3a – A Guide to
Column Charts and Histograms

Royal Geographical Society
with IBG
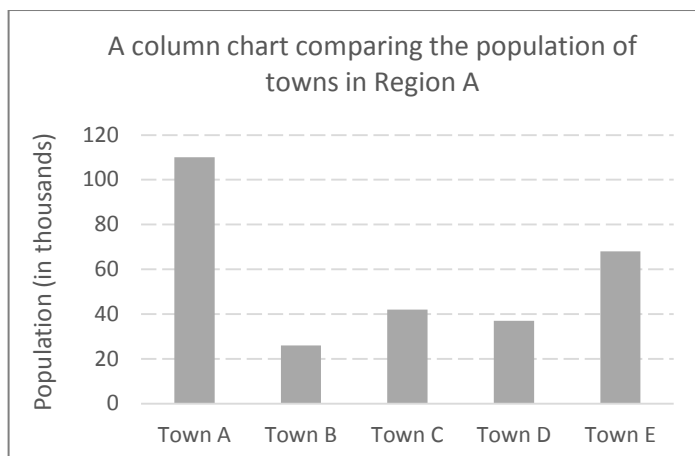
Advancing geography
and geographical learning

Column and Bar charts are a common form of data presentation, used to show the frequency of something with a data set. Column and bar charts show discrete data, where each variable is unrelated to the next. They are commonly confused with **Histograms** which instead work with continuous data, and show how the data is distributed across a range of values such as time or distance.

Why would we use column, bar charts and histograms?

This form of data presentation is commonly used for its ease of design and interpretation. A researcher would aim to use this method of data presentation when faced with relatively few sets of data (four to eight different variables for example) that are distinguishable from each other by their respective quantities.

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Column Charts

Column charts use coloured columns standing vertically to show the frequency of data within discrete categories. To emphasise that the data is discrete, the columns should be separated by a gap along their x axis.

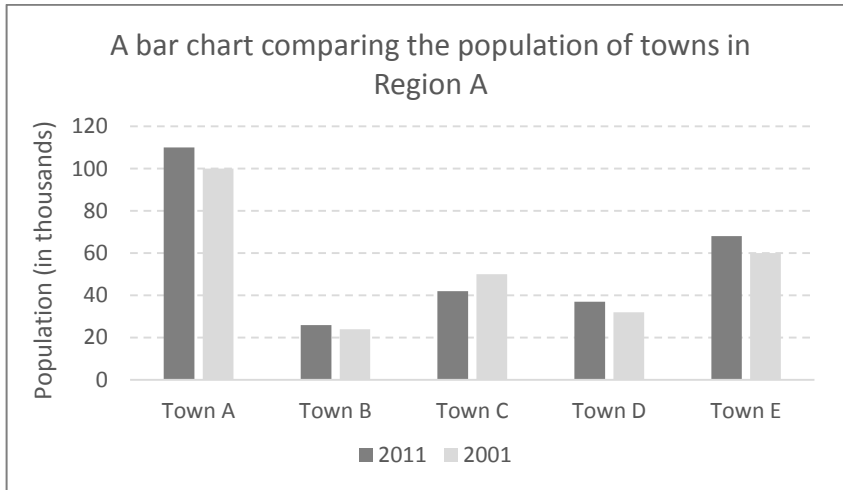A column chart comparing the population of towns in Region A

Bar Charts

Bar charts represent data in exactly the same manner as column charts but with the bars running horizontally. The bars should be separated by gaps along their y axis to show the discrete nature of the data.

Comparative Bar Charts

Placing another set of data alongside the first can allow a researcher to more easily make comparisons between them. A key may be needed to distinguish between the two sets.

