# Presenting data – Reading

Using statistical data can provide powerful support to ideas in a presentations. Successful speakers give adequate attention to the selection and presentation of data in their talks.

Presenting data in charts and graphs

Different types of charts and graphs should be selected depending on the different types of findings you will be presenting. In the following, the most common types of charts and graphs will be briefly described.

Pie charts
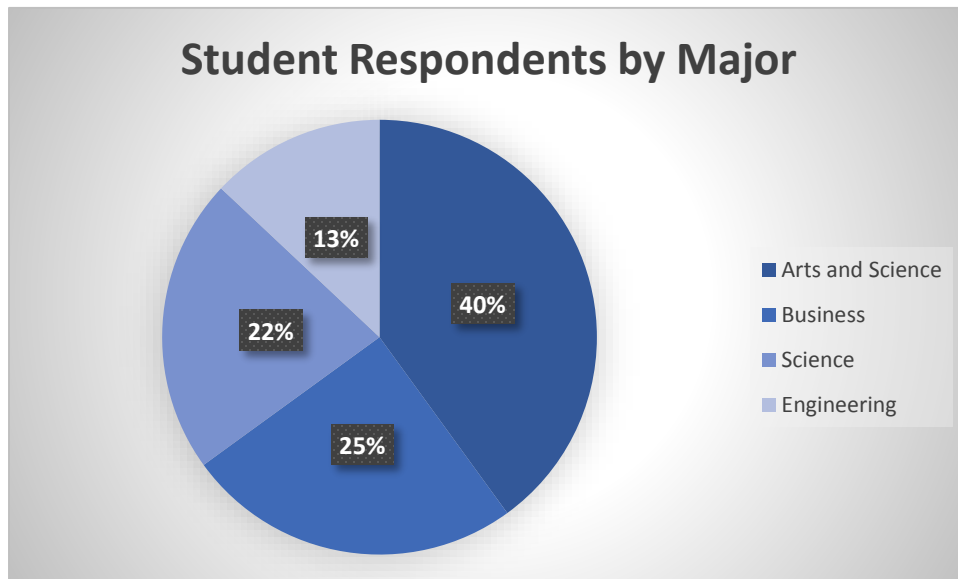
Sample pie chart

- Pie charts are used to show parts of a whole, if all the parts total 100.
- Pie charts emphasize general findings, but are limited because small differences are not easily shown.
- Pie charts should only be used with a relatively small number of values and should not be made up of more than five or six slices.
- It is extremely important to remember to include category labels or a legend that describes which slice corresponds to which category.

- It is also extremely important to include clear value labels (describing the percentage of the pie represented by the slice).

- It is good practice to pre-sort your data, clockwise or counterclockwise, so the relative size of the data is most apparent. In the sample pie chart above, the data has been pre-sorted in a clockwise direction so the largest percentages are presented first (40%) and the smallest percentage last (13%).

- The purpose of colour in pie charts is to help the audience to differentiate between pie slices and to facilitate comparisons between the data in the different slices. The best use of colour is a progression from dark to light hues from the largest to smallest slice as can be seen in the example pie chart above.

- If you wish to compare data, using two or more pie charts can be too 'busy' and confusing for the audience. In situation when it is necessary to compare data, it is more effective to use a **bar graph**.

