

*ATTACHMENT 1***COLLABORATION SKILLS****SELF & PEER EVALUATION FORM****PROJECT TITLE:** \_\_\_\_\_**GROUP MEMBERS:** \_\_\_\_\_

Please rate your contribution to the group and evaluate the group on a scale of 1 – 10 with 10 being the highest.

**INDIVIDUAL EVALUATION: Name** \_\_\_\_\_

- |   |                                    |
|---|------------------------------------|
| ___ 1. Following teacher's instructions   | ___ 7. Sharing responsibilities    |
| ___ 2. Asking meaningful questions        | ___ 8. Respecting others           |
| ___ 3. Contributing ideas and information | ___ 9. Explaining things to others |
| ___ 4. Helping the group stay on task     | ___ 10. Doing things on time       |
| ___ 5. Contributing materials             | ___ 11. Doing my best              |
| ___ 6. Asking for help when needed        |                                    |

I could improve on \_\_\_\_\_

I rank my contributions to the group as \_\_\_\_\_.

**GROUP EVALUATION:**

- |  |   |
|--|---|
| ___ 1. Following teacher's instructions      | ___ 6. Respecting others                    |
| ___ 2. Asking meaningful questions           | ___ 7. Explaining things to others          |
| ___ 3. Contributing ideas and information    | ___ 8. Solving problems within<br>the group |
| ___ 4. Staying on task and meeting deadlines | ___ 9. Consistent effort                    |
| ___ 5. Sharing responsibilities              | ___ 10. Producing a quality product         |

I rank our group's efforts at working together as \_\_\_\_\_

**PEER EVALUATION:**

Rank each member of your group on a scale of 1 – 10 and cite specific reasons why you evaluated each person's contribution to the group that way.

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Attachment 2

**Assessment Criteria for Diagrams**

NAME \_\_\_\_\_ PERIOD \_\_\_\_\_ DATE \_\_\_\_\_

Diagram Title \_\_\_\_\_ Diagram Type \_\_\_\_\_

Diagram Description \_\_\_\_\_

Diagram Source \_\_\_\_\_

**Content:**

- \_\_\_\_\_ accurate information
- \_\_\_\_\_ clarity of information
- \_\_\_\_\_ enhances understanding of the concept or process
- \_\_\_\_\_ correct order or sequencing

**Images:**

- \_\_\_\_\_ visually pleasing
- \_\_\_\_\_ appropriate size
- \_\_\_\_\_ enhance understanding
- \_\_\_\_\_ directionality
- \_\_\_\_\_ creative
- \_\_\_\_\_ clear (focused)
- \_\_\_\_\_ effective use of color and/or contrast
- \_\_\_\_\_ components within images are consistent in design when moving from image to image  
(ex – chromosomes are always the same design when more than one cell is shown)

**Text:**

- \_\_\_\_\_ readable
- \_\_\_\_\_ key terms highlighted
- \_\_\_\_\_ minimum of words, phrases, or sentences
- \_\_\_\_\_ easy to comprehend
- \_\_\_\_\_ meaningful connections between words, phrases, or sentences
- \_\_\_\_\_ enhances understanding
- \_\_\_\_\_ meaningful positioning of words, labels, headings, or subheadings

Attachment 3

**Assessment for Project Presentations**

Evaluator \_\_\_\_\_ PERIOD \_\_\_\_\_ DATE \_\_\_\_\_

Topic \_\_\_\_\_ Group Members \_\_\_\_\_

**Description of Model** \_\_\_\_\_

**Content:**

\_\_\_\_\_ accurate information

\_\_\_\_\_ clarity of information

\_\_\_\_\_ enhances understanding of the concept or process

\_\_\_\_\_ correct order (sequencing)

\_\_\_\_\_ appropriate resources used

\_\_\_\_\_ sufficient amount of detail

**Project:**

\_\_\_\_\_ follows directions

\_\_\_\_\_ enhances understanding of the concept or process

\_\_\_\_\_ accurately represents concept or process

\_\_\_\_\_ presents information clearly

\_\_\_\_\_ labeled accurately

\_\_\_\_\_ appropriate use of materials

\_\_\_\_\_ uses reasonable scale

\_\_\_\_\_ shows all necessary components

\_\_\_\_\_ visually pleasing (e. g., neatness, color)

\_\_\_\_\_ accomplished its purpose (goal)

