



## Publish or perish?

Among academics, the maxim “publish or perish” (i.e., publish your research or risk losing your job) is a threatening reminder of the importance of publication. Despite its cynicism, the phrase makes an important point: publishing findings, hypotheses, theories, and the lines of reasoning and evidence relevant to them is critical to the progress of science. The scientific community can only fulfill its roles as fact checker, visionary, whistleblower, and cheerleader if it has trusted information about the work of community members. Scientists distribute information about their ideas in many ways—informally communicating with colleagues, making presentations at conferences, writing books, etc.—but among these different modes of communication, peer-reviewed journal articles are especially important.



### What’s in a scientific journal article?

A journal article is a formal, souped-up version of the standard high school lab report. In journal articles, scientists (usually a group of collaborators) describe a study and report any details one might need to evaluate that study—background information, data, statistical results, graphs, maps, explanations of how the study was performed and how the researchers drew their conclusions, etc. These articles are published in scientific journals either in print or on the internet. Print journals look much like any magazine, except that they are chock full of firsthand reports of scientific research. Journals distribute scientific information to researchers all around the world so that they can keep current in their fields and evaluate the work of their peers.

Journal articles neaten up the messy process of science, presenting ideas, evidence, and reasoning in a way that’s easy to understand—in contrast to the often circuitous (and sometimes tedious) process of science. For an example, check out Walter Alvarez’s story below ...

### UNTANGLING A TWISTED PATH



Walter Alvarez

In 1980, in the journal *Science*, Walter Alvarez and his colleagues published a scientific article describing their controversial new hypothesis that the dinosaur extinction was triggered by a massive asteroid impact. Despite its splashy and novel topic, the article laid out its hypothesis and evidence in the conventional way—linearly—which allowed colleagues in geology and paleontology to quickly understand and evaluate the research. Though helpful for scientific communication, this linear presentation can give the impression that an investigation has been plotted out from the beginning—but in fact, Alvarez’s study was far from linear. He stumbled onto his hypothesis unexpectedly, originally setting out to study the tectonic movements of the Italian peninsula. After an intriguing series of twists, turns, false starts, inspirations, and rejected hypotheses, he and his colleagues found that they had completed a rather different, but compelling, investigation.