

## Relevant-Supporting Evidence Description

### Summary:

The research on students' abilities to use evidence when writing scientific arguments suggests that students usually try to use data as evidence (Sandoval & Millwood, 2005), but routinely use inappropriate evidence that is either irrelevant or non-supporting (L. Kuhn & Reiser, 2005; McNeill & Krajcik, 2007; Sandoval, 2003). This is noteworthy because relevancy and support impact the quality of scientific evidence, and, therefore, the quality of the argument as a whole (NRC, 2012). We define relevant evidence as measurements or observations that addresses (or fits with) the science topic. Relevant data has the *potential* to be of high quality if it is also supportive of the claim. Therefore, supporting evidence can be defined as evidence that exemplifies the relationship established in the claim. For instance, if a claim were based on a trend in the data (e.g. earthquake are stronger when their focus is closer to the Earth's surface), relevant evidence would address the science topic (e.g., depth can impact the strength of an earthquake) and supporting evidence would exemplify the relationship (e.g. Earthquake's A and B were shallow and were also stronger than the other earthquakes). The goal, therefore, is for students to recognize that the quality of scientific evidence is dependent on both relevance and support.

### Definitions:

Relevant evidence—measurements or observations that addresses (or fits with) the science topic  
Supporting evidence—measurements or observations that exemplify the relationship established in the claim

Irrelevant evidence—measurements or observations that do not address the science topic, and, thus are non-supporting

Relevant-contradictory evidence—measurements or observations that are relevant to the science topic, but support an alternative claim

### References:

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- Sandoval, W. A. (2003). Conceptual and epistemic aspects of students' scientific explanations. *Journal of the Learning Sciences*, 12, 5-51.
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