

# General Advice for Effective Science Communication

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**General Advice:** applies to most forms of oral and written communication:

1. **Know Your Audience or Readers:** their motivation, interests, level, prior knowledge, special needs.
2. **Know Your Objective:** what do you wish to accomplish through this communication?
3. **Organize Your Material:** outline, introduction, short sections and paragraphs and sentences; summary.
4. **Use Suitable Language:** define technical terms and acronyms (if you need to use them); use simple, clear prose; use analogies if you can.
5. **Diagrams or Slides:** whether in an oral or written communication, keep them simple and readable; use explanatory captions or annotations.
6. **Delivery:** whether orally or in writing, keep it simple, clear, interesting.
7. **Follow Instructions:** keep to time in an oral presentation (practice!); keep to your word limit in a written communication (write drafts, edit!).

## Additional Advice for Oral Presentations:

1. You may read your presentation (humanists at conferences do), but maintain eye contact with your audience.
2. Use a microphone if one is available; it's especially appreciated by the hearing-impaired.
3. Following the general advice: start at a very basic level, and don't go much above the average level of your audience.
4. Make sure the font size and colour on your slides is readable.
5. Patiently wait for questions; repeat or rephrase them so that the whole audience can hear; deal with them briefly and politely.

Useful reference: <http://www.toastmasters.org>

**Additional Advice for Written Papers or Posters:** this is modified from a document by D. Taylor, Health Sciences Writing Centre, University of Toronto.

**Title:** should be clear and simple, and should say exactly what the paper is about.

**Abstract:** a brief, comprehensive summary of the contents; it allows the reader to survey the contents quickly, and decide whether to continue reading. It is also used by abstracting and information services to index and retrieve articles. It should contain as much as possible of the quantitative and qualitative information in the paper, and also reflect its reasoning – all in 100-250 words!

**Introduction:** This should define the problem and its background, and give a rationale for studying it. The first paragraph should therefore be an introduction to the topic (the star, the type of star). This can be followed by a review of previous work on the topic (the star, the type of star). Then outline your approach, in terms of specific research question, or observations: Why observe this star?

**Methods:** This will depend on the nature of your paper but, in an astronomical paper, it should describe the data, how it was obtained, and what its characteristics and limitations and peculiarities are – including issues of reduction and calibration, comparison stars etc. It should describe the methods and software by which you have analyzed it.

**Results:** This should: (a) organize the results to relate to the purpose or objectives of your research; (b) summarize the most important findings, including “error bars”; (c) summarize other interesting findings; (d) include figures, graphs, and tables, but make sure they are fully captioned, and describe them in the text.

**Discussion:** This can include how your results relate to the purpose of your project (what do they say about your star?), discussion of any differences between what you found and what you expected to find, any limitations or ambiguities in the results. It should concentrate on the strengths and limitations of your observations and analyses, and the way in which your results do or do not provide evidence for your conclusions. It can connect to previous work. It can connect to other topics or results that you did not foresee, such as the variability of a comparison star.

**Conclusions:** State your conclusions and their implications. Don't worry if this section is very similar to your abstract.

**References:** Give these in whatever form is requested, but make sure that they are complete, whether they are print or electronic references.