

Informational Text Strategies: CERR

Rationale:

We live in a knowledge-based society in which we are exposed to vast amounts of information. As such, we are constantly being challenged to sort through and validate many different claims. These can come from television, through the internet, through personal communication, or in other ways. Often, we are offered assertions that seem to be in conflict with ideas from other sources. How can we substantiate all this information and determine what is valid and what is not?

One way to sort through the many claims that we are faced with is through the use of evidence, an approach most commonly used in the field of science. However, judging a claim based on evidence is a skill that goes beyond the work of a scientist and can be applied to other aspects of life as well.

One method for helping students to develop skills in evaluating claims is to have them analyze scientific informational text. Informational text sources such as EARTH magazine and articles from NASA, the US Geological Survey, and others offer compelling content that many students will find engaging and provide excellent opportunities for them to learn how to validate information. One particularly useful approach that can be used to help students evaluate the specific claims in a text, based on reasons and evidence, is the CERR Model (Claim, Evidence, Reasoning, Rebuttal), a version of which is provided in this activity.

Learning Goal

The goal of this activity is for students to evaluate the specific claims in a scientific text. Individually, students read an article and annotate the text, identifying claims, evidence, reasoning, and rebuttals. Then, students work in groups, sharing their individual findings and coming to a consensus on the parts of the text that are the claims, evidence, reasoning, and rebuttals. Finally, they share their findings with the class and explain their approaches for evaluating the text.

Materials

Enough printed copies of the text passage for each student to have her or his own copy. Links to suggested texts are:

- EARTH Magazine: Ground-shaking research: How humans trigger earthquakes <http://www.earthmagazine.org/article/ground-shaking-research-how-humans-trigger-earthquakes>
- EARTH Magazine: Amber-encased plant could be oldest known grass: Specimen may also preserve a Cretaceous-aged hallucinogen: <http://www.earthmagazine.org/article/amber-encased-plant-could-be-oldest-known-grass-specimen-may-also-preserve-cretaceous-aged>
- USGS: Earthquake Science Explained: <http://pubs.usgs.gov/gip/2006/21/>

Students should have their own pen or pencil for annotating the text.

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CERR Annotation Symbols document (3rd to last page of this document) displayed for all students to see.

For each group:

- Copy of the *CERR Group Prompts* (2nd to last page of this document)
- Copy of the informational text
- Pencil
- Copy of the *CERR Collaboration Rubric* (last page of this document)

Procedure:

1. Provide a printed text passage to each student. Instruct students to read the text quickly one time, just to get a sense of the ideas expressed. This is sometimes called “reading for gist”.
2. Tell students that they will be reading the text a second time, much more slowly and focusing on specific details. Introduce the *CERR Annotation Symbols* document. Explain to students that as they read, they should annotate the text using the CERR Annotation Symbols. Allow student to read and annotate their passages.
3. After students have finished reading and annotating their texts, break them into groups for discussion.

Provide a copy of the *CERR Group Prompts* and *CERR Collaboration Rubric* to each group. Explain that each group will work cooperatively to complete the *CERR Group Prompts* document. Tell them that their work will be evaluated according to the *CERR Collaboration Rubric*. Allow students time to look over these documents and to consider how they can best achieve the “Outstanding” criteria in each row of the rubric. When they are ready, groups can begin their work.

4. Bring the class together and have each group share its findings. Presentations can address such questions as: What did you learn from the text? What was the main idea of the text? What evidence supported the claim? What was the rebuttal? What additional evidence would help support or rebut the claim that is made?
5. After all of the groups have presented, have the class consider the claims and evidence. Have them explain whether they feel the evidence is strong for the claim or for the rebuttal? Discuss any questions that students may have about the text.

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Assessment:

Use the attached rubric to assess group work.

