

Common Writing Assignment: Science

Ecosystems CWA

The Ecosystems CWA is designed to be a lesson assessment. The overarching question is: Which of the following strategies would you use for survival? The following handouts are included:

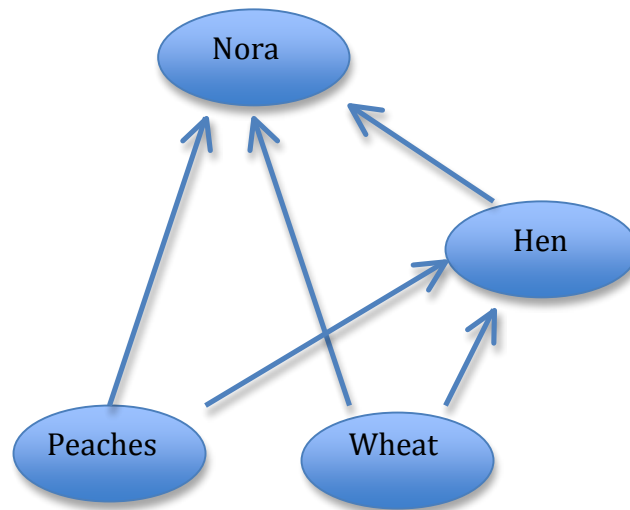
- Prompt: Ecosystems CERR Survivor
- Rubric
- Sample Student Response

Students should be provided the “Ecosystems CERR Survivor” handout. This handout includes the prompt, data, and response section. In addition to providing a specific CERR rubric that corresponds to this topic, a sample student response is included.

Ecosystems CERR: Survivor

(Adapted from *BSCS Biology: A Human Approach*, Chapter 9 Evaluate)

Nora is snowed in for the winter in a remote mountain cabin with no way of contacting the outside world. She must survive for several months with only what is on hand to eat. Aside from a small supply of canned peaches, her only resources are two 100-lb sacks of wheat and a flock of 8 hens. All eight hens are able to lay eggs. Consequently, Nora could eat wheat porridge, peaches, eggs and/or hens. The food web below illustrates the different eating options for Nora



Question: Considering the food web above, what eating strategy would enable Nora to survive the longest amount of time?

- Feed the grain and peaches to the hens and eat their eggs until they are gone, and then eat the hens.
- Kill the hens at once, freeze their carcasses in the snow, and live on a diet of peaches, wheat porridge and chicken.
- Eat a mixture of peaches, wheat porridge, eggs, and 1 hen a week, feeding the hens well to keep the eggs coming until all of the hens are killed.

Write one of the options above as your claim. Then write a paper that supports that claim with evidence and reasoning. Your reasoning should include biological concepts about the transfer of energy in ecosystems.

Don't Forget to...

Plan your writing using an outline, web or graphic organizer. As you write each draft of your assignment, it's important to use what you know as a writer to communicate your ideas effectively.

- ✓ Provide a clear claim that answers the question.
- ✓ Include evidence using data from class activities, experiments and other resources.
- ✓ Include reasoning to show how your evidence supports your claim.
- ✓ Use vocabulary that you have learned in science class.
- ✓ Correct grammar, punctuation, and spelling errors.

[illegible][illegible]

Rebuttal: Address an argument that someone who disagrees with you might make. Don't forget to argue why your claim is stronger.

