



### Activity description

This is a statistical investigation into students' paid employment.

Students are asked to find out how many hours per week their peers spend in paid employment, and whether it is likely to interfere with their studies.

As part of the activity students can design questionnaires, find averages and the range and draw charts and graphs. The data analysis can be done on paper or by using spreadsheets.

### Suitability

Levels 1 and 2 (Foundation and Higher)

### Time

1–5 hours, depending on complexity and sophistication of the student responses.

### Resources and Equipment

Student information sheet

*Optional:* slideshow

Calculators, graph paper and rulers or computers with spreadsheet

*Optional:* compasses

### Key mathematical language

Questionnaire design, sample, grouped data, mean, median, mode, range, pie chart, bar chart, line graph, scatter graph

*Optional:* inter-quartile range, standard deviation, histogram, cumulative frequency diagram.

### Notes on the activity

You will need to spend some time ensuring that students design a questionnaire that will provide the data they need to answer the questions they are attempting to answer.

It is better to limit less able students to three questions at most, or there is a danger that they will get bogged down in a plethora of data.

Consider whether or not to encourage students to collect and analyse grouped data. Collection of actual figures to the nearest hour will give more flexibility in approaches to the analysis.

You may wish to have all students using the same questionnaire so that they can pool data. If small groups each design a questionnaire then the data collection stage may take longer to complete.

## During the activity

You will probably need to allow time between sessions for data collection.

## Points for discussion

Discuss with your students how they can find out how much time students in your college spend on paid work. Ask for suggestions about how they will deal with the data they collect.

Discuss the different types of average and which is most suitable.

Check that students know the difference between range and average.

After students have completed the work, ask them how reliable they think their data was, and what the main sources of error were.

Also discuss which type of average and chart was the most suitable.

You could compare findings with those of the 2005 survey in Birmingham. Changes to student support, EMA, and the current economic situation of your locality may be relevant.

## Extensions

At Level 1, less able students can work with small data samples of ungrouped data. At level 2, students could include more difficult calculations from grouped data as well as histograms and/or cumulative frequency graphs. They could also be encouraged to collect data on gender so that they can investigate any differences between male and female students.

The activity can be extended to cover other relevant factors such as types of paid work and number of hours of study out of lessons. Students could be asked to include a question about rates of pay and compare their results with the minimum wage. They could also research the reasons why students work part-time and the advantages and disadvantages of doing this.