

WRITING ABOUT A COMPLEX SYSTEM

In this exercise, you will write a short (2–3 page) paper discussing your systems diagram as you transition from having a purely schematic diagram to having one that includes quantitative components. Be sure to describe the quantitative values and trends that you have investigated and/or predicted. Your paper should directly discuss the following five questions, integrating them into a coherent narrative description of the model rather than answering them one by one:

1. The components of the model.
2. The connections between components of the model. You should use correct terminology throughout your discussion.
3. The areas of your model, especially the quantitative aspects, which you feel most secure about (i.e. which do a good job of representing what they are trying to represent).
4. The areas of The Carbon Cycle which you feel least secure about (i.e. which do a poor job of representing what you are trying to represent or which you do not fully understand). At least five specific areas should be identified in this section.
5. The type of knowledge you believe would be necessary to gain to be able to improve the areas of the model you are least secure about, and some thoughts about who generates this type of knowledge (i.e. geologist, chemist, political scientist, etc.).

The following grading rubric will help you to know what is expected in your answers to the questions outlined above.

In addition to the narrative that you write, please assess your own work against the rubric given below. In a sentence or two, explain how you would rate your work in each of the five categories described. Is your paper in the “Needs Work,” “Acceptable,” or “Exemplary” category, and why? You must provide evidence for your ratings!

<i>CHARACTERIZATION OF ANSWER:</i>			
<i>CATEGORY</i>	<i>NEEDS WORK</i>	<i>ACCEPTABLE</i>	<i>EXEMPLARY</i>
The components of the diagram.	Discussion describes only a partial list of the items included.	Discussion describes related items illustrating a straightforward system.	Discussion describes related items illustrating a complex system, including multiple inputs/outputs, feedbacks, etc.
The connections between components of the diagram.	Discussion is unclear or terminology is used incorrectly. Connections are missed or descriptions contain errors.	Most parts of the discussion are clear, and the terminology is largely used correctly. Connections described are correct.	All parts of the discussion are clear and the terminology is used in the appropriate manner. Connections are correct and comprehensive.

CATEGORY	CHARACTERIZATION OF ANSWER:		
	NEEDS WORK	ACCEPTABLE	EXEMPLARY
The areas of your diagram, especially the quantitative aspects, which you feel most secure about (i.e. which do a good job of representing what they are trying to represent).	Student is not secure about content that has been covered in the course or student responses are not consistent with the level of detail provided in the discussion (i.e. students report comfort with level of detail in an area that contains little detail).	Student is secure about content that has been covered in the course, but overestimates how well certain aspects of the diagram represent the content.	Student is secure about content that has been covered in the course, and connects knowledge from other aspects of the course or other courses into his/her diagram.
The areas of your diagram which you feel least secure about (i.e. which do a poor job of representing what you are trying to represent or which you do not fully understand). At least 5 specific areas should be identified in this section.	Student responses are not consistent with the level of detail provided in the discussion (i.e. students report comfort with level of detail in an area that contains little detail). Student does not list the required number of areas.	Student responses are consistent with the level of detail provided in the discussion, and at least 5 areas are identified.	Student provides a sophisticated assessment of which aspects of the diagram could be represented more clearly or in more detail in the discussion.
The type of knowledge you believe would be necessary to gain to improve the areas of the diagram you are least secure about, and some thoughts about who generates this type of knowledge (i.e. geologist, chemist, political scientist, etc.).	Student cannot identify the types of information that would help answer the questions he/she identified.	Student identifies sufficient additional types of knowledge that would allow the diagram to be more detailed and correctly identifies the type of person who would generate the knowledge.	Student provides an acceptable answer and shows a clear understanding of the variety of additional types of knowledge that might be required to further elucidate aspects of the diagram.