

THE TEN COMMANDMENTS OF THE INTRODUCTION SECTION

- ❑ **Thou Shalt Establish the Research Area – The first sentence should be intentionally broad to tell the reader the overall field of interest.**
- ❑ **Thou Shalt Establish Importance – Many themes are human health and/or environmental impact**
- ❑ **Thou Shalt Provide Relevant Earlier Results – Keep it short, but give relevant results from other works.**
- ❑ **Thou Shalt Find the Gap – Identify where the gap in the existing knowledge lies.**
- ❑ **Thou Shalt Fill the Gap – AFTER you review previous work AND you identify the gap, you may establish what your work will contribute to the “gap filling” to come.**
- ❑ **Thou Shalt Not Quote or Plagiarize – Learn how to paraphrase: read a paper; take notes; summarize your notes; check your summary; add a citation.**
- ❑ **Thou Shalt Focus on the Science – Don’t use authors’ names in citations, this takes away from the importance of the science.**
- ❑ **Thou Shalt Not “See Spot Run” – Effectively use commas, semi-colons, and colons to create more concise and fluent complex sentences that can convey ideas more effectively.**
- ❑ **Thou Shalt Use Linkages – Effectively use phrases and conjunctions to create more fluent, meaningful, and emphatic sentences.**
- ❑ **Thou Shalt Setup the Paper – A well-written Introduction will setup the rest of the paper by establishing the questions that the Methods & Materials, Results, and especially Discussion sections will answer.**

THE TEN COMMANDMENTS OF THE MATERIALS AND METHODS SECTION

- ❑ **Thou Shalt Not Write Instructions – You are writing for an Audience of Chemists.**
- ❑ **Thou Shalt Follow the Proper Move Structure – I. Describe Materials; II. Describe Experimental Methods (Instrumentation and Procedures); III. Describe Numerical Methods (Statistical and Computational).**
- ❑ **Thou Shalt Give the Source and Quality of the Key Chemicals – Abbreviate and Capitalize Appropriately.**
- ❑ **Thou Shalt Describe the Instrumentation – Include Manufacturer, Model, and Parameters if Appropriate.**
- ❑ **Thou Shalt Describe the Procedures – Convey Order of Events (Avoid “First...Next”, etc.) and Use Appropriate Numbers and Units.**
- ❑ **Thou Shalt Describe the Numerical Methods – Report Statistical Analyses and/or Computational Analyses Including Software Name and Version If Necessary.**
- ❑ **Thou Shalt Use Past Tense – Use Present Tense only when Describing Properties of Chemicals or Equipment.**
- ❑ **Thou Shalt Use Passive Voice – Use Active Voice only when a Part of the Procedure is the Subject of the Sentence.**
- ❑ **Thou Shalt Not Use Quotations – It is Not Necessary to Quote Specific Pieces of a Reference in the Methods But You Can Refer to a Reference From Which You Adapted the Procedure.**
- ❑ **Thou Shalt Avoid Referring to “This” Project, Experiment, Paper, etc. – It is Only Appropriate When You are Referring to Work Done in Another Paper.**

THE TEN COMMANDMENTS OF THE RESULTS SECTION

- Thou Shalt Describe Your Results not Interpret Them – Ask yourself “What did I find?” not “What do my findings mean?”**
- Thou Shalt Follow the Proper Move Structure – I. Briefly restate project goal and methods ; II. Identify important results, describe trends, and highlight unexpected results.**
- Thou Shalt Use Equations, Figures, Tables, and Schemes Only When Appropriate – If you include an equation, figure, etc. you must refer to it in the text and sequential reference numbers.**
- Thou Shalt Produce Pretty Equations – Use Equation Editor, indent the equation 0.5” from the left margin, and give a numerical caption (i.e., (1), (2), etc.) indented 0.5” from the right margin.**
- Thou Shalt Produce Pretty Figures – Use Excel and give a bolded caption title (i.e., Figure 1, Figure 2, etc.) and non-bolded caption text left-aligned under the figure.**
- Thou Shalt Produce Pretty Tables – Use Word and give a bolded caption title (i.e., Table 1, Table 2, etc.) and non-bolded caption text left-aligned above the table.**
- Thou Shalt Produce Pretty Schemes – Use ChemDraw and give a bolded caption title (i.e., Scheme 1, Scheme 2, etc. and brief non-bolded caption text left aligned above the scheme.**
- Thou Shalt Place Equations within the Text and Figures, Tables, and Schemes in a Section at the End of the Paper – Each on a separate page with its own caption.**
- Thou Shalt Use Appropriate Combinations of Tense and Voice – Past-Active to describe specific results, Past-Passive to describe specific steps, Present-Active to state scientific “truths,” and either Present-Active or Present-Passive to refer to equations, figures, etc.**
- Thou Shalt Use Appropriate Word Choices – Avoid the use of personal pronouns, use respectively correctly, use precise/quantitative language, and use appropriate pluralization.**

THE FIVE COMMANDMENTS OF THE DISCUSSION SECTION

- ❑ **Thou Shalt Interpret Your Results – Ask yourself “What do my findings mean?” and do not stray from relevant interpretations.**
- ❑ **Thou Shalt *Suggest* the Broader Implications of Your Results – Ask yourself “How do my findings apply to the ‘real world?’” and do not stray from relevant applications.**
- ❑ **Thou Shalt Follow the Proper Move Structure – I. Briefly restate important results; II. Interpret important results; III. Summarize the entire study; IV. Suggest greater, more general implications of results.**
- ❑ **Thou Shalt Use Appropriate Combinations of Tense and Voice – These are the same as for the Results section but also includes Present-Active for interpretations of results.**
- ❑ **Thou Shalt Not use “Fact,” “Truth,” or “Prove” – You cannot be as absolute as these words suggest, use hedging words such as “evidence,” “theory,” or “suggest.”**

SOME OVERALL GUIDELINES

Your paper must...

- have 1 inch margins,
- be typed with 10 or 12-pt. Arial, Times New Roman, or similar font (something easily readable),
- have justified paragraphs (even edges on both sides),
- have page numbers at the bottom center of each page starting on the first page,
- be double-spaced,
- have a title bold and centered on the top of the first page with your name centered below it (leave off the name for the rough draft),
- have a separate works cited page with your references (minimum 3) listed,
- and have all figures, tables, and schemes with captions on separate pages after the works cited page.

Symbols and Chemical Structures

Symbols ($^{\circ}$, \times , \equiv , \pm , etc.) should be included using the appropriate symbol font. Symbols and abbreviations must be defined the first time they are used unless their meaning is accepted as fact (NIST should be defined but \pm does not need to be). Do not write out the meaning of a symbol (degrees C instead of $^{\circ}\text{C}$) just because you can't find it or do not know how. Be sure to use subscripts and superscripts properly as well.

Equations, Figures, and Tables

Equations, figures, and tables should be numbered sequentially, e.g., Figure 1, Figure 2, etc. as they appear in the text and should be referred to by their numbers. Each figure and table should have a caption that the reader can understand without reading the text of the paper. Figure captions are positioned below the figure while table captions are found above the table. You must always reference a figure or table if obtained from one of your sources (i.e., it is not your original work). Complex equations should be separated from the text on a new line (only one equation on each line) and labeled as (1), (2), etc. to the right of the equation (with an additional 0.5 inch indentation on both sides). Equations do not need captions but each variable needs to be defined and its units given when encountered for the first time. You should use an equation editor such as Equation Editor provided with Word.