Use this Participant Guide to process your learning and thinking as you dive deeper into Student-Centered Science. We thank you for your dedication to students and making the classroom an even more positive, productive, and motivating place to learn.
Build a CER - Example

I think the claim is ___________ because ___________.
___________ (data/evidence) supports the claim because ___________.
I don’t think that ___________ because ___________.
___________ (data) and ___________ (part of the claim) are part of the reasoning because ___________.

CER Sentence Stems:

I think the claim is ___________ because ___________.
___________ (data/evidence) supports the claim because ___________.
I don’t think that ___________ because ___________.
___________ (data) and ___________ (part of the claim) are part of the reasoning because ___________.

Claim Sentence Stem:

I kept my original claim statement because ___________.
I revised my claim statement to ___________ because ___________.

Reasoning Sentence Stem:

The reasoning for my claim is ___________. It’s connected to the scientific principle(s) of ___________.

Rebuttal

Rebuttal for CER
### Science and Engineering Processes

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asking Questions and Defining Problems</td>
<td></td>
</tr>
<tr>
<td>Developing and Using Models</td>
<td></td>
</tr>
<tr>
<td>Planning and Carrying Out Investigations</td>
<td></td>
</tr>
<tr>
<td>Analyzing and Interpreting Data</td>
<td></td>
</tr>
<tr>
<td>Using Mathematics and Computational Thinking</td>
<td></td>
</tr>
<tr>
<td>Constructing Explanations and Designing Solutions</td>
<td></td>
</tr>
<tr>
<td>Engaging in Argument from Evidence</td>
<td></td>
</tr>
<tr>
<td>Obtaining, Evaluating, and Communicating Information</td>
<td></td>
</tr>
</tbody>
</table>
Standards for Mathematical Practices

**Overarching Habits of Mind**

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

**Reasoning and Explaining**

2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.

**Modeling and Using Tools**

4. Model with mathematics.
5. Use appropriate tools strategically.

**Seeing Structure and Generalizing**

7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.
English/Language Arts Strands

**Reading**
- Key ideas and details
- Craft and structure
- Integration of knowledge and ideas
- Range of reading and level of text complexity

**Writing**
- Text types and purpose
- Production and distribution of writing
- Research to build and present knowledge
- Range of writing

**Speaking and Listening**
- Comprehension and collaboration
- Presentation of knowledge and ideas

**Language**
- Conventions of standard English
- Knowledge of language
- Vocabulary acquisition and use
CER in Science, Math and ELA