Lesson Title	Cycles Review
Length of Lesson	One (50 minute) class period
Created By	Will McBryde, Rob Thornton
Subject	General Science
Grade Level	8th grade
State Standards	8th: 1b, d (Inquiry); 2a (Physical Science); 3h (Life Science)
DOK Level	DOK 3
DOK Application	Compare, Differentiate, Cite Evidence
National Standards	5-8: A (Inquiry); C (Life Science)
Graduate Research Element	Photosynthesis, respiration, hydrologic, and nitrogen cycle are major components to how the earth was formed. Thus they are important for a geologist to understand.

Student Learning Goal:
MS 8th Grade:
1(b) Distinguish between qualitative and quantitative observations make inferences based on observations. (d) Analyze evidence that is used to form explanations and draw conclusions; 2 (a) Identify patterns found in chemical symbols, formulas, reactions, and equations that apply to the law of conservation of mass.; 3(h) Describe how an organism gets energy from oxidizing its food and releasing some of its energy as heat.

National Science Education Standards of Content 5-8:
(Inquiry - A) Abilities necessary to do scientific inquiry, Understandings about scientific inquiry; (Life Science – C) Structure in Functions in Living Systems

Materials Needed (supplies, hand-outs, resources):
Chalkboard and chalk. Promethean board if available.

Lesson Performance Task/Assessment:
This lesson is a review lesson of the four major cycles of matter. Photosynthesis, Respiration, Hydrologic, and Nitrogen Cycles are all important for survival of life on earth; therefore, it is important to understand.

Lesson Relevance to Performance Task and Students:
The students will be able to reinforce concepts they had learned in previous lectures. Students will also be able to draw connections between all the difference cycles.

Anticipatory Set/Capture Interest:
Students are asked to get in groups of two and write down what is the most important cycle to them and why. The choices are given to them (i.e. photosynthesis, respiration, hydrologic, nitrogen). The students will then be selected by the teacher to share their opinions.

Guided Practice:
The note taking will be guided. The students will be able to watch the teacher write out and balance the chemical equations for photosynthesis and respiration on the board as they perform the same task at their desk. The students will also be able to perform the same tasks for the hydrologic and nitrogen cycles. The students will see the teacher write it on the board and they will copy the information to their notes. As each concept is reviewed on the board it will be discussed in such a way that the teacher will know if the students grasp the concepts.

Independent Practice:
Student participation during the note taking as well as the anticipatory set will be independent.

Remediation and/or Enrichment:
Remediation- Individual IEP; Enrichment - Have students draw a diagram of any of the cycles

Check(s) for Understanding:
Observe students participation during anticipatory set and note taking.

Closure:
Question 1: What is the most important cycle?

Question 2: Which cycle began first?

Possible Alternate Subject Integrations:
Math, Chemistry

Teacher Notes:
The concepts of this lesson have been introduced in this classroom during previous lectures. This lesson is simply tying together all the cycles so the students can see and discuss the cycles all at one time in order to reinforce the concepts.