Bar graphs
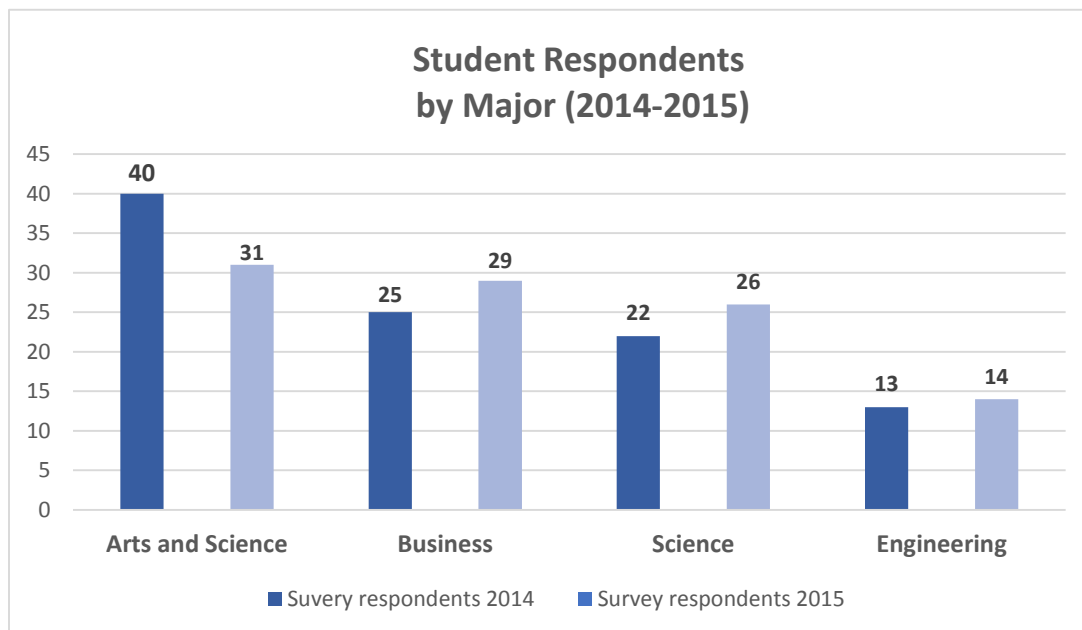
Sample bar graph

- Bar graphs are useful when you want to make direct comparisons of data.

- Bar graphs can be used to show time series data when the number of time intervals is small.
- Bar graphs can be vertical or horizontal, but horizontal charts are not usually used to presented time series.
- To facilitate comparison of data, remember to sort the values in some systematic way. This is usually done according to the value of the size (large → small or small → large).

Line graphs
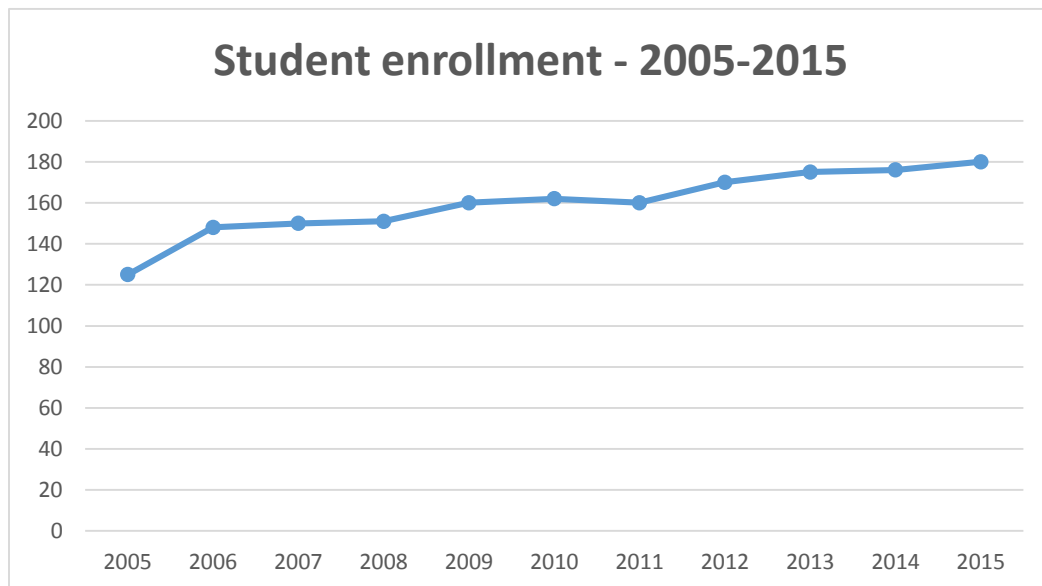
Sample line graph

- Line graphs are more effective in presenting multiple data points (five or more), but are less effective in illustrating differences over relatively few periods of time.
- The convention for this kind of graph is that the x-axis (horizontal) contains the categories of time (e.g. days of the week, months, years) and the y-axis contains the frequencies that are being measured.
- Line graphs that contain more than four lines tend to be confusing unless the lines are well-separated. It is helpful to also use different line styles (e.g. solid, dashed), colours and/or plotting symbols (e.g. asterisks, circles, etc.) to help distinguish between the different lines in the graph.

