

# What is argumentation?

Argumentation is **a process of proposing, supporting, evaluating, and refining ideas in an effort to develop a better understanding**. This process of scientific argumentation occurs when a claim, often a proposed explanation, is in doubt or is contested, thereby motivating participants to defend their own ideas and challenge or question alternatives.

"Secure knowledge and understanding is as much a product of knowing why some ideas are **erroneous** as why other ideas are correct."

-Osborne, Erduran, and Simon, 2004

According to the *Next Generation Science Standards*, students with argumentation skills will critique the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).

They will be able to:

- Compare and refine arguments based on an evaluation of the evidence presented.
- Distinguish among facts, reasoned judgment based on research findings, and speculation in an explanation.
- Respectfully provide and receive critique from peers about a proposed procedure, explanation or model by citing relevant evidence and posing specific questions.
- Construct and/or support an argument with evidence, data, or a model.
- Use data to evaluate claims about cause and effect.

## Some Definitions of Terms Used in Argumentation

**Explanation** = answers why or how something happens

**Claim** = a statement proposed for acceptance; an explanation that is open to discussion and substantiation

**Evidence** = data or facts supporting a claim. Evidence is not simply found. For a fact or data to become evidence, it must be linked through an argument to an interpretation or explanation. The evidence must be acceptable by the standards of the discipline, i.e., science.

**Reasoning** = discussion of the relevancy of data/evidence to a claim; connects a claim with the evidence; can address the strength of the claim, how sure you are about it

**Counterclaim** = can be a rebuttal to the claim, reservations about the claim, or can describe exceptions to the claim and/or situations where it doesn't apply

**Argument** = the product of argumentation. An argument is in response to a question, (stated or unstated) where the answer is necessarily uncertain among the people considering it.