Biogeochemical Cycles Presentations

**DIRECTIONS**

**Part A- global scale**

As a team, access the class Google Slides presentation on biogeochemical cycles: [here is the link](https://docs.google.com/a/svsd410.org/presentation/d/1mqE-Ga8tjZIMN9aM0Ps0x49GkqCHcOsmmwbwlFQq3gc/edit?usp=sharing)

Find your assigned biogeochemical cycle. Distribute the Google Slide presentation and presentation responsibilities evenly among your group members. You will each be graded on the content and clarity of your slides and presentation skills. Collaborate as a group, and practice your presentation.

**Presentation guidelines:**

* Names of group members
* **Limited amounts of appropriately-sized text (no paragraphs!) Be concise.**
* Images with citations (hyperlinks/author information)
* A diagram of your assigned cycle to assist with talking points.
* Begin your presentation by providing a general **description** of your biogeochemical cycle using your diagram.

Address the following questions in your presentation:

1. What are the molecules and their forms that are involved in your biogeochemical cycle?
2. If applicable- are there any chemical reactions involved with the cycling of these molecules? Please elaborate
3. What are some ways (both artificial and natural) that the molecules in your biogeochemical cycle enter and exit the cycle (i.e., what are the inputs and outputs?)
4. Are there reservoirs of these molecules?  If so, explain where they are.
5. What is/are the form(s) in which each molecule is available to living organisms?
6. Why are these molecules in this biogeochemical cycle of biological importance?
7. What factors can affect the rate of this biogeochemical cycle and drive the movement of each molecule through the biogeochemical cycle?
8. What is an example of a positive and/or negative feedback loop involving your biogeochemical cycle? Explain why it is positive or negative.
9. Do the molecules in this biogeochemical recycle locally (over short distances), globally, or both? Qualify your answer.
10. Do any other biogeochemical cycles affect yours? Please elaborate.
11. How is human activity altering this biogeochemical cycle on a global scale?  Provide two scientific studies that have documented the effects of human activity on a large scale. Describe this study, include its purpose, brief methodology, findings (results) conclusions and recommendations.
12. How are these anthropogenic impacts being monitored? Describe a monitoring protocol to measure these impacts on a global level.
13. Describe an environmental **policy** at the global, national and state level that was developed to mitigate specific human impacts on this biogeochemical cycle. Explain what it is, its purpose and how it regulates specific human impacts.
14. What are some specific **projects or programs** that have been implemented to address these impacts?
15. What criteria are being used to evaluate the success of these policies and programs/projects?

**Part B Local Understanding of Biogeochemical Cycles**

Create a diagram (poster board, whiteboard, digital format, etc.) that shows your understanding of how this biogeochemical cycle works at a local (i.e. the Snoqualmie Watershed) level and how natural and human actions relate to this biogeochemical cycle. See drone photo (Mr. R’s screen saver) of local area.

* In your diagram identify, describe and explain how this biogeochemical cycle relates to this site/scale. Include reservoirs, inputs and outputs and molecular forms (if applicable).
* In your diagram identify, describe and explain how specific human and non-human activities/events are altering and affect this biogeochemical cycle at this hierarchical level. Explain and describe the possible impacts to surrounding ecological systems (human constructed and natural).
* How can changes in this biogeochemical cycle be monitored?
* Are there existing programs that perform this monitoring service? Please elaborate if so (i.e. goals/mission, program elements and outcomes).
* Are there specific policies (city, state, federal) that are established to reduce local impacts to this biogeochemical cycle?
* Any school-wide projects or programs that students can implement to help reduce the impacts on this cycle at a local/grassroots level. Provide brief description of project/program structure and objectives and means of evaluating success.