Write an Article

This section challenges you to write an article covering a scientific event—what its significance is and what means/processes were used to discover it. This can be a shorter or longer-term research project.

1. **The Higgs boson.** What does it mean that it was discovered: for instance, did a scientist touch one, or photograph it? What procedures and processes were used to discover it?

2. **The speed of light.** How do we know that *c* is a maximum speed? Why are Newton's laws viewed as limits, and why do concepts such as kinetic energy and momentum need to be refined when objects approach this speed? How does quantum entanglement challenge this "speed limit"?

   Introduce a complex idea (such as what is a Higgs boson) so that each element builds on what precedes it and creates a unified whole. For instance, present the idea of accelerators before presenting the discovery of the boson. Use formatting, such as headlines, to set off and organize your main points. Include a variety of graphics and media, such as a photograph of an accelerator, or a table that organizes particles.

   Plan out your work and cover a topic thoroughly by selecting the most significant and relevant facts, appropriate to an audience's knowledge of a topic. Narrow or broaden your inquiry when appropriate. For instance, with the speed of light, a physics class might know it has a maximum speed, but a more general audience might not. Be prepared to provid detailed definitions (such as "what is relative velocity"). Provide concrete details (such as how the speed of light was measured by Michelson and Morley), quotes (for instance, on the import of their discoveries), and other important information and examples.

   Use transitions (e.g., "also, " "in addition") and linking sentences to connect major sections of your writing, create a cohesive essay, and illustrate relationships among ideas and concepts. For instance, an essay on the speed of light might start by describing the idea that it traveled through ether. You might break your essay into "Before Einstein," "What Einstein Proposed," and "Science after Einstein." You might use consistent sentence structures—e.g., "Scientists before Einstein believed…." and "Einstein proposed…"—to introduce their hypotheses. Those introductions could be followed by a phrase like "Their major evidence was" and a series of bullet points that lists their data.

   Gather relevant information from multiple, authoritative print and digital sources. Assess the strengths and limitations of each source in terms of the information you are trying to bring to your audience. For instance, a text, or a website run by a well-known academic institution, is more reliable than comments from an unknown source on an Internet "board." Use advanced searches to find the best information. Be precise about what you are looking for, and if you find a reliable source, search within that site if possible. Incorporate information selectively—e.g., a brief quote, not multiple paragraphs—to maintain the flow of your work. Using smaller pieces of information allows you to avoid plagiarism and overreliance on any one source. Always follow the standard format for citations.

Use precise language and language specific to physics (e.g., "relative velocity" and "speed in a vacuum" for light). Topics such as the speed of light and Higgs boson are rather extraordinary, and outside our everyday experience, so use a metaphor, simile, or analogy to convey these complex topics. Have opinions based on knowledge and present them in a style relevant to the expertise of likely readers—a presentation to parents would differ from one at a science conference, for example.

You can use technology, including the Internet, to publish your work and to receive feedback, even while you're working on it. You can also post questions to relevant forums on the Internet. The Internet does well with current information, so you may find new arguments or information there.

It's a cliché, but good writing comes from re-rewriting. Revise and edit, or restart if needed, and keep this question in mind as you do this: what does the audience want from this work?