halve twelve, try sixteen, twenty, and so on.

If the child cannot halve numbers above twelve, you might need to write down the halves that they can do and work at halving groups of cubes in ordinary class time and recording what they do. Encourage the child to learn the results of their halving by heart.

? **What did you learn today about halves?**

Spotlight 1

When halving, makes two unequal groups or splits a single object unequally

Opportunity for: solving practical problems

Half a cake

Time 10–20 minutes

Resources

- Modelling material, cake or pizza, muffins, apples, banana
- Blunt knife
- Balance scales

Key vocabulary

half	equal
halve it	heavy
half of	light
fair	same amount

Teaching activity

Explain that you are going to do an activity of halving a cake and using the balance scales to check that each bit weighs the same.

First establish that the child understands balance scales.

? **What will happen if I put this whole cake on this side of the balance scales?**

If the child is unsure of what will happen, let them experiment for a while, putting heavy and light things on the scales to see what happens.

Establish that the bucket containing the heaviest thing goes down and the bucket containing the lightest thing goes up.

? **Can you cut the cake in half and put the parts in the buckets so that the buckets are level?**

? **If the buckets are level, what does it tell you about the halves you made?**

Work with the child, taking bits of cake from one side to the other until they more or less balance. Explain that halves should be exactly equal, but sometimes it can be hard to get it exact.

? **What can you tell me about our two bits of cake now?**

? **If you have that bit and I have this bit, is it fair?**

? **If we cut something in half, how many pieces do we have?**

Use another cake, or a piece of fruit, and cut it unequally so that one bit is much larger.

? **Are these two halves?**

? **Why not?**

? **What did you learn today about halves?**

Ask for some suggestions of things we often halve, for example sausages, a medium pizza when we share between two, rolls we cut in half to put cheese inside, tomatoes, apples, bars of chocolate, and so on.

Spotlight 2

When halving, makes two unequal groups or splits a single object unequally

Opportunity for: exploring a real-life problem

Half the money

Time 10–15 minutes

Resources

- Range of coins that the child is familiar with, for example 1p and 10p coins
- Two small character toys or puppets
- Biscuits

Key vocabulary

half
halve it
half of
fair
equal
same amount

Teaching activity

Explain that today they are going to practise sharing money between two people, so that they have half each.

Put the two character toys or puppets on the table with coins to suit the child, for example six 1p and two 10p coins.

? **Can you give half of the money to this person and half to that person?**

Establish that when we halve money, we don't mean we cut it in half as we would with an apple!

> If the child finds the money difficult, just use pennies and help with the counting.

? **How many pennies/how much does this person have?**

? **Is that fair? Do they have the same amount each? How do you know?**

> If the child is finding this too challenging, give them a biscuit or a piece of paper and ask them to cut it in half, so that you both have half.

? **How much of the biscuit have you got?**

? **How much have I got?**

? **When you split something in half, how many pieces do you have?**

If you have time, return to the money and try once more to halve a small amount.

? **Tell me what you learned today.**

Halve some money amounts. Ask the children to tell you an amount of money that would be hard to share between two people. Get them to consider what you might do in real life if you couldn't exactly halve some money.

Spotlight 3

When halving, makes two unequal groups or splits a single object unequally

Opportunity for: making decisions

Fold it

Time 10–20 minutes

Resources

- Various shapes of paper (all symmetrical)
- Scissors

Key vocabulary

half	fair
halve it	equal
half of	same amount

Teaching activity

'Today we are going to do some folding of shapes. We are going to fold them into halves.'

Put the paper shapes on the table and ask the child to choose one to fold in half.

If the child finds this hard, focus on just one of the shapes, help with the folding and talk through how one half is the same size and shape as the other half.

It might help if the child cuts along the fold and you can place one half on top of the other half to demonstrate that they are both the same size and shape.

? **Why did you fold it just there?**

? **Is each half the same size, or is one bit larger than the other?**

? **How many pieces have you cut the shape into?**

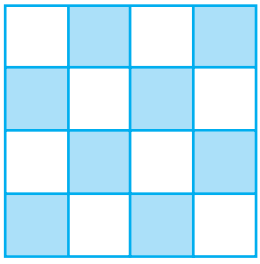
If you have time, make a difficult shape to halve, for example a roughly triangular torn piece of paper.

? **Do you think it would be hard or easy to fold this in half?**

? **Is it halved, or is it just divided into two parts?**

? **What did you enjoy doing today? What did you do well?**

Ask the children how many ways they can colour half of a four-by-four grid of squares.



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Spotlight 4

When halving, makes two unequal groups or splits a single object unequally

Opportunity for: solving practical problems

How many halving

Time 10–15 minutes

Resources

- Counters, cubes or sweets
- Dominoes

Key vocabulary

half
halve it
half of
fair
equal
same amount
how many

Teaching activity

'Today we are going to do lots of halving of numbers. Sometimes you have to share sweets or other things by dividing in half, so it is an important thing to learn.'

? **Can you count out some of these cubes (or counters or sweets) and then halve that number of cubes?**

? **How many did you count out?**

? **What is half of that number?**

? **Is it fair? Are there two equal groups?**

If the child has counted out too many, go back to halving just four or six cubes until they feel more confident.

Make the point that they are splitting the number of cubes into two equal groups so that it is fair.

Take ten cubes (or counters or sweets) and divide them into two piles of five. Make sure the child knows that there are ten items in total.

? **How many are in this pile?**

? **How many are here? So are the piles equal in number?**

? **Are there the same number there as here?**

? **So what is half of ten?**

If the child is still struggling, use dominoes to show halves, for example half of six is three on each side.

If the child is coping with smaller numbers, move on to numbers above twelve.

? **What is the largest number you think you can halve?**

If you have time, ask the child to double one of the halves. For example, if they halve ten and get five, ask them to double five so that they get back to ten.

? **What is the largest number you think you can halve?**

? **What happens if you halve a number, then double the answer?**

Spotlight 5: a learning check

When halving, makes two unequal groups or splits a single object unequally

Opportunity for: explaining and discussing

Happy halving

Time 10–15 minutes

Resources

- Counters or buttons
- Ribbon or rope
- Pizza made of paper or modelling material
- Beakers and jug of water

Check: does the child use key vocabulary?

half	fair
halve it	equal
half of	same amount

Teaching activity

Explain that today we are going to be finding halves of things. Ask the child to look at all the things on the table.

? **Can you choose something to show me how much you know about finding halves?**

Build on what the child chooses.

? **So how did you know that was a half?**

? **Can you find the length of rope/ribbon that is half as long as this piece?**

? **Can you tell me why you chose that bit?**

? **Can you put some water in this beaker so that the beaker is half-full?**

? **How did you know that was about half-full?**

If the child finds it hard to explain about the water in the beakers, tip some out of one into the other so that they hold different amounts.

? **Have I shared this water out fairly? Do you have the same amount as me?**

? **If you and I were going to share this pizza equally, can you show me how much I could have?**

? **How much would you have?**

? **Can you give me half of this pile of buttons?**

? **Are you sure you have halved that group? I wonder how you know.**

? **Can you explain to me what we mean by halving something or finding half of a number?**

? **Can you draw half of something? Half a dinosaur? Half a rainbow? Half a space ship? Half a smiley face? How could using a mirror help you?**

Learning outcomes

By the end of this set of activities, children should be able to:

- tackle related learning tasks with increased motivation and confidence;
- use and understand connected mathematical vocabulary;
- halve a number of objects by making two equal groups;
- find half of a quantity in a range of appropriate ways;
- talk about halves using relevant vocabulary.