

4 Worksheet on Statistics: Tables, Graphs, Charts

Text: websites containing relevant statistics

Source 1: <http://www.ons.gov.uk/ons/rel/migration1/national-statistician-s-annual-article-on-the-population/2009/national-statisticians-annual-article.pdf>

Source 2: <http://www.britishcouncil.org/latvia-about-us-diversity-uk.htm>

(Please copy and paste these hyperlinks into your browser)

A HOW TO DEAL WITH STATISTICS

The word “Statistics” has two meanings. It can be a set of numbers which represent facts or measurements, but it is also a term for the science of collecting and examining such numbers (as a branch of mathematics).

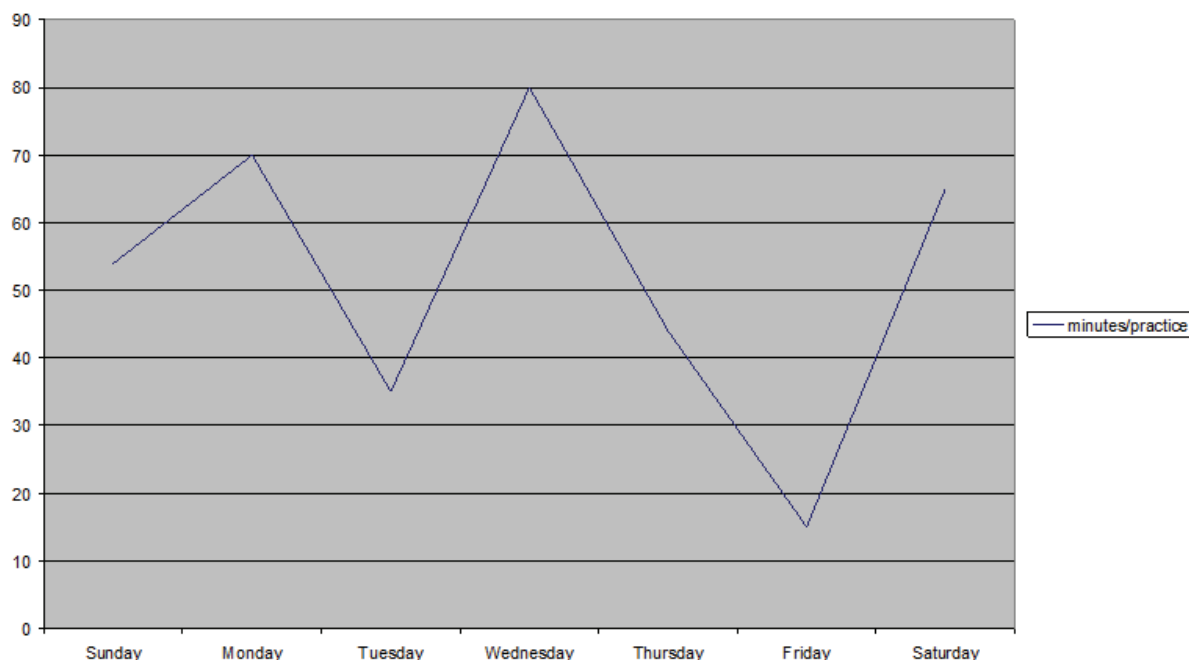
Scientific studies often produce an overwhelming amount of data, expressed in numbers. When they are displayed, they are arranged in tables, graphs or charts, ideally in such a way that even the non-expert reader can make sense of them.

