Isle Royale: Final Case Study Explanation

The graph below summarizes the changes in the size of the two populations you have been studying on Isle Royale.

You will prepare to write a scientific explanation that answers the question: “Is the Island Royale a stable ecosystem for the wolf and moose populations?“

A scientific explanation should include the following:

Claim:
• A single sentence that answers the question and specifically refers to the case, phenomena, details in the question.

Evidence
• Necessary and sufficient data to support the claim
• Possible sources for Evidence include:
  o Data from the computer modeling activities
  o Data from the graph above
  o Data from the articles or data packets you read

Reasoning
• Scientific principles and/or models you discovered in class that are:
  o Connected to the claim (i.e. how are they relevant to this case)
  o Connected to one another (i.e. how one scientific principle is related to another one)
• What the data means (i.e. how does the data support your claim)
**Step 1:** Start with the evidence you have from the graphs. Discuss with your group what scientific principles are relevant to what is happening in the graph. Check your driving question board.

Describe how those principles apply to

The types of interactions that occur in this ecosystem between organisms:

The types of interactions that occur in this ecosystem between organisms and their environment.

What resources individuals in the wolf and moose populations compete for:

What factors limit resource availability
<table>
<thead>
<tr>
<th>How do these factors affect birth and death rates in each population:</th>
</tr>
</thead>
<tbody>
<tr>
<td>What type of disturbances could be considered temporary ones and why</td>
</tr>
<tr>
<td>What type of environmental changes could be considered more sustained ones and why.</td>
</tr>
<tr>
<td>How all of these interactions work together to lead to fluctuations in population sizes over time.</td>
</tr>
</tbody>
</table>
How all of these interactions work together to lead to changes or constancy in carrying capacity over time.
Step 2: Discuss with your group what other data from is relevant to this explanation. Check through all your case study packets and/or saved states of computer model runs from the activities.

Outline/summarize that data here:
Step 3: Annotate the graph (use colored pencils) into separate regions that you can account for the change in the size of one or both populations.
Final Case Study Explanation
Step 4: Now write a single scientific explanation that unites all of this into one coherent, evidence-backed argument. Use multiple sheets of your own paper for writing your scientific explanation that answers this question: “Is the Island Royale a stable ecosystem for the wolf and moose populations?”

Step 5: Present your argument to one or more students who have a different claim than you do. Your teacher may ask you to do this in groups or as a whole class. Prepare to defend your argument to them. They will be asking you questions.

Step 6: Listen to a counter-argument from 1 to 2 students who has a different claim then you do. Record the things in their argument that you may disagree with and the questions you have for them below as well as their responses in the table on the next page.

Step 7: After you have recorded the areas of disagreement you heard from the counter-arguments, add a section to your scientific explanation that is your rebuttal to their arguments. Your revised and extended explanation should contain all the following elements:

Claim:
• A single sentence that answers the question and specifically refers to the case, phenomena, details in the question.

Evidence
• Necessary and sufficient data to support the claim
• Possible sources for Evidence include:
  o Data from the computer modeling activities
  o Data from the graph above
  o Data from the data/packets and case update articles you read

Reasoning
• Scientific principles and/or models you discovered in class that are:
  o Connected to the claim (i.e. s how are they relevant to this case)
  o Connected to one another (i.e. how one scientific principle is related to another one)
• What the data means (i.e. how does the data support your claim)

Rebuttal
• A summary why alternate claims are not valid.
  o Introduce the alternate claim(s) and related argument(s).
  o Discuss ways the data might have been misinterpreted and/or application of the scientific principles might have been misapplied for the counter argument(s).
<table>
<thead>
<tr>
<th>Counter-Argument #1</th>
<th>Counter-Argument #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>This person's claim:</td>
<td>This person's claim:</td>
</tr>
<tr>
<td>Some of the important differences between this person’s interpretation of the data and yours:</td>
<td>Some of the important differences between this person’s interpretation of the data and yours:</td>
</tr>
<tr>
<td>Questions you have for the presenter:</td>
<td>Questions you have for the presenter:</td>
</tr>
<tr>
<td>The presenter's response to your questions:</td>
<td>The presenter's response to your questions:</td>
</tr>
</tbody>
</table>