\_\_\_\_\_ creative or novel approach

**Student Explanation/Presentation**

\_\_\_\_\_ adequate amount of preparation and research

\_\_\_\_\_ maintained audience interest

\_\_\_\_\_ speaking skills (posture, eye contact)

\_\_\_\_\_ clarity of explanation

\_\_\_\_\_ able to explain in own words

\_\_\_\_\_ used appropriate examples

\_\_\_\_\_ able to apply concepts to novel situations

\_\_\_\_\_ able to answer audience questions

\_\_\_\_\_ references cited correctly

\_\_\_\_\_ appropriate use of time

## *Student Worksheet 1*

### **Directions for analyzing flow diagrams of the carbon cycle and nitrogen cycle.**

Search the Internet or printed resources to find a cyclic flow diagram of the cycle. Select a diagram that you think does an excellent job of explaining the processes represented in the diagram. Choose one that is easy to understand. Use the questions below to guide you.

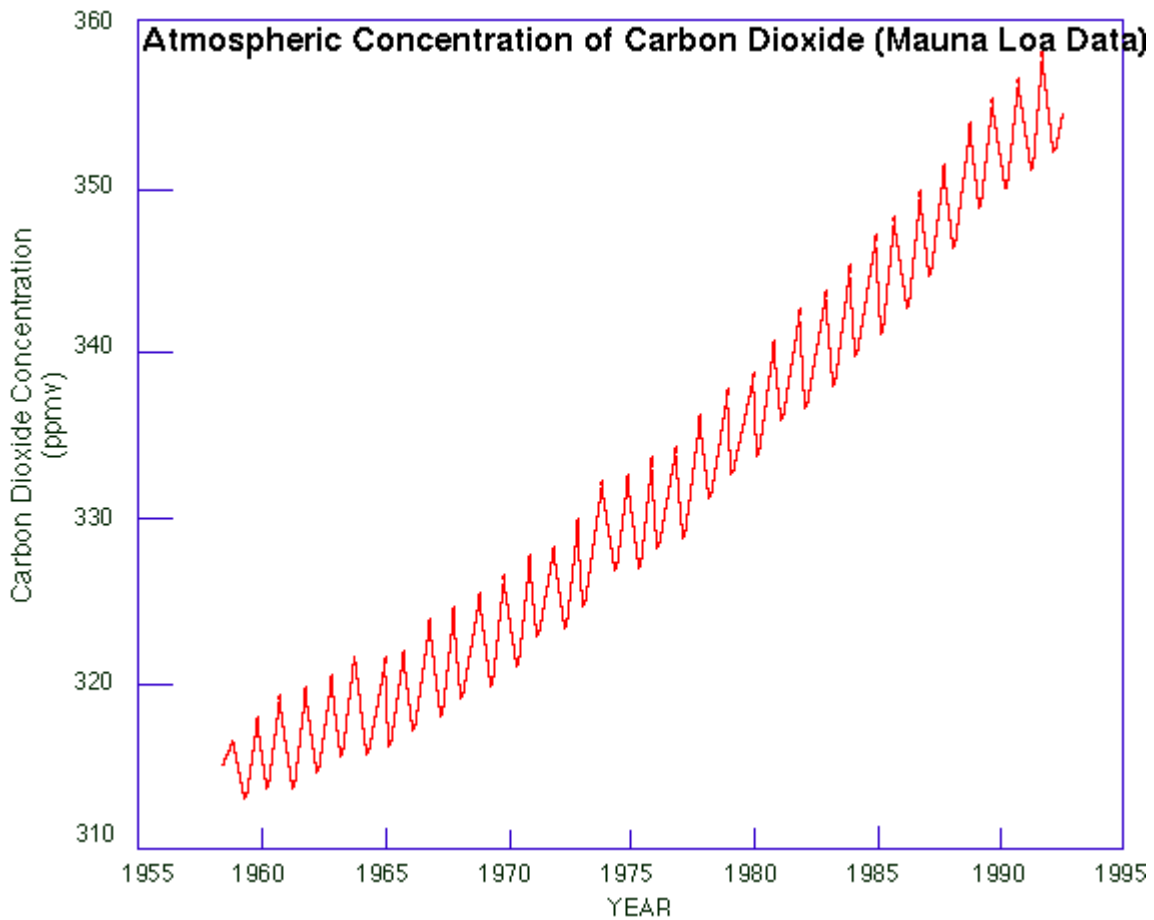
1. Does the diagram help you understand the goal of the cycle? In other words does it make sense?
2. Is the diagram simple enough or do you think it is too complicated to understand?
3. Is the diagram well labeled? Do you understand what the text in the labels means?
4. Are there arrows that show what direction the carbon is moving in?
5. If chemical symbols are used do you understand what they represent? Would words be better to use?
6. Can you start anywhere in the cycle or is there one starting point? You should be able to start at any point.
7. How many subcategories can you identify in the cycle? For example, in the carbon cycle the movement of carbon dioxide from the atmosphere to plants during photosynthesis is a subcategory. Burning fossil fuels to release carbon dioxide from organic compounds back into the atmosphere is another category.
8. Can you interpret the symbols and describe what is happening in each subcategory?

