Rubric

<table>
<thead>
<tr>
<th>Component</th>
<th>Level</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Claim – A conclusion that answers the original question</strong></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>X</td>
</tr>
<tr>
<td>Does not make a claim, or makes an inaccurate claim.</td>
<td>Makes an accurate but incomplete claim.</td>
<td>Makes an accurate and complete claim.</td>
<td>DNA</td>
<td>DNA</td>
</tr>
<tr>
<td><strong>Evidence – Scientific data that supports the claim. The data needs to be appropriate and sufficient to support the claim</strong></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Does not provide, or only provides inappropriate, evidence. Evidence does not support the claim.</td>
<td>Provides appropriate but insufficient evidence to support the claim. May include some inappropriate or irrelevant evidence.</td>
<td>Provides appropriate data/graph as evidence, but analysis is not sufficient.</td>
<td>Provides appropriate and sufficient evidence and analysis to support the claim.</td>
<td>Provides appropriate and sufficient evidence and analysis to support the claim, along with a statement of comparison or conclusion.</td>
</tr>
<tr>
<td><strong>Reasoning – A justification that links the claim and evidence. It shows why the data counts as evidence by using sufficient and appropriate scientific principles.</strong></td>
<td>Does not provide reasoning, or only provides reasoning that does not link evidence to the claim.</td>
<td>Provides reasoning that links the claim and evidence. Repeats the evidence, but does not include scientific principles.</td>
<td>Provides reasoning that links evidence to claim. Includes only 1 appropriate scientific principle.</td>
<td>Provides reasoning that links evidence to claim. Includes appropriate and sufficient scientific principles.</td>
</tr>
</tbody>
</table>

**Argument Presentation**

**The Guiding Question:**

**Our Claim:**

**Our Evidence:**

**Analysis**

Show a trend, difference, or relationship.

This data indicates...
This data shows...
This data suggests...

**Interpretation**

Explain what the analysis means.

**Evidence:**

- We decided to use this evidence because...
- This evidence is important because...
- When we analyzed the data we assumed the following:

**Reason**

Explain why the evidence matters, using scientific principles.
These are the four basic rules we will follow when we critique arguments and reports

1 Be Respectful
Critique is how we identify errors or flaws in our ideas. In science, we always critique ideas, not people. When we are critiquing ideas, we never say hurtful things.

2 Be Specific
Even if you are being respectful, you are not doing anybody any favors if you are vague. In science, we always make specific and detailed comments about what needs to be improved.

3 Be Helpful
Critique is more than identifying a flaw or error in an idea; it is also about offering suggestions for ways to improve it. In science, we always offer specific and detailed suggestions for how to make things better.

4 Use Scientific Criteria
Scientists use empirical and theoretical criteria to determine if an idea is valid or acceptable. In science, we always use scientific criteria to critique arguments and reports.

Conversation Starters
- What other things did you try?
- Why did you decide to do…?
- Tell me more about…
- I don’t know if I agree with...
- I disagree with this because
- I have a question about
- Would it be better if…?
- One way to modify this is….
- How do you know…?
- I noticed…
- This could be improved by
- How can we help you?

Three Parts to a Scientific Explanation

1. Make a claim about the problem.
   - A claim is a statement of your understanding about the thing you are investigating.
   - It is at least one complete sentence in length.
   - If it is a claim about a specific question, it answers that question.

2. Provide evidence for the claim.
   - Evidence includes data. You will either gather data in labs or will be provided data to analyze.
   - The evidence is sufficient and appropriate to answer the claim.
   - The data is interpreted, not just listed. An explanation of what the data shows and how that supports the claim is provided.

3. Use reasoning (justification) that links the evidence to the claim.
   - Reasoning will be based on scientific principles.
   - Reasoning will show how a particular principle connects particular evidence to the claim. (It is the bridge that connects the evidence to the claim.)