Name_____ Period _____ Date _____

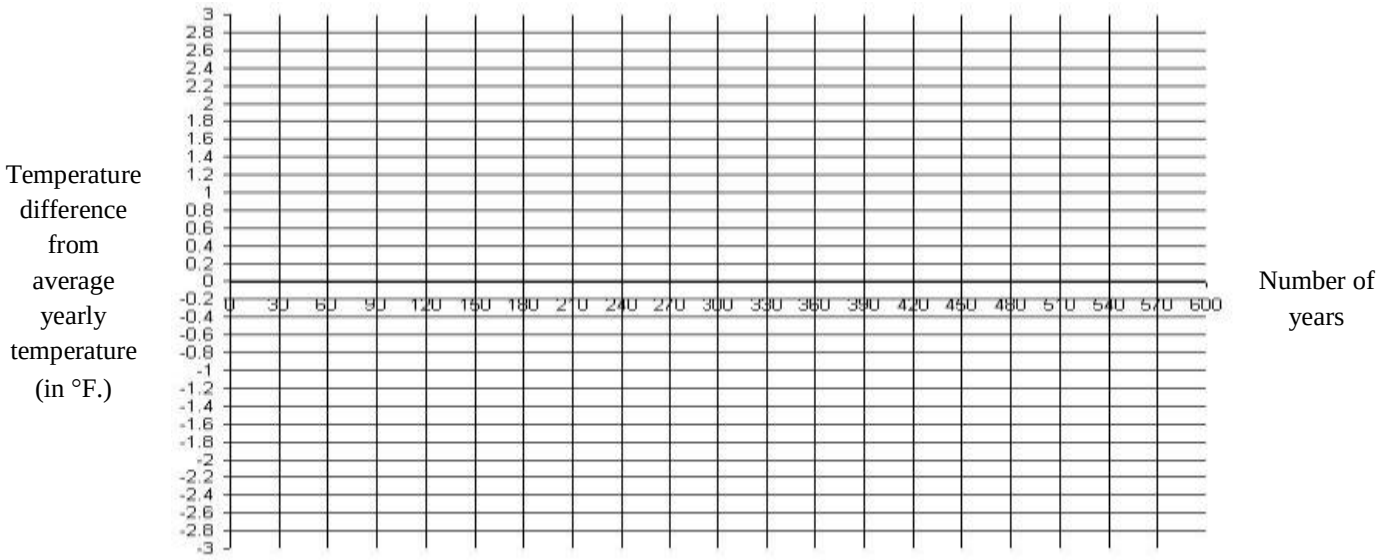
Weather STEM Sims

Lesson 4: How Do Changes in the Concentration of Carbon Dioxide Affect Climate?

Earth's atmosphere consists of many gases. Carbon dioxide currently makes up less than 1% of the gas mixture. Plants require carbon dioxide to photosynthesize, but can too much of this gas be harmful?

Doing the Science

1. Start the Weather simulation.
2. Click the "Change Factors" button.
3. Select "Carbon Dioxide" from the "Choose Factor" pull-down menu.
4. Select "+15%" from the "0%" pull-down menu. Click the "Apply change" button.
5. Click