How to Referee a Scientific Article

Scientific articles are reviewed only by other scientists in the same field and specialty. These individuals are known as scientific refeerees and the process is called "peer review." It is one of the methods by which technical information and experimental results are publicized, and failure or success of the process will greatly impact on the ability of the scientists (the article's authors) to win federal funds, hire staff, and maintain a laboratory. It is therefore important that any scientist invited to referee a scientific paper is able to critically dissect, understand, correct and improve all of its components.

Instructions

1. How to referee a scientific article

- *1*

  Make sure you have the appropriate qualifications before agreeing to referee a scientific article. It is highly rare and unusual for a scientist without a Ph.D. (or higher qualifications) in the specific field, to be selected as a referee; however many journal editors do make this mistake. Your decisions, critical appraisals, corrections or suggestions must withstand all legal, academic and scientific challenges.

- *2*

  Determine the aim of the article. Ensure the problem being investigated and the purpose of the article is clearly stated and that the authors emphasize any significant concerns. The introduction or abstract of the article should also provide a brief

history of the author’s previous achievements or data that led to the current article.

- 3

  Determine whether the article is suitable for the journal it was submitted to. High-impact journals will pre-screen articles before sending these out to referees. Low-impact journals may not have the scientific staff or expertise to do this, so the responsibility falls upon the panel of reviewers. For example, the journal Nature Biotechnology is unsuitable for an immunology article unless a significant component of it includes biotechnological applications, advances or data.

- 4

  Determine the significance of the article. Understanding the aim is often sufficient to gauge this, but the referee should also take into account if the problem is real or simulated, specific to certain populations or widely applicable, novel or previously explored, and if the hypothesis opposes current rules or trends.

- 5

  Verify that the method of experimentation is suitable. Check that the experimental procedures are correct. This includes the type of samples analyzed, the models used, the approach to data collection, the method of data analysis, and any calculations that affect the accuracy and stringency of the data.

- 6

  Verify that enough data has been collected for publication. Check that the data covers all potential loopholes, addresses any inconsistencies, and either validates or directly opposes the proposed hypothesis. The data should establish conclusively whether a problem has been solved or created.

- 7

  Critique the discussion of the results. This is the most difficult part of refereeing a scientific article and will require a significant understanding of the topic and the impact of the data on the field at large. Check that the conclusions were correct, succinct, and address any open-ended questions, conflicting data or puzzling observations.

- 8

  Always check the writing style last. Scientific articles prioritize data accuracy and scientific method over style of writing. Science writing should be extremely concise, technical, formal and correctly referenced. Grammatical errors and other English problems are a minimal concern, since not all scientists have English as their native language, however these should be flagged for the editor to correct. Also for this reason, flowery and verbose writing styles must be rejected.

- 9

Recommend or reject the article. Write a detailed referee’s report, which may be in the form of a simple template provided by the journal editors.