Carbon Cycle Activity 2

(Scatterplots and Linear Equations)

Objective: Students will create a scatterplot and a line graph from the data obtained in the Carbon Cycle Activity. They will use the graph to make a prediction about the future Carbon content of each sphere.

Materials:

1. Data sheets from Carbon Cycle Activity (completed in the previous lesson).
2. Carbon Reservoir Comparison worksheet (found in Carbon Cycle Activity 1) also available under resources.
3. Colored pencils, paper and straight edge.

Procedure:

1. On a blank piece of paper have students create a scatterplot for each Carbon Reservoir based on the data from the Carbon Cycle Activity. There should be 8 graphs total (Atmosphere, Biosphere, Hydrosphere and Lithosphere) past and present. If necessary have a discussion (just in time lesson) about independent and dependent variables and how the axes should be labeled.
2. Have students draw a line of best fit on each graph.
3. They will then need to write a linear equation for the based on the lines of best fit for each one.
4. The linear equations should then be graphed on the Carbon Reservoir Comparison worksheet using separate colors for past and present. The corresponding equations should also be written on each graph in the matching color.
5. Have students use the linear equations to predict what will happen in each reservoir 5 rounds into the future.
6. Have a classroom discussion on the implications of their findings.
7. Conclusions should be written in their journals.

Grading:

8 Scatterplots with Lines of Best Fit (16 pts total)

|  |  |  |
| --- | --- | --- |
| **2** | **1** | **0** |
| All data points graphed. Lines of best fit drawn with a straight edge and reasonably equidistant from all data points | Most data points graphed. Line of best fit drawn but obviously skewed or without straight edge. | Not Present |

8 Linear Equations (16 pts total)

|  |  |  |
| --- | --- | --- |
| **2** | **1** | **0** |
| Equations Match Graph  | Equation does not match graph | Not Present |

Predictions (8 pts total)

|  |  |  |
| --- | --- | --- |
| **2** | **1** | **0** |
| Prediction made for each Carbon Sink using equation found.  | Prediction made, but doesn’t match equation. | Not Present |

**Carbon Cycle Activity 1 Rubric:**

|  |  |  |
| --- | --- | --- |
| **6** | **3** | **0** |
| Actively participated in activity | Participated sporadically in activity | Did not participate in activity |
| Actively participated in discussion about activity |  | Did not engage or participate in discussion |