### Criteria for

Writing an Explanation

The explanation consists of: a claim, evidence and reasoning.

*Claim:*

* is written as the answer or conclusion to a specific question or problem

*Evidence includes*:

* scientific data from the investigation or other sources (e.g., observation, reading, archive data or other sources) to support the claim.
* data that is appropriate (scientifically relevant)
* data that is sufficient (multiple pieces) to support the claim.

*Reasoning statements:*

* provide logical connections between the claim and evidence.
* include scientific concepts, principles, theories and/or laws.
* include justification as to why the evidence (data) supports the claim

**Base or Generic Rubric**

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| --- | --- | --- | --- | --- |
|  |  | **Claim**  *A statement or conclusion that answers the original question/problem.* | **Evidence**  *Scientific data that supports the claim. The data needs to be appropriate and sufficient to support the claim* | **Reasoning**  *A justification that connects the evidence to the claim. It shows why the data counts as evidence by using appropriate and sufficient scientific principles.* |
| **LEVEL** | 0 | Does not make a claim, or makes an inaccurate claim. | Does not provide evidence, or only provides inappropriate evidence (Evidence that does not support claim). | Does not provide reasoning, or only provides inappropriate reasoning. |
| Varies from 1 to 5 | Makes an accurate but incomplete claim. | Provides appropriate, but insufficient evidence to support claim. May include some inappropriate evidence. | Provides reasoning that connects the evidence to the claim. May include some scientific principles or justifications for why the evidence supports the claim, but not sufficient. |
| Makes an accurate and complete claim. | Provides appropriate and sufficient evidence to support claim. | Provides reasoning that connects the evidence to the claim. Includes appropriate and sufficient scientific principles to explain why the evidence supports the claim. |

This base or generic rubric (McNeill & Krajcik, 2012) is then adapted to a specific question and the number of levels depends on the question

**FRAMEWORK FOR SCIENTIFIC EXPLANATION**

**McNeill &Krajcik**

**Presented at NSTA 2011**