

Elaborate 2:

Where Carbon is Located Within The Environment Carbon Applet Activity

Students will go to the following website:

<http://carboncycle.aos.wisc.edu/carbon-budget-tool/>

Instructions:

- Be sure to answer the questions as you're going through the directions
- Hit the "Land Uptake" button under the Sinks category, observe both graphs, hit the "Run Projection" button, and pay attention to the trend for both graphs (Answer questions 1,2, and 3)
- Adjust the green line on the left graph for both a positive upward slope and a negative downward slope (have the negative slope be steeper than the original projection). Write down the year and point values for both slopes. Make sure you run the projections for both of the new slopes. (Answer questions 4 and 5)

1. On the graph to the left, give the name of the title, x-axis, and y-axis. What's the overall trend for "Land Uptake" between the years 1959 to 2100? (grams of carbon = PgC/yr)

2. On the graph to the right, give the title, x-axis, and both y-axes. What's the overall trend for "Land Uptake" between the years 1959 to 2100?

3. What do you notice about the trees in the diagram as the projection is running? (Increase or decrease in size?) What does this mean?

4. When altering the slopes for the amount of carbon, what did you notice about the projection on the graph to the right? What about the diagram?

5. Based on the observed results, what could we do in the future to reduce the amount of CO₂ in the atmosphere in regards to trees? How would this change affect global temperature change?

Carbon Applet Worksheet Answers

1. Title: Sources and Sinks in PgC/yr, actual and projected, X-Axis: Year, and Y-Axis: PgC/yr (grams of carbon). The trend for land uptake for that time period is a negative slope, which means a decrease in the amount trees on our land and less carbon absorption over time.
2. Title: Atmospheric CO₂, actual and projected, X-Axis: Year, and Y-Axes: Atmospheric CO₂ (ppm) and Global Temperature Change (°F). The trend for this graph is a positive slope, which means an increase in CO₂ in the atmosphere over time.
3. Trees increased in size during the projection, which results in a larger uptake of carbon because more trees are on the land.
4. As the land uptake slopes more negative, the amount of CO₂ in the atmosphere decreases and vice versa. With more carbon being absorbed by trees, the CO₂ decreases. The diagram shows a bigger amount of trees for a negative slope.
5. From the graph manipulations, we could plant more trees in order to reduce the amount of carbon in the atmosphere, which would ultimately lead to less global temperature change.

Elaborate 3:

Student Involvement

Students will watch climate change video:

<http://video.nationalgeographic.com/video/kids/green-kids/young-voices-trailer-kids/>

Students will look at the EPA website and list at least five changes they can and will make toward taking care of the environment.

EPA Website: <http://www.epa.gov/climatechange/wycd/>

Organizations students can get involved with (Teachers will need to look up specific organizations near the school area):

- ✓ Groundswell Michigan (<http://groundswellmi.org>)
- ✓ Local State Parks within the DNR (<http://www.michigan.gov/dnr>):
- ✓ Grand Haven State Park (<http://www.michigandnr.com/parksandtrails/details.aspx?id=449&type=SPRK>)
- ✓ Muskegon State Park (<http://www.michigandnr.com/publications/pdfs/wildlife/viewingguide/slp/78Mskgn/>)
- ✓ Michigan Arbor Day Alliance (<http://www.miarbordayalliance.com/home.html>)
- ✓ Michigan Trees (<http://macd.org/trees/>)