

Fair fractions

Focus of activity: Understanding what $\frac{1}{2}$ and $\frac{1}{4}$ are; Finding $\frac{1}{2}$ and $\frac{1}{4}$ of amounts (whole number answers).

Working together: conceptual understanding

- Show children a biscuit. *I'm going to share this biscuit with someone. Break it into two unequal parts and show chn. I think I'll have this piece (taking the bigger piece). Is this fair? Why not? To make it fair I should break the biscuit in half.* Take another biscuit and break in half as accurately, and as fairly as you can.
- Give each child a sheet of A4 paper and ask them to fold it in half. Stress that each half must be the same size.
- Remind chn how we write $\frac{1}{2}$ and ask them to write $\frac{1}{2}$ in each of their two halves. *We have one shape split into two equal parts, and each part is one part out of two parts.*
- Give each pair a pot of 24 cubes. Ask them to take 8, and to share them between the two halves. *We can pretend these are whatever you like - sweets, biscuits, fish fingers, stickers, pennies. What would you like? Make sure you share them fairly.*
- Write the matching fraction sentence: $\frac{1}{2}$ of 8 is 4.
- Repeat for 14 cubes.
- Now ask chn to fold their piece of paper in half again. *Each part must be the same size. How many parts now? Each part is called a quarter.* Ask chn to write $\frac{1}{4}$ in each part.
- Write $\frac{1}{4}$ of 12 is. *What do you think we need to do?* Agree that chn need to share the 12 cubes equally between the four parts.
- Repeat for $\frac{1}{4}$ of 20.

Up for a challenge?

How many cubes are in one quarter? How many are in two quarters? How many are in three quarters? Four quarters?

Now it's the children's turn:

- Chn work in pairs to find half, then quarters of numbers of cubes, by sharing them between two or four parts of their pieces of paper. They write the matching fraction sentences, e.g. $\frac{1}{2}$ of 12 is 6.
- Go round the group and mark their fraction sentences as they write them, e.g. initially after three examples. Make sure that they realise that it is important that each half/quarter contains the same number of cubes.

S-t-r-e-t-c-h:

If chn cope well, ask them to find $\frac{1}{4}$ of 8, $\frac{2}{4}$ of 8, $\frac{3}{4}$ of 8 and $\frac{4}{4}$ of 8. They then find $\frac{1}{2}$ of 8. What do they notice?

Things to remember

Remember that fractions need to be fair. When we find a fraction of a shape, a biscuit, a cake, a pizza or anything else, each fraction needs to be same size. If we are finding a fraction of amount, each fraction needs to have the same number. Show chn 10 cubes. Say that you are going to share them between two paper bags. They close their eyes whilst you are doing this. Place 7 cubes in one bag and 3 in the other. Place one bag in side of a bucket balance and the other bag in the other side. Chn open their eyes. *Have I put half of the cubes in each bag? How can you tell?* Repeat, this time with 5 in each.

You may want to add something that has emerged from the activity. This may refer to misconceptions or mistakes made.

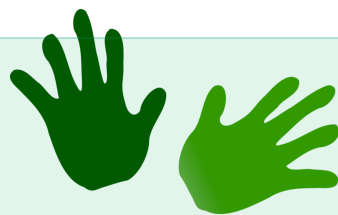
Resources	Outcomes
• Two (or more!) biscuits • Sheets of A4 paper • Pot of cubes • Two paper bags • Bucket balance (make sure the slider is moved so that both sides balance)	1. Chn understand that halves and quarters are equal parts of a whole. 2. Chn can find $\frac{1}{2}$ and $\frac{1}{4}$ of a small number of objects (whole number answers). 3. Chn begin to find $\frac{3}{4}$ of amounts (whole number answers).

Fair fractions

Work in pairs

Things you will need:

- A pot of 24 cubes
- A pencil



What to do:

Find $\frac{1}{2}$

- Fold a piece of paper in half.
- Choose a number.

6, 24, 14, 10, 20, 18, 22

- Take that number of cubes.
- Share them between the two halves.
- Write the fraction sentence.
- Choose at least three other numbers and do the same.

	$\frac{1}{2}$ of 6 is 3
	$\frac{1}{2}$ of 14 is
	...
	$\frac{1}{4}$ of 12 is

Find $\frac{1}{4}$

- Fold your piece of paper into quarters.
- Choose a number.

12, 24, 16, 20, 8

- Take that number of cubes.
- Share them between the four quarters.
- Write the fraction sentence.
- Choose at least two other numbers and do the same.

S-t-r-e-t-c-h:

Find $\frac{1}{4}$ of 8, $\frac{3}{4}$ of 8, $\frac{3}{4}$ of 8 and $\frac{1}{4}$ of 8. Now find $\frac{1}{2}$ of 8.
What do you notice?

Learning outcomes:

- I can understand that halves and quarters are equal parts of a whole.
- I can find $\frac{1}{2}$ and $\frac{1}{4}$ of numbers (whole number answers).
- I am beginning to find $\frac{3}{4}$ of numbers (whole number answers).