Describing charts and graphs

When you describe charts and graphs, keep in mind that what we are usually concerned with is the ***trend*** or the ***movement*** rather than the actual numbers in the chart. The movement is usually described with **verbs** (upward, lateral or downward) as can be seen in the following lists below:

climb expand go up grow increase rise rocket shoot up soar	flatten out level off / out maintain plateau remain constant remain stable stabilise (at) stand (at)	collapse fall cut go down crash plunge decline plummet decrease slide dive
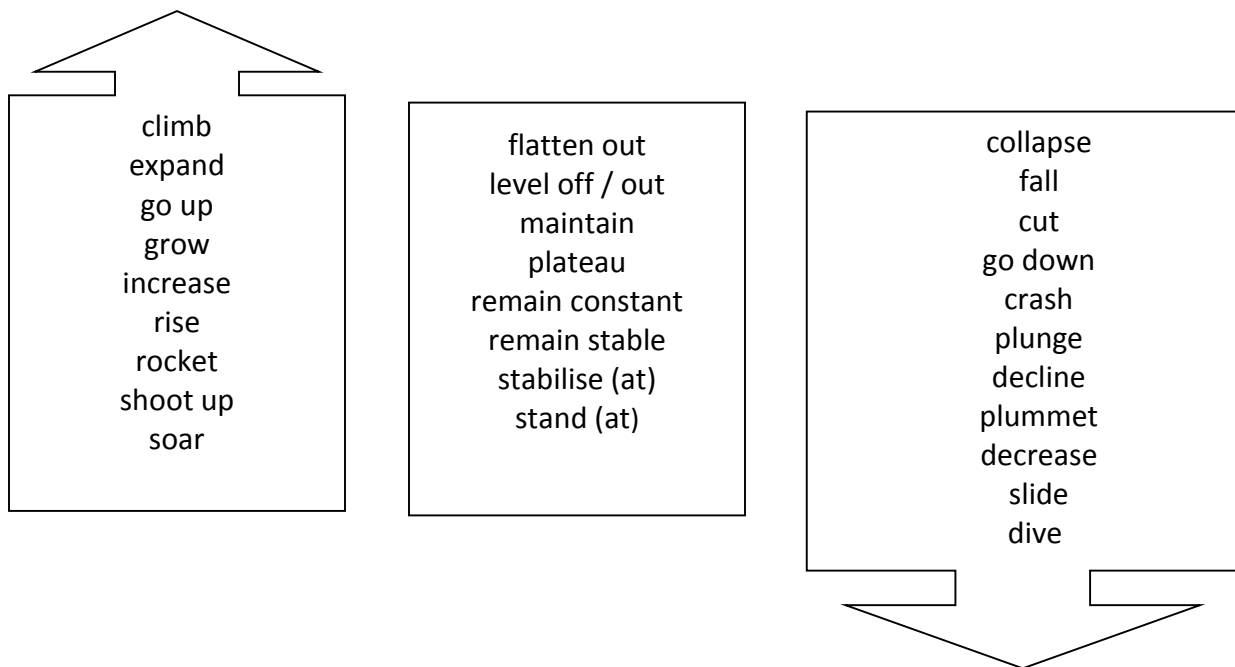
In addition to using verbs to describe movements, you can also use **adverbs** to describe the ***degree*** or ***speed*** of change, and **adjectives** for describing the ***trend*** or ***state***.

Degree of change	***Speed*** of change	***Trend*** or ***State***
moderately slightly significantly considerably sharply dramatically	slowly steadily gradually suddenly quickly rapidly	stable stagnant fluctuating volatile static

Here are two examples of how a presenter might use different adjectives, adverbs and active verbs to describe graphs or charts.