Ecosystems CERR Rubric

	Exemplary	Proficient	Needs Improvement	Critical Area
Claim:	<input type="checkbox"/> Accurately states that option B (Kill the hens at once, freeze their carcasses in the snow, and live on a diet of peaches, wheat porridge and chicken) is the best strategy, using precise language that corresponds to the question <input type="checkbox"/> Written in complete, easy to understand sentence(s)	<input type="checkbox"/> Accurately states that option B is the best strategy, using language that generally corresponds to the question <input type="checkbox"/> Written in complete, easy to understand sentence(s)	<input type="checkbox"/> Accurately states that option B is the best strategy but uses vague or unclear language, OR <input type="checkbox"/> Inaccurately or incompletely answers the question, and/or <input type="checkbox"/> Not written in complete, easy to understand sentence(s)	<input type="checkbox"/> Does not make a claim, or makes a completely inaccurate claim.
Evidence: weighted x 2	<input type="checkbox"/> Provides specific, appropriate, and ample evidence that supports claim <input type="checkbox"/> Identifies the wheat and peaches as producers <input type="checkbox"/> Identifies the hen as a primary consumer when it is eating peaches and wheat to produce eggs. <input type="checkbox"/> Identifies Nora as a primary consumer when eating wheat and a secondary consumer when eating chicken.	<input type="checkbox"/> Provides specific, appropriate, and sufficient evidence that supports claim. May include some inappropriate evidence <input type="checkbox"/> Identifies the wheat (porridge) as producers <input type="checkbox"/> Identifies the humans as primary consumers when eating wheat and secondary when eating chicken	<input type="checkbox"/> Provides appropriate, but insufficient or unclear evidence to support claim. May include some inappropriate evidence <input type="checkbox"/> Identifies the wheat (porridge) as producers <input type="checkbox"/> Identifies the humans and chickens as consumers	<input type="checkbox"/> Does not provide evidence, or only provides inappropriate evidence (evidence that does not support claim)
Reasoning: weighted x 2	<input type="checkbox"/> Correctly and clearly connects the evidence to the claim <input type="checkbox"/> Explains and applies 10% rule and producer/consumer terminology to the strategies to explain how the evidence supports the claim, using your own wording <input type="checkbox"/> Applies scientific concepts that go beyond the prompt, as appropriate	<input type="checkbox"/> Correctly and adequately connects the evidence to the claim <input type="checkbox"/> Identifies and applies the 10% rule to explain how the evidence supports the claim, using mostly your own wording	<input type="checkbox"/> Correctly connects the evidence to the claim, but leaves out important details, and/or <input type="checkbox"/> Partially identifies and applies the 10% rule and/or producer/consumer terminology to support the claim, using wording directly from notes, the textbook, or an outside source, that does not demonstrate clear understanding of the meaning, or	<input type="checkbox"/> Does not provide reasoning, or only provides reasoning that does not connect evidence to the claim, and/or <input type="checkbox"/> Provides an incomplete generalization, or does not apply appropriate scientific concepts

			<input type="checkbox"/> Restates the evidence without connecting it to the claim	
Rebuttal:	<input type="checkbox"/> Correctly identifies option A or option C as a possible counter-argument to the claim <input type="checkbox"/> Explains, in your own words, why option B is a better claim than the counter-argument, using evidence and reasoning.	<input type="checkbox"/> Correctly identifies option A or option C as a counter-argument to the claim <input type="checkbox"/> Explains, mostly in your own words, why your claim is a better claim than the counter-argument using some evidence and incomplete reasoning	<input type="checkbox"/> Identifies one of the other options as a possible counter-argument, but includes evidence but not reasoning or reasoning but not evidence to show why your claim is better than the counter-argument	<input type="checkbox"/> Does not identify appropriate counter arguments, and/or <input type="checkbox"/> Does not provide sufficient evidence to address counter arguments, or provides more support for the counter-argument than the original claim
Writing: <i>Use appropriate structure, grammar, and mechanics to communicate your argument.</i>	<input type="checkbox"/> Writing contains no grammatical or spelling errors <input type="checkbox"/> Writing is clear, concise, and persuasive	<input type="checkbox"/> Writing contains very few grammatical or spelling errors <input type="checkbox"/> Writing is clear, mostly concise, and well developed	<input type="checkbox"/> Writing is fairly clear, with some grammatical or spelling errors <input type="checkbox"/> Writing could be more concise	<input type="checkbox"/> Writing is difficult to follow, with many grammatical errors and no clear structure <input type="checkbox"/> Writing is either too wordy or too incomplete

Ecosystems CERR Sample Student Response

Claim:

Kill the hens at once, freeze their carcasses in the snow, and live on a diet of peaches, wheat porridge and chicken is the best strategy for survival.

Evidence:

Wheat and peaches are both producers. The hens are a primary consumer when they eat peaches and wheat to produce eggs. When humans eat the wheat or peaches, they are primary consumers. By eating the hens or products from the hens, the human is a secondary consumer.

Reasoning:

By killing the hens, Nora will obtain more of the energy from the food for survival. According to the 10 percent rule, each higher level of consumer on a food chain only gets 10 percent of the energy from the food source. The other 90 percent is used by the organism to stay alive or is lost as heat. By killing the hens and freezing them, Nora will get 10% of the energy from the hens. If Nora had fed the hens to keep the hens alive, then Nora would only get 1% of the energy from the peaches or wheat, significantly less than by eating the peaches or wheat directly.

Rebuttal:

Someone might argue for option A because then Nora would eat eggs and chicken. However, this does not consider the inefficient energy transfer. By having the hens eat the peaches and wheat, Nora receives much less of the energy originally found in the peaches and wheat. The hens will use much of the energy to make the eggs and to live. Eating the wheat and peaches directly will enable Nora to survive longer.