

# How to

## ...construct a pie chart

A pie chart is a type of graph for displaying information. It is a diagram based on a circle, and is useful if you want to show what proportion of a whole each part represents.

The following example looks at amounts of money raised through fundraising by a playgroup. Here is the source data table:

Income source	Income (£)
Charity walk	300
Cake sales	70
Raffle	250
Donations from parents/carers	180
Dressing-up day	40
Fête	840
Donations from employers	320

### Step 1 Convert the data to percentages

The first step is to convert the data to percentages. You have to:

- calculate the total amount of income
- use this value to calculate the percentage of income from each source:
  - take each income source and divide this by the total income, e.g. charity walk  $300 \div 2,000 = 0.15$
  - multiply this answer by 100 to calculate the percentage, e.g.  $0.15 \times 100 = 15\%$
- as a check, add up all the percentages to make sure they total 100%.

Income source	Income (£)	% of income
Charity walk	300	15%
Cake sales	70	3.5%
Raffle	250	12.5%
Donations from parents/carers	180	9%
Dressing-up day	40	2%
Fête	840	42%
Donations from employers	320	16%
<b>Total</b>	<b>2,000</b>	<b>100%</b>

## Step 2 Calculate the angle for each pie segment

A complete circle or pie chart has  $360^\circ$ . The angle for each segment is the percentage of that segment multiplied by  $360^\circ$ .

The calculation for the charity walk looks like this:

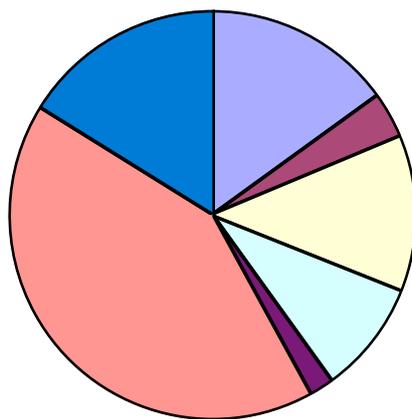
$$\frac{15 \times 360}{100} = 54^\circ$$

Repeat this calculation for the remaining values in the data table:

Income source	Income (£)	% of income	Segment angle ( $^\circ$ )
Charity walk	300	15%	$54^\circ$
Cake sales	70	3.5%	$12.6^\circ$
Raffle	250	12.5%	$45^\circ$
Donations from parents/carers	180	9%	$32.4^\circ$
Dressing-up day	40	2%	$7.2^\circ$
Fête	840	42%	$151.2^\circ$
Donations from employers	320	16%	$57.6^\circ$
<b>Total</b>	<b>2,000</b>	<b>100%</b>	<b><math>360^\circ</math></b>

Check to make sure that the angles add up to  $360^\circ$ .

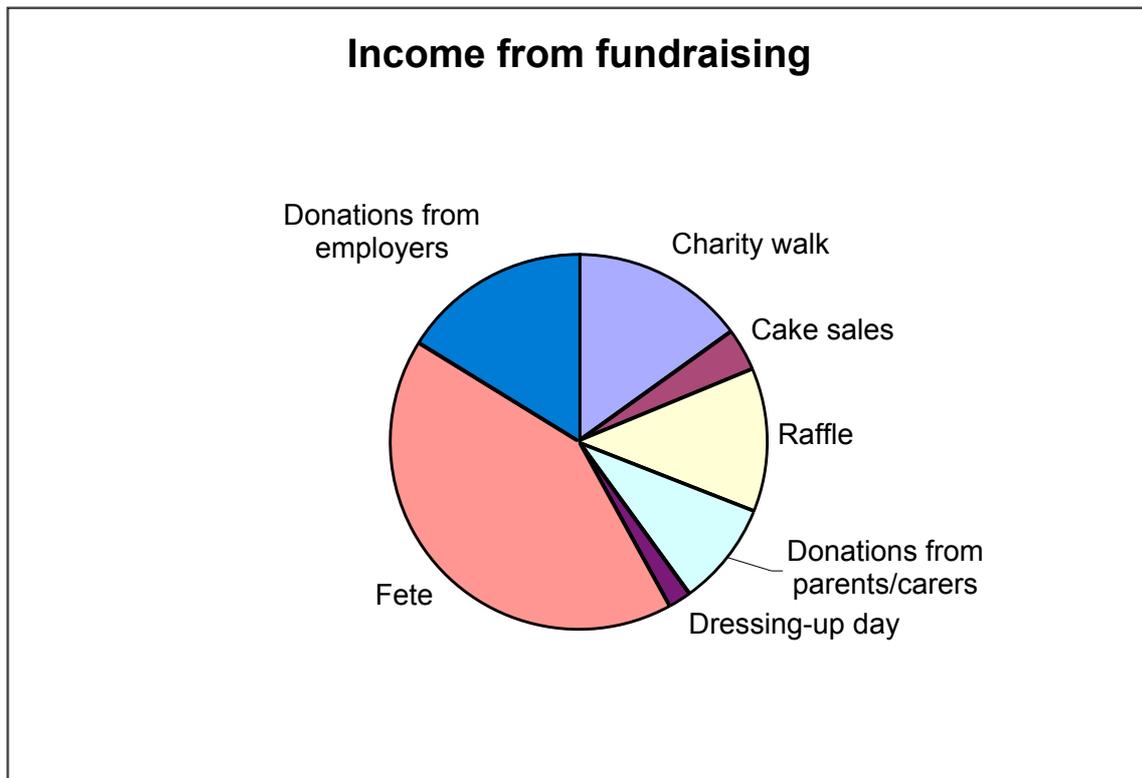
## Step 3 Draw the pie chart



For this you'll need compasses and a protractor.

## Step 4 Add labels

The chart requires a title and labels:



### Try this!

Construct a pie chart showing income for each quarter of the year.

Quarter	Q1	Q2	Q3	Q4
Income (£000s)	450	550	400	600