The most basic form of arranging data is a **table**. The following example shows how many minutes per day a music student called Wolfgang practiced the piano in a certain week.

day	minutes/practice
Sunday	54
Monday	70
Tuesday	35
Wednesday	80
Thursday	44
Friday	15
Saturday	65

The simplest graphical arrangement of a straightforward set of corresponding data that show a development during a certain period of time (as for Wolfgang's piano practice above)

minutes of piano practice per day



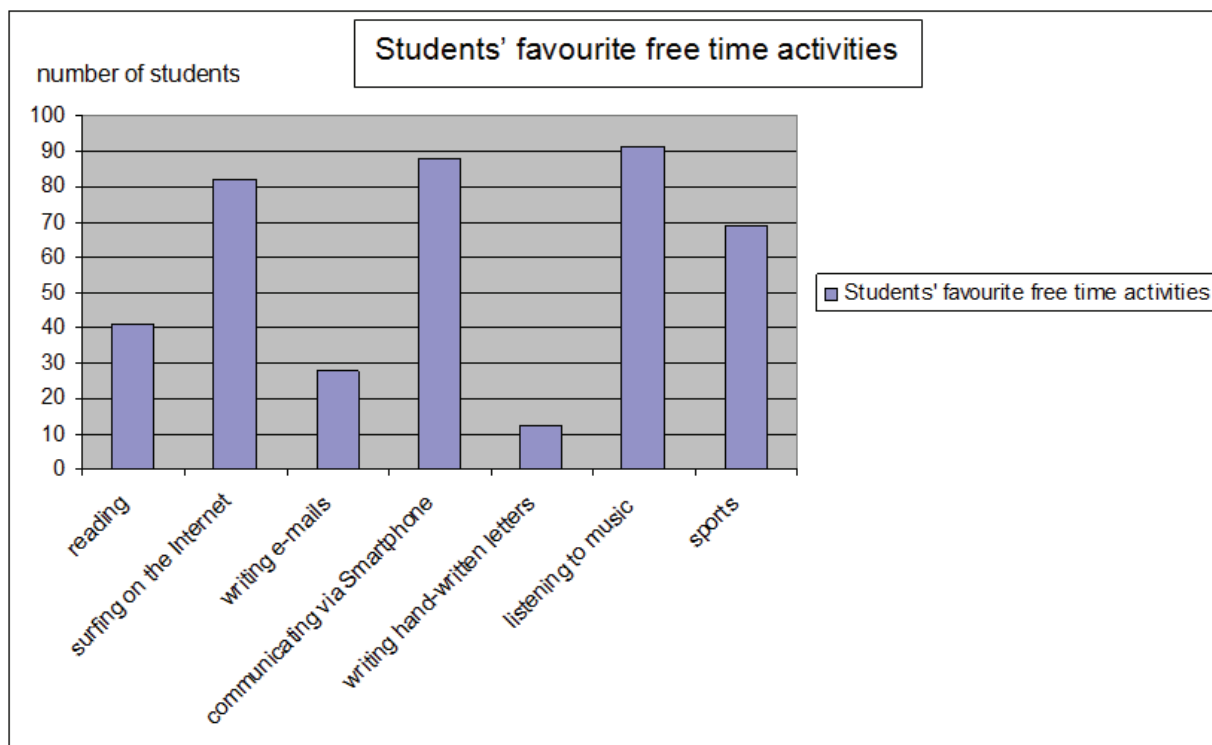
is a **line graph**. The following example uses the data in the table above.

If the data in a table do not change over time, but each quantity listed in the table corresponds to a particular category, a **bar graph** is a useful way to display them, either vertically or horizontally.

Example:

Students' favourite free time activities (100 students)	
reading	41
surfing on the Internet	82
writing e-mails	28
communicating via Smartphone	88
writing hand-written letters	12
listening to music	91
sports	69

