

chapter

2

Statistics 1

Section 2.7 Histograms

PROJECT MATHS
Text & Tests 5
LEAVING CERTIFICATE
HIGHER LEVEL
STRAND 1
PROBABILITY & STATISTICS

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One of the most common ways of representing a frequency distribution is by means of a **histogram**.

Histograms are very similar to bar charts but there are some important differences:

- › there are no gaps between the bars in a histogram
- › histograms are used to show **continuous data**
- › the data is always **grouped**; the groups are called classes
- › the **area** of each bar or rectangle represents the frequency.

Histograms may have equal or unequal class intervals.

For our course, we will confine our study to histograms with **equal class intervals**.

When the class intervals are equal, drawing a histogram is very similar to drawing a bar chart.

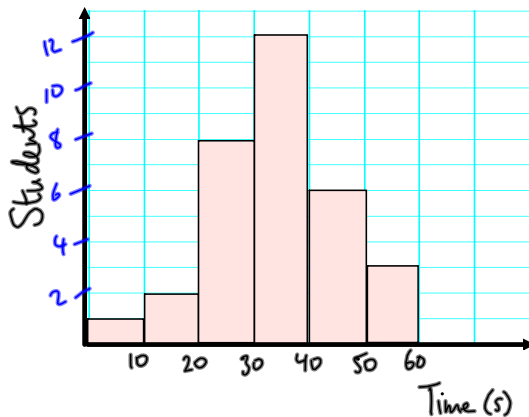
Example 1

The frequency table below shows the times taken by 32 students to solve a problem.

Time (in secs)	0-10	10-20	20-30	30-40	40-50	50-60
No. of students	1	2	8	12	6	3

- (i) Draw a histogram to represent this data.
- (ii) Write down the modal class.
- (iii) In which interval does the median lie?

15th & 16th are in here



modal = 30-40

median = 15th & 16th person
= 30-40

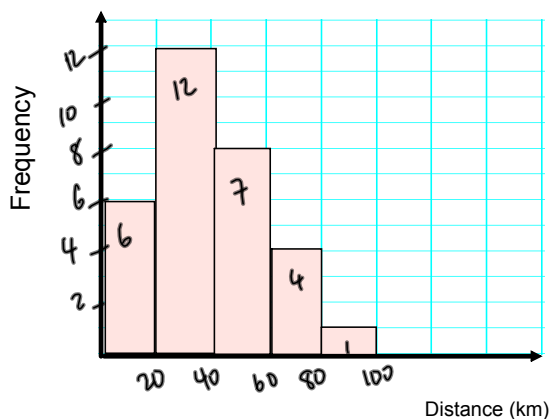
Exercise 2.7

- 1. At the end of their journeys, 30 motorists were asked how many kilometres they had travelled. Their responses are shown in the table opposite.
 - (i) Draw a histogram to illustrate this data.
 - (ii) How many motorists had travelled 40 km or more?
 - (iii) What is the modal class?
 - (iv) What percentage of the motorists travelled between 20 km and 40 km?

Distance (in km)	Frequency
0-20	6
20-40	12
40-60	7
60-80	4
80-100	1

↓6
↓18
↓25
↓29
↓30

[0-20 means ≥0 and <20]



(ii) 40 km or more = 7+4+1 = 12 motorists

(iii) modal = 20-40 km

(iv) Between 20-40 km = 12 motorists

$$\% \text{ 20-40 km} = \frac{12 \times 100\%}{30} = 40\%$$