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Writing Advice*: Increase the clarity of your writing.

The ability to **clearly** and **accurately** write and present scientific data matters for your manuscript.

Writing that is clear, concise and objective requires attention to how to convey your ideas. By keeping the following advice for scholarly scientific writing in mind, you can prepare a well-written scientific document or manuscript.

Keep your text clear, concise and objective

Clarity and **concision** are vital in academic writing, especially scientific texts, which can often include detailed descriptions of tests, procedures and measurements. To avoid confusing your reader, ensure that your text isn't vague and that it isn't overly wordy (e.g. use 'because' instead of 'due to the fact that' and 'to' instead of 'in order to').

Ensure that your ideas are **organized** and **presented clearly**. For example, if you describe an experiment that you conducted, make sure you present the steps chronologically and don't leave any steps out; skipping steps or presenting them out of order will only confuse your audience.

Objectivity is key since scientific writing should be based on evidence. Avoid making any generalizations, unproven statements, or any other statements that can't be supported by facts or data. Remain impartial, and stay away from hyperbole, and value judgements.

Use a formal structure for your paper or report

Most academic scientific articles will follow an **IMRaD** (e.g. introduction, materials/methods, results, discussion, conclusion/recommendations). Ensure that your information is all organized into these sections and that only relevant information is included in each section (i.e. don't describe methods or other research that aren't related to the work you conducted).

As you're writing your materials/methods section, don't get ahead of yourself and begin describing your results; save any thoughts about the implications of your results for the discussion section. Within your main section, you can **use subheadings** to further organize your material.

Use Standard Academic English (SAE)/English for Academic Purpose (EAP)

To make your document as professional as possible, it is important to use an academic writing style. Avoiding contractions, casual phrases ("when it comes to") or slang. Ensure you use correct grammar, spelling, and punctuation; avoid sentences that are too-complex or too-simple.

Using an academic writing style, however, does not mean that you need to consult a thesaurus for a fancy replacement for every word; remember that clarity and concision are important even in formal academic writing.

Define abbreviations and unfamiliar terms

Remember that your audience may not have the same breadth of knowledge about the topic that you have. Any abbreviations that may not be immediately familiar to your audience, such as 'SEM', should be spelled out on the first use with the abbreviation in parentheses. In this example, remember to provide the full term 'scanning electron microscope' followed by '(SEM)' for those who may not be familiar with it. On subsequent uses in the paper, you can simply use 'SEM'.

Caption your figures and tables

If your paper includes **graphic items,** such as figures, tables, graphs, illustrations, etc., remember to provide a brief - yet descriptive - caption for each item. In the text, discuss the information shown in the figure or table and its relevance to your work.

It isn't necessary to fully describe each table or graph within the text—you just need to point to the most important information for your reader. Remember that if you include any graphic element such an item in the paper, you must refer to it at some point within the text; don't add illustrations or figures and then not explain their importance to the paper.

Remain consistent

If you use a specific term in the paper to refer to a piece of equipment, concept, etc., remember to keep using that term throughout the paper to maintain consistency and make it easier for your readers to understand your work. Likewise, if you begin describing experiment, or data using CGI or SI measurements, then don't switch to the imperial system halfway through; if you have converted from one system to another for your publication, explain that in your materials or methods section.

Check your work

Once you have finished writing your document, read through all of it to make sure you haven't omitted any vital information or have provided any inaccurate data. Check your calculations, totals, units of measure, etc.

Check for spelling, grammar, punctuation, and sentence construction errors to make sure the text is clear and direct. Reading your paper aloud can help with this, as can having someone else go over the paper to check for errors.

* Adapted from "Tips for Academic Science Writing". *Wordy.com*. Wordy Limited, 2020. https://www.wordy.com/writers-workshop/tips-for-academic-scientific-writing/

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