Performance Indicators	Outstanding	Acceptable	Needs Revision
Contents	<ul style="list-style-type: none"> • Correctly identified a major claim. • Provides at least three examples of evidence that support the identified claim. • Provides at least two examples of reasoning that justify the evidence. • Provide one example of a rebuttal (if present). 	<ul style="list-style-type: none"> • The group identified a claim. • The group provided 1-2 examples of evidence used to support the claim.* • The group only provided one example of reasoning.* • The group did not identify the rebuttal.* <p>(*Assumes that more were available in the text.)</p>	<ul style="list-style-type: none"> • The group did not identify a claim. • The group did not provide any evidence that supported the claim. <ul style="list-style-type: none"> • The group did not provide any examples of reasoning*.
Collaboration with Peers	<ul style="list-style-type: none"> • During planning, each student is actively involved and contributes ideas for the claim, evidence, reasoning and rebuttal. • All group members listen to and encourage peers' participation and work to incorporate their ideas. 	<ul style="list-style-type: none"> • During planning, each group member pays attention to others in the group and contributes. • All group members respond to each other's ideas. 	<ul style="list-style-type: none"> • During planning, one or more group members fails to pay attention or contribute. • During planning, one or more members of the group fail to listen to other members. • One or more group members does not contribute to the work.

References:

Fisher, D & Frey, N. (2014) Close reading and writing from sources. Newark, DE: International Reading Association.

McNeill, K. L. & Krajcik, J. (2008). Inquiry and scientific explanations: Helping students use evidence and reasoning. In Luft, J., Bell, R. & Gess-Newsome, J. (Eds.). Science as inquiry in the secondary setting. (p. 121-134). Arlington, VA: National Science Teachers Association Press.

NSTA. (2011). *Claim Evidence Reasoning Rubric*.

Retrieved <http://www.nsta.org/elementaryschool/connections/201104ClaimsEvidenceRubric.pdf>

Zemal-Saul, C., McNeill, K. L., & Hershberger, K. (2013). *What's Your Evidence? Engaging K-5 Students in Constructing Explanations in Science*. Boston; Pearson Professional Development.

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CERR Annotation Symbols

Symbol	Meaning
<p>C</p> <p>Claim: A testable statement or conclusion.</p>	<p>. What is the author claiming to be true?</p>
<p>E</p> <p>Evidence: Data used to support a claim.</p>	<p>What data supports the claim that is made?</p>
<p>R</p> <p>Reasoning: Justification of the ways in which the evidence supports the claim.</p>	<p>How are different pieces of evidence used together to support the claim?</p>
<p><u>R</u></p> <p>Rebuttal: Why the claim (or an alternative claim) is not reasonable.</p>	<p>What information is given that suggests the claim is wrong, invalid or unacceptable?</p>

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<p>Q</p> <p>Questions: What do you want to know?</p>	<p>What questions do you have about the text?</p>
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CERR Group Prompts

Element	Definition	Example from text
Claim	The assertion one intends to establish.	
Evidence	Sources and facts that supplement the claim.	
Reason	The way in which the evidence and claim are connected.	
Rebuttal	Circumstances under which the claim would not be true or right.	

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CERR Collaboration Rubric

Performance Indicators	Outstanding	Acceptable	Needs Revision
Contents	<ul style="list-style-type: none"> • Correctly identified a major claim. • Provides at least three examples of evidence that support the identified claim. • Provides at least two examples of reasoning that justify the evidence. • Provide one example of a rebuttal (if present). 	<ul style="list-style-type: none"> • The group identified a claim. • The group provided 1-2 examples of evidence used to support the claim.* • The group only provided one example of reasoning.* • The group did not identify the rebuttal.* <p>(*Assumes that more were available in the text.)</p>	<ul style="list-style-type: none"> • The group did not identify a claim. • The group did not provide any evidence that supported the claim. <ul style="list-style-type: none"> • The group did not provide any examples of reasoning*.
Collaboration with Peers	<ul style="list-style-type: none"> • During planning, each student is actively involved and contributes ideas for the claim, evidence, reasoning and rebuttal. • All group members listen to and encourage peers' participation and work to incorporate their ideas. 	<ul style="list-style-type: none"> • During planning, each group member pays attention to others in the group and contributes. • All group members respond to each other's ideas. 	<ul style="list-style-type: none"> • During planning, one or more group members fails to pay attention or contribute. • During planning, one or more members of the group fail to listen to other members. • One or more group members does not contribute to the work.