

Essay Questions for Qualitative Conceptual Models Pre experiment

Part 1: Work with a partner to use your model to explore the questions below that will be addressed in your written essay. To be able to respond to these questions, you and your partner both need to have completed your own conceptual models about your research project. Remember, your goal is a well-explained model. For each question, first think about and jot down your ideas, then each take a turn to describe your response to the other. As you get additional ideas, write them down too.

Part 2: After discussing your work with a partner, write an essay that responds to the following questions. Please put your name on the essay.

- 1- Explain why each component depicted is important in the system or subsystem you are studying. Make sure each component is labeled. Describe the relationships among all of your components by putting a number beside each arrow and logically explaining each number below the model. What are the ideas you have about how this aspect of the ecosystem works? (Explain what you think is going on by telling a story about it).
- 2- Using the components in your model,
 - a) Write your research hypothesis.
 - b) Describe how you would test this hypothesis in your experiment.
 - c) Make a prediction about what you expect your results will be.
- 3- Discuss and illustrate each of the following
 - a) Show feedback.
 - b) Choose one component in your system and describe how it might change due to climate change. Describe any indirect effects you can expect due to this change.
- 4- Based upon your current understanding of the system you have depicted, how do you think complex ecosystems function? Explain your reasoning.
- 5- What ecological process or theory do you think can help explain the results you observed in your experiment?

Essay Questions for Qualitative Conceptual Models after the Experiment

Part 1: Work with a partner to use your model to explore the questions below that will be addressed in your written essay. To be able to respond to these questions, you and your partner both need to have completed a second conceptual model. Model the variables and their relationships as you now see them at the end of your experiment.

Remember, your goal is a well-explained model. For each question, first think about and jot down your ideas, then each take a turn to describe your response to the other. As you get additional ideas, write them down too.

Part 2: After discussing your work with a partner, write an essay that responds to the following questions. Please put your name on the essay.

- 1- Explain why each component depicted is important in the system or subsystem you are studying. Make sure each component is labeled. Describe the relationships among all of your components by putting a number besides each arrow and logically explaining each number below the model. What are the ideas you have about how this aspect of the ecosystem works? (Explain what you think is going on by telling a story about it). What was the outcome of your experiment? How did it compare with your initial prediction?
- 2- Use the components in your model to refine your research hypothesis to make a secondary hypothesis
 - a) Describe how you would test this refined hypothesis in a subsequent experiment.
 - b) Make a prediction about what you expect your results will be.
- 3- Discuss and illustrate each of the following
 - a) Show feedback.
 - b) Choose one component in your system and describe how it might change due to climate change. Describe any indirect effects you can expect due to this change.
- 4- Based upon your current understanding of the system you have depicted, how do you think complex ecosystems function? Explain your reasoning.
- 5- What ecological process or theory do you think can help explain the results you observed in your experiment?