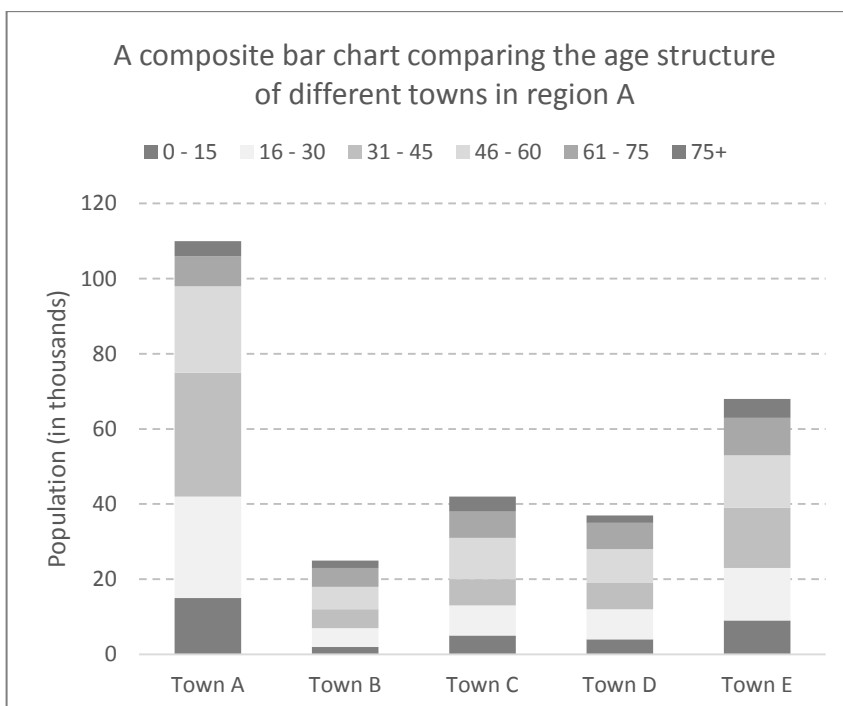A bar chart comparing the population of towns in Region A

Composite Bar Charts

A composite bar or column chart can be used if the researcher wishes to show more than one type of data for each variable. These can be expressed as a percentage of the whole or as the actual figures within that total.
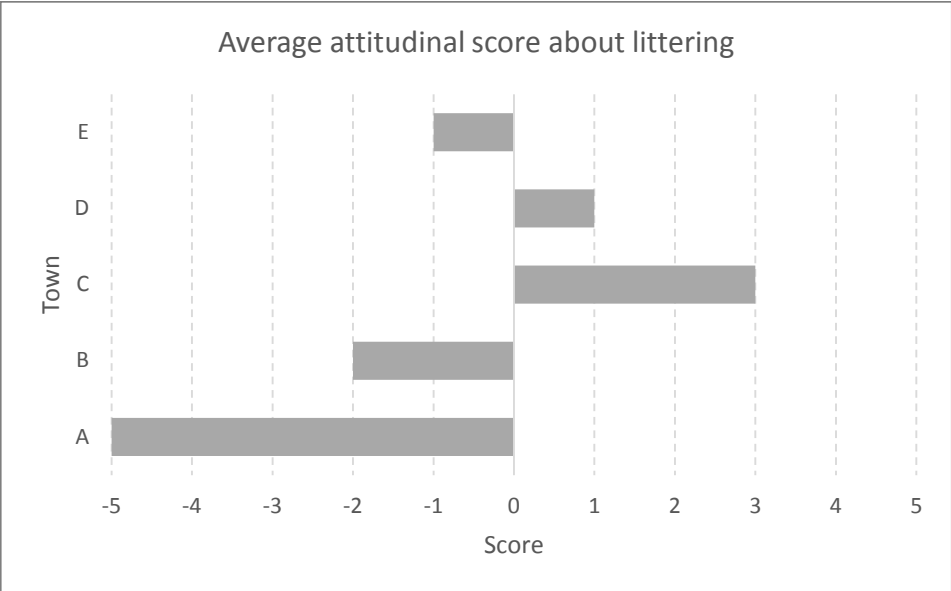
Why would we use composite bar charts?

A researcher would use a composite bar or column chart when there are a reasonable number of categories in each bar. More than six categories can make reading the chart quite difficult.

A composite bar chart comparing the age structure of different towns in region A

Bipolar Bar Charts

These bar charts have one y axis and an extended x axis, allowing the researcher to show two forms of data at once. The most common bipolar bar chart that geographers use is actually a histogram: the age-sex pyramid. However, if the researcher wishes to display data on opinions from a bipolar survey, they can show both the positive and negative opinions, visually on the one bar chart.

Histograms

Histograms are bar charts that are showing continuous data. This means that it is possible for some zero values to also be displayed alongside the positive values. One histogram commonly used by geographers is a rainfall graph. Unlike other types of graphs, the user should not be tempted to shade the columns differently as they are all representing the same type of data.