Example 1:
Visitor arrivals **grew strongly** in 2014. Total arrivals **increased** by 30% to 20 million for the whole year. Mainland China **continued** to be the primary source market, with over 12 million arrivals, **marking a sharp increase of** 50%. Major long-haul markets also **expanded steadily** and **rebounded** to pre-SARS levels.
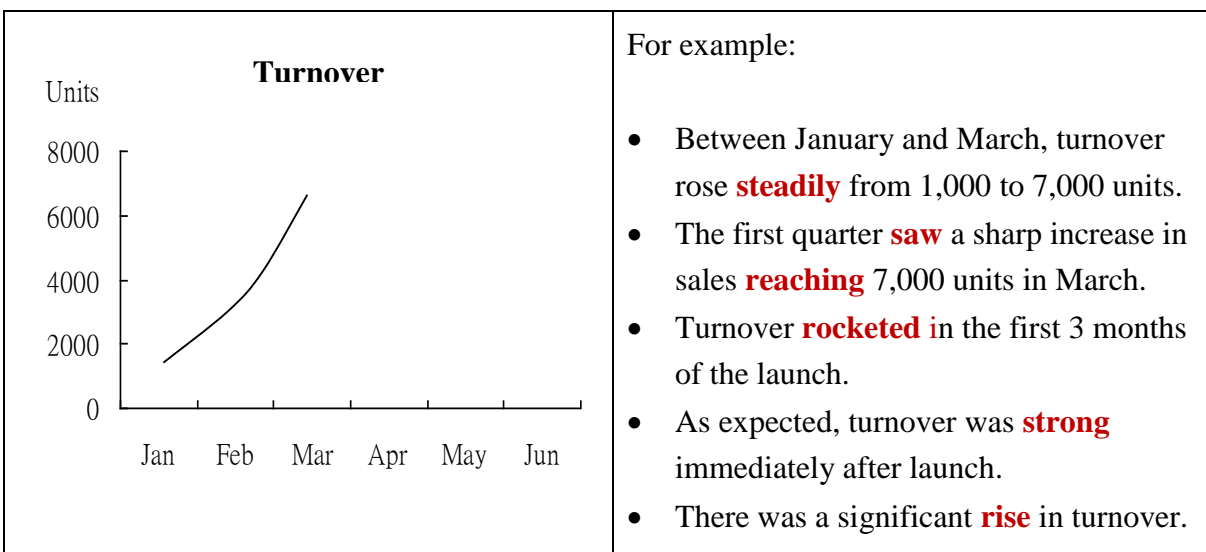
Example 2:
Even though software piracy is **gaining increasing** attention, it is still **rampant** in many parts of the world. As expected, Russia and Asia have the most active piracy markets, with **peaks of up to** 90% of all their software being illegitimate copies. It is notable that even in the United States and Western Europe, where the issue is addressed very seriously, the average piracy rates **still stand at** 30-40%.
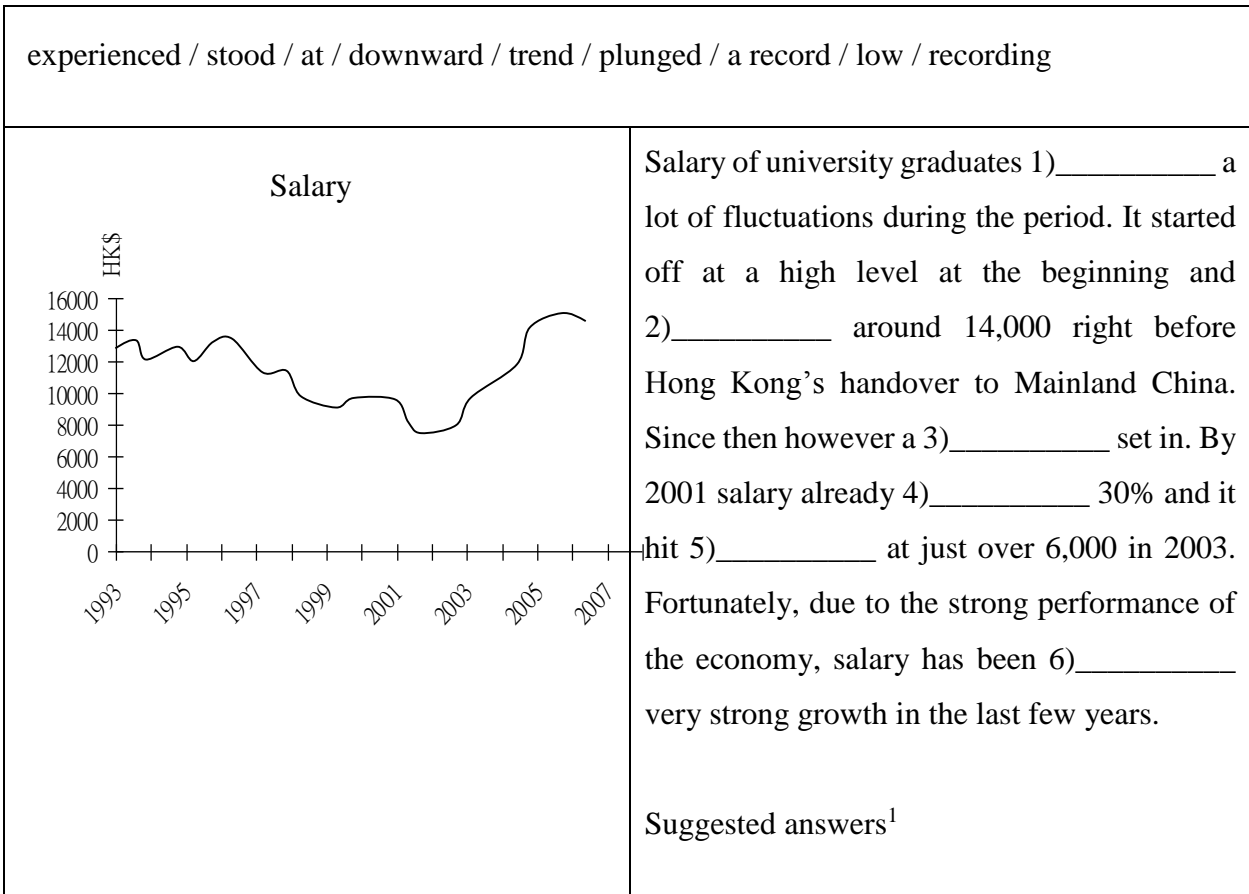
Use a variety of language to describe statistics

