

**A Brief Introduction to Scientific Writing**

You’ve worked hard in your English classes, mastering MLA formatting and rhetorical strategies. Suddenly, you find yourself in a science class and discover the writing rules seem to have changed. How do you adapt your writing to fit this new discipline? Effective scientific writing hinges on three main qualities: structure, clarity, and tone.

**I. Structure**

* Most forms of scientific writing are organized in a “bowtie” structure.
* Each element must remain in its specific place.
  + For example, data cannot appear in the conclusion.
* Do not spend too much time on errors or inconsistencies.

**I. Introduction**

* Big picture/relevant knowledge
* Previous research
* Research question
* Hypothesis

**I.**

**II. Methods/Results**

* Bare bones explanation of experiment & accuracy
* Raw data & statistical analysis in textual and visual forms

**II.**

**III. Discussion**

* Review of hypothesis
* Note trends in experiment data
* Connect data trends with research findings
* Address any errors or inconsistencies
* Conclusion: disprove or support hypothesis
* Implications & new questions
* The big takeaway

**III.**

**II. Be Clear and Concise**

* Use simple, straightforward words.

🗷 Utilize

* Use

🗷 Methodology

* Method
* Never use meaningless phrases when a single word will suffice

🗷 At this point in time

* Now

🗷 Due to the fact that

* Because
* Use adjectives/adverbs sparingly
* Omit all needless words and ineffective phrases

🗷It should be noted that

🗷Respectively

🗷It is important to

🗷So-called

* Use strong verbs, and avoid vague verbs that lead to unnecessary extra words.

🗷Researchers ~~did an analysis~~ of anaerobic bacteria.

* Researchers **analyzed** anaerobic bacteria.

**III. Tone**

In scientific writing, the tone must be objective and personal bias should be avoided. Different instructors may have different preferences in this regard. Always follow your professors’ guidelines concerning the use of active and passive voice and personal pronouns.

* In some science classes, you will be required to use passive voice exclusively. In others, both active and passive voice are permitted, with clarity being the determining factor. But how can you tell which is which?
  + **Active voice (subject performs action):** Subjects self-reported pulse rates.
  + **Passive voice (subject receives action):** Pulse rates were measured and recorded.
    - How can you tell if a sentence is in passive voice? Try the “by zombies” test. If you can add the words “by zombies” to a sentence and it makes sense, it is in passive voice.
    - EXAMPLE: Heart rates were measured (by zombies).
* When using active voice, some instructors may still want you to avoid personal pronouns (I, we, you). Instead, use words like “researchers” and “subjects.”

🗷 We analyzed the data.

* Researchers analyzed the data.

If you stay focused on structure, clarity, and tone, you will be able to navigate the transition to scientific writing.

References

Sheffield, N. (n.d.). *Duke graduate school scientific writing resource*. Retrieved March 10, 2020, from <https://cgi.duke.edu/web/sciwriting/>

Shome, A. (2019). Closing the gap: A practical guide to science in the writing center. *Praxis: A Writing Center Journal 17* (1). Retrieved March 10, 2020, from <http://www.praxisuwc.com/171-shome>