

Chapter 5 - The Biogeochemical Cycles - review questions

This week you will be asked to make several concept maps as “Box and Arrow” diagrams. You could do these by hand, but I think you would enjoy using the free concept map tools found here

<http://cmap.ihmc.us/download/>

The link is also on the website.

1. Why is Lake Washington a good example of how certain chemicals can effect ecosystems?
2. This chapter starts with a chemistry overview. I will assume that you know basic chemistry concepts such as those presented here. No question.
3. What is meant by the terms “Flux” and “sink” (see “A Closer Look 5.2”)?
4. Contrast Macronutrients and micronutrients.
5. What are the “Big Six” and why are they called that?
6. How do cycles of elements or compounds with a gas phase differ from those that have no gas phase?
7. What are the three types of plate boundaries, and what types of features form at each?
8. Page 84 presents some numbers related to teh hydrologic cycle. What are those numbers?
9. Using figure 5.8 and the text on pages 84 and 85 - create a box and arrow type concept map - i recommend the CMAP tools program suggested above. Please be sure to be as descriptive as possible in including the processes on the arrows.
10. Using figure 5.9 and the text on page 86 - create a box and arrow type concept map. Please be sure to be as descriptive as possible in including the processes on the arrows.
12. How can ecosystems lose elements to other ecosystems?
13. What is the most important difference between the cycling of metallic elements and non-metallic elements?

14. Using figure 5.14 and the text on page 90 - create a box and arrow type concept map. Please be sure to be as descriptive as possible in including the processes on the arrows.

15. How do we know that there is a "Missing carbon sink" and where do we think it might be?

16. In what ways is the carbon cycle in a lake similar to and different than the global carbon cycle?

17. What is the relationship between photosynthesis and respiration?

18. What forms does carbon go through in the carbon-silicate cycle? How is carbon transformed at each of these?

19. Using figure 5.19 and the text on pages 94 and 95 - create a box and arrow type concept map. Please be sure to be as descriptive as possible in including the processes on the arrows.

20. Why is nitrogen essential to life, and why is there a bit of a paradox with the relationship of nitrogen in the atmosphere to living things?

21. Using figure 5.20 and the text on pages 95 and 96 - create a box and arrow type concept map. Please be sure to be as descriptive as possible in including the processes on the arrows.

22. How are humans impacting each of the following: carbon cycle, nitrogen cycle, phosphorous cycle?