

## Conclusion (Claim – Evidence - Reasoning)

The conclusion answers the original question. A conclusion is an argument using evidence. The conclusion is a paragraph written in complete sentences (past tense). Avoid using personal pronouns.

**Claim (2-3 sentences):** An explanation that is consistent with the evidence; a judgment or decision reached after deliberation; answers original question

- **Statement of support or non-support of the original hypothesis.**
  - State “*The data collected did/did not/partially support the original hypothesis.*”
  - **DO NOT** state whether the hypothesis was right or wrong.
- **ANSWER THE ORIGINAL QUESTION.**
  - State “*These findings led to the conclusion....*”
  - Restate the question with the answer.

**Evidence** - Observations/facts/data that leads to a claim; supports a claim; appropriate and sufficient to support the claim.

- Only use evidence that supports the claim.
  - Use specific **numerical data**; Include units when discussing data.
    - MEAN (average), MEDIAN, MODE, RANGE, RANDOM ERROR, or PERCENT LOSS/GAIN!
  - **Facts and observations** can be used as evidence.
- “**Lines of evidence**” - Quantity and quality of the “lines of evidence” both play a part in the “strength” of the explanation; the best explanation is neither by decree nor by vote.
- Individual trials are normally not discussed.

**Reasoning** - The process of forming conclusions, judgments, or inferences from facts; to determine or conclude by logical thinking; states the final conclusion.

- **Explain WHY** (justifies) and **HOW** the data counts as evidence to support the claim (links the claim and evidence).
- Showing mathematical differences can be used for justification, as well as percent loss or gain.

**Conclusion Example:** Does the interaction between Mentos and different soda types (diet, regular, and clear) cause a change in the soda eruption height (meters)?

**CLAIM:** The data collected did support the original hypothesis. These findings led to the conclusion that the interaction between Mentos and different soda types did cause a change in the soda eruption height, and diet soda had the highest eruption height.

**EVIDENCE:** Average eruption height (meters)

- Diet soda - 7.32 meters
- Regular soda - 4.57 meters
- Control - 5.2 meters

**REASONING:** Based on the evidence, it is reasonable to conclude that diet drinks had the highest eruption height because diet drinks, on average, had a higher soda eruption height of 2.75 meters when compared to regular soda and 2.12 meters when compared to the control.

**Revised Hypothesis:** Write using complete sentences. Only one sentence is written.

1. Written **only** if data **did not support** or **partially** supported the original hypothesis.
2. If a revised hypothesis is written, it does not replace the original hypothesis.
3. The revised hypothesis follows the same format as the original format (minus the 2<sup>nd</sup> sentence):
  - “If..., then...”

**Further Research:** List areas of further research (bullets). Do not use sentences.

- **Describe ways that your investigation could be carried further or expanded.**
  - How could you elaborate on this topic?
    - HINT: Look at limitations to get expansion ideas.
  - What else could be done or what questions do you now have based on the data?
  - NOTE: Increasing time and number of trials are NOT expansion ideas.