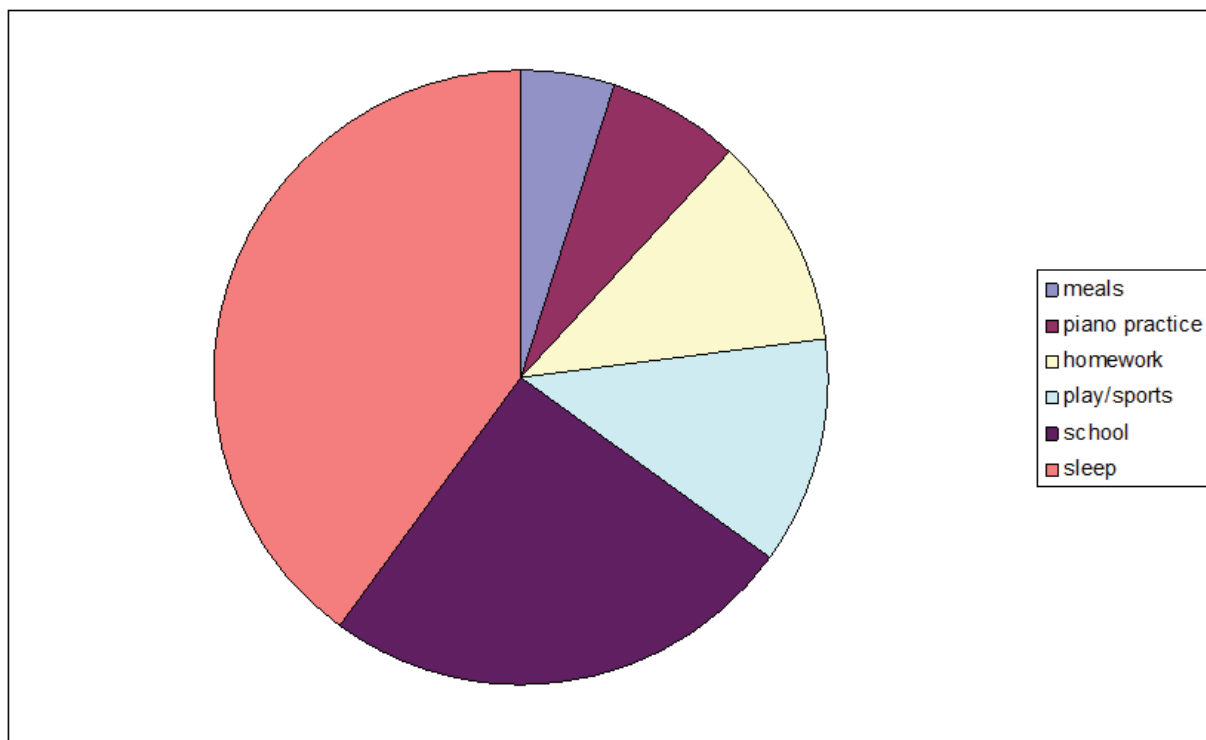
In the vertical bar graph below, each quantity is represented by a vertical bar.



A **circle graph** (also called **pie graph**, or **pie chart**) is used to show how the whole of something is divided into parts. The whole circle or pie graph stands for the entire sample. The pieces of the pie in the circle graph are called “sectors”.

In the example on the following page, the whole pie graph represents a day in Wolfgang's life, and the sectors show with what activities he spends a typical day; in the table, the numbers stand for how many per cent the activity takes up within the 24 hours of a day.

activity	% / day
meals	5
piano practice	7
homework	11
play/sports	12
school	25
sleep	40



The fundamental rule to observe for interpreting tables, graphs and charts is to concentrate on the legend, i.e. the labels telling you what stands for what. Only if you know what the numbers in a column or the sectors in a pie graph stand for, and what measuring unit is used (centimetres, metres, or kilometres?), you can make sense of the information.

B TASKS

1. Look at table 2 ("Population by ethnic group and age band: UK, 2008") on page 3 of [Source 1 \(a PDF file\)](#) and concentrate on the third group of columns, "Percentage distribution by age". What is especially remarkable about the ethnic groups "White and Black Caribbean", "White and Black African" and "White and Asian"? What does it mean?
2. Under the headline "Demographics Changes", you will find some information about ethnic diversity in [Source 2](#), particularly about the situation in London. What kind of

Ethnic Diversity in the UK

graph would be most suitable to visualize this information? Look at the explanation of graphs above, and draw a graph (either with pen and paper, or using appropriate computer software).

(Peter Ringeisen)