Student Worksheet 2

**What is the Human Impact on the Carbon and Nitrogen Cycles?**

Directions: Study the graphs and maps below that provide data on changes in the carbon and nitrogen cycles. Answer the questions about these changes to learn more about human impact on the carbon and nitrogen cycle.

**Carbon Cycle Data**



NASA SEAWIFS PROJECT

[http://seawifs.gsfc.nasa.gov/SEAWIFS/LIVING\\_OCEAN/mauna\\_loa\\_co2.gif](http://seawifs.gsfc.nasa.gov/SEAWIFS/LIVING_OCEAN/mauna_loa_co2.gif)

- A. Regular measurements of carbon dioxide levels in the atmosphere were begun in 1958.
1. Describe the overall trend in carbon dioxide levels that has occurred since then.  

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  2. Find the percent change in maximum carbon dioxide concentration from 1960 to 1990. Show your calculations in the space below. Circle your answer.

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3. Natural increases and decreases in carbon dioxide concentration are shown to occur in a somewhat regular pattern of seasonal changes throughout the years measured. What are some possible biological causes of the increases in carbon dioxide? During what season would you expect carbon dioxide to increase?

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4. When would you expect carbon dioxide levels to decrease during the year? What are some possible biological causes of the decreases?

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5. In what ways do you think humans put carbon dioxide into the atmosphere and take it out of the atmosphere?
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B. Access the long-term data of atmospheric carbon dioxide obtained from Antarctic ice cores at the NASA Earth Observatory Web site

([http://earthobservatory.nasa.gov/Library/CarbonCycle/carbon\\_cycle4.html](http://earthobservatory.nasa.gov/Library/CarbonCycle/carbon_cycle4.html)).

1. How many years does the data represent?

- 
2. In your own words explain how carbon dioxide levels correlate with the ice ages.

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3. Are human activities currently increasing or decreasing the carbon dioxide concentration in the atmosphere? Explain your answer.

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4. Explain why an increase in atmospheric carbon dioxide levels increases global temperatures and may lead to global warming.
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C. Study the NASA satellite map of the global biosphere shown at NASA Earth Observatory – [http://earthobservatory.nasa.gov/Library/CarbonCycle/carbon\\_cycle5.html](http://earthobservatory.nasa.gov/Library/CarbonCycle/carbon_cycle5.html)

1. Compare the differences in chlorophyll a concentrations on land and in the oceans. What does chlorophyll a indirectly measure?

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2. What areas of the world have higher chlorophyll a concentrations? What are some possible reasons for these higher levels?

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3. Propose how scientists might use the information in this map.

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### **Nitrogen Cycle Data**

Examine the maps showing the Mississippi River watershed and the Gulf of Mexico Dead Zone (Ohio State University – Gulf of Mexico Hypoxia <http://www.acs.ohio-state.edu/units/research/archive/hypoxia.jpg> and Ducks Unlimited <http://www.ducks.org> )

1. A proposed explanation of the causes of the dead zone is that nitrogen-rich fertilizers wash into the Gulf of Mexico by way of the Mississippi River. What states in the watershed are farming states where large amounts of fertilizers are used?

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2. Which map do you think gives more information about the source of the nitrogen that causes the dead zone? Why?

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3. Explain how increases in nitrogen can cause hypoxia or loss of oxygen in a body of water such as the Gulf of Mexico.

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4. Fertilizer is a nonpoint source pollutant. Give reasons why this is true.

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5. The dead zone is shown to be off the coast of Louisiana where it directly kills marine organisms such as fish; an economic resource. What effects do you think the dead zone have on other states? Do you think it could possibly affect countries other than the United States? Explain your answer.

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6. Brainstorm actions that you think could be taken to lessen the negative impact that humans have on the (a) carbon and (b) nitrogen cycles.