

## Assessing the Strength of the Written Argument in Science

A well-written scientific argument must contain a concise thesis statement that is central to the claim being made and makes clear what is being argued. The claim(s) must be supported through evidenced-based reasons. If counterclaims are presented, they must be followed by documentation refuting them. The following rubric can be used to assess a scientific argument, with a level 4 score indicating a very precise, well-documented argument. For example:

- Claim—Smoking should be taxed heavily.
- Reason—The tax revenue is needed to treat health ailments for uninsured smokers.
- Support—Statistics show that smoking increases illness that is costly to treat and is a financial burden on the larger population.
- Warrant—Smoking-related illness financially burdens the wider population.

### Level 4

Student has clearly stated the scientific claim, which makes obvious what is accurate or moral or should be believed or done. Reasons are presented as lines of supporting evidence in a systematic and convincing fashion. He or she has noted and discussed counterarguments as a way to acknowledge all sides of the issue. Evidence refutes counterarguments. The student revisits the claim in a summary or conclusion section. Punctuation, spelling, and grammar are correct.

### Level 3

Student has clearly stated and supported the claim with several lines of evidence. He or she has moderately well-developed lines of evidence and support. The paper has a summary or conclusion. Punctuation, spelling, and grammar have minimal errors.

### Level 2

Student's scientific claim is clear, but the paper offers minimal evidence for support. The ideas attempt to provide logical organization but fall short of unifying the arguments the student has presented. Punctuation, spelling, and grammar have multiple errors.

### Level 1

Student has unclearly or inappropriately stated a scientific claim. His or her evidence is illogical, emotional, or nonexistent. Student's ideas lack any clear organization scheme. Punctuation, spelling, and grammar interfere with the delivery of the message.