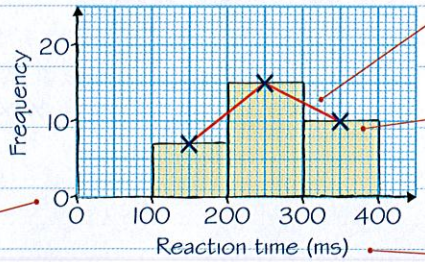
Frequency polygons

You can represent grouped data using a FREQUENCY POLYGON. Look at this example.

Reaction time (r milliseconds)	Frequency
$100 \leqslant r < 200$	7
$200 \leqslant r < 300$	15
$300 \leqslant r < 400$	10



Join the points with STRAIGHT LINES. Make sure you use a ruler.

Plot points at the MIDPOINT of each class interval.

You always record FREQUENCY on the vertical axis.

If you draw a histogram on the same graph the frequency polygon joins together the midpoints of the tops of the bars.

This frequency polygon shows the reaction times of a class of students.

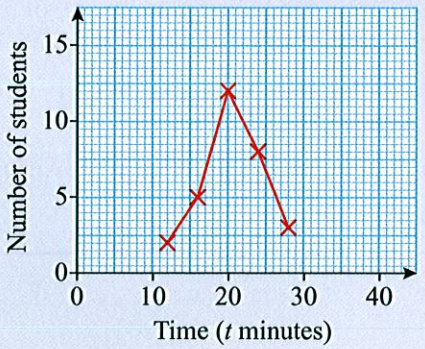
Worked example

grade C

30 students ran a cross-country race.
Each student's time was recorded.
The table gives information about these times.

Time (t minutes)	Frequency	Midpoint
$10 \leqslant t < 14$	2	12
$14 \leqslant t < 18$	5	16
$18 \leqslant t < 22$	12	20
$22 \leqslant t < 26$	8	24
$26 \leqslant t < 30$	3	28

Draw a frequency polygon to show this information.



Start by working out the **midpoints** of the class intervals.
The midpoint of the class interval $10 \leqslant t < 14$ is $\frac{10 + 14}{2} = 12$

Check it!
In your exam you will only be asked to draw a frequency polygon for data with **equal class intervals**. So make sure that your midpoints are the same distance apart.

Now try this

grade C

edexcel

60 students take a geography test.
The test is marked out of 50

This table gives information about the students' marks.

Geography mark	0–10	11–20	21–30	31–40	41–50
Frequency	5	11	19	16	9

On the grid, draw a frequency polygon to show this information. **(2 marks)**