



Presenting data in tables and diagrams

You use tables and diagrams to give your readers a clear summary of data and to point out connections. They are never just decoration but rather help your readers understand the information you want to give.

1. Should I choose a diagram, a table or text?

Present as...	suitable when:	Example																			
Text	<ul style="list-style-type: none"> - no extensive data sets - a table would only have one column or one row - only one or two values 	Cities in region A have an average total population of 99,984. Cities in region B, on the other hand, are smaller and have an average population of only 26,284.																			
Table	<ul style="list-style-type: none"> - exact figures are important - readers should be able to identify individual values - clear display of detailed data 	<p>Tab. 1: Stimmen- und Sitzanteil der drei größten Parteien des Landes QPR</p> <table border="1"> <thead> <tr> <th rowspan="2">Jahr</th> <th colspan="3">Partei X</th> </tr> <tr> <th>Stimmen in %</th> <th>Sitze</th> <th>Stimmen i</th> </tr> </thead> <tbody> <tr> <td>2010</td> <td>41.59</td> <td>83</td> <td>40.51</td> </tr> <tr> <td>2014</td> <td>35.77</td> <td>72</td> <td>41.21</td> </tr> <tr> <td>2018</td> <td>31.35</td> <td>55</td> <td>42.86</td> </tr> </tbody> </table>	Jahr	Partei X			Stimmen in %	Sitze	Stimmen i	2010	41.59	83	40.51	2014	35.77	72	41.21	2018	31.35	55	42.86
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Diagram	<ul style="list-style-type: none"> - exact figures are less important - your intention is to illustrate the relationship between individual values - comparison of data sets 	<p>Fig. 1: Distribution of writing tutoring sessions per week</p>																			

2. General checklist:

- I only present data that are relevant to the research question.
- It is not enough to present my data in the appendix.
- The core message I want to illustrate with my data is clear.
- The text refers to the table / the diagram, and it is clear what readers should pay attention to. The information presented in it complements the text.
- The object does not crowd the text, and there are not too many objects on the page.
- The layout is uniform and clear so that the object is easy to comprehend.
- Each object has a short but meaningful title and is correctly numbered.
- I have the necessary usage rights, and copyrights are not violated.

3. Checklist for tables:

- The number of columns and rows matches the purpose of the table. The arrangement underlines the core message.
- The table is visually structured by using narrower or wider spacing. I have minimized the number of lines.
- The font is clear, only slightly smaller than in the text and easy to read.
- Highlighting is used sparingly and underlines the core message.
- The table fits on one page, or the header is repeated on the following page.
- All information necessary for understanding the table is included. Table footnotes are used as a supplement if necessary.
- The table layout is uniform throughout the text.

4. Checklist for diagrams:

- The type of diagram was chosen based on what I want to compare:
This table provides a simplified overview and provides a type of diagram as an example.

Type of comparison	Type of diagram
Shares: Size of one part in relation to the total	Pie chart
Ranking: Sizes compared to each other	Bar chart (horizontal)
Time series: Change of a size over time	Line graph
Frequencies: Number of elements within a category	Bar chart (vertical)
Correlations: mathematical correlation between values	Scatter plot

- The diagram type was selected according to the number of values:
Pie charts and bar charts with rather few values (up to a maximum of eight), line charts for many values. There are no more than three to five curves in a diagram.
- All information the reader needs is given: Axes respectively categories are clearly labelled, units are given, there is a legend.
- The presentation is as clear and simple as possible and easy to comprehend.
- Diagram range and scale are well chosen (clear distribution of values in the diagram).
- Auxiliary lines are used very sparingly or not at all. As few numerical values as possible (but as many as needed) are given.
- Colours, symbols etc. support the core message.

Source and recommended reading:

This material is essentially based on the following book chapter:

Hirsch-Weber, Andreas; Scherer, Stefan (2016): *Wissenschaftliches Schreiben und Abschlussarbeit in Natur- und Ingenieurwissenschaften. Grundlagen - Praxisbeispiele - Übungen*. Stuttgart, pp 113 – 140.

Translation from German by Stefanie Everke Buchanan.