Group Activity: The inter-relationships between ecological cycles

Objectives of this Activity:

1. Consider how cycles of matter (carbon, nitrogen, and water) and flows of energy are inter-related in ecosystems.
2. Do appropriate web research to better understand how these cycles/flows are inter-related.
3. Construct a concept map designed to teach others that explicitly shows how these cycles/flows are inter-related.
4. Present your concept map to the rest of the class so that we can:
   a. discuss how these ecological flows are inter-related; and
   b. compare and contrast different ways of representing information on a concept map.

Instructions:

1. Discuss in your group how cycles of matter (carbon, nitrogen, and water) and energy are inter-related in ecosystems.
2. Based on your discussion, identify any questions or confusion you have about the inter-relationship of these cycles.
3. As needed, do web research to answer questions and clear up confusion. Make sure to take note of the source of all information you gather.
4. Using VUE software, construct a concept map that is capable of teaching someone else how these cycles/flows are inter-related. At the very least, your concept map should:
   a. Represent the major components of the earth (such as the biosphere, lithosphere, hydrosphere, atmosphere) that relate to ecological cycling.
   b. Show how matter and energy flows through each of these cycles (in other words, there should be at least four identifiable “flows” in your diagram).
   c. Show how ecological interactions (e.g. predation, parasitism, mutualism, competition, or commensalism) and other ecological activities (e.g. photosynthesis, respiration, excretion/elimination, decomposition) are involved in these cycles.
   d. Clearly demonstrate where and how these cycles are inter-related.
   e. Where appropriate, indicate the source of information represented on the map.
5. Present your map to the class, explaining what ideas your group wanted to show and how you designed your map to show these ideas.