In addition using accurate language to describe the trends or movements shown in your graphs and charts, as presenters you also need to try to use a variety of language so your descriptions are not repetitive and potentially inaccurate.

Consider the line graph below. There are many ways to describe this simple graph. Look through each of the example descriptions to see how they all describe the same graph, but using slightly different language.

Turnover graph (Units: 8000, 6000, 4000, 2000, 0 across Jan, Feb, Mar, Apr, May, Jun)	For example: • Between January and March, turnover rose **steadily** from 1,000 to 7,000 units. • The first quarter **saw** a sharp increase in sales **reaching** 7,000 units in March. • Turnover **rocketed** in the first 3 months of the launch. • As expected, turnover was **strong** immediately after launch. • There was a significant **rise** in turnover.

Now consider the following line graph. Look closely at the graph then try to complete a full description using the sample vocabulary words given. Once you have completed the exercise, you can check your responses against the suggested answers in the footnote at the bottom of the page.

experienced / stood / at / downward / trend / plunged / a record / low / recording

Salary

HK$

16000
14000
12000
10000
8000
6000
4000
2000
0

1993 1995 1997 1999 2001 2003 2005 2007

Salary of university graduates 1)_____ a lot of fluctuations during the period. It started off at a high level at the beginning and 2)_____ around 14,000 right before Hong Kong's handover to Mainland China. Since then however a 3)_____ set in. By 2001 salary already 4)_____ 30% and it hit 5)_____ at just over 6,000 in 2003. Fortunately, due to the strong performance of the economy, salary has been 6)_____ very strong growth in the last few years.

Suggested answers[1]

Beyond data description

Remember, in a presentation, as in written text, your role is that of an interpreter. You need to help the audience make sense of the data presented in your graphics. People want to know the significance of your data and its relevance to themselves.

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[1] 1) experienced; 2) plunged; 3) downward trend; 4) stood at; 5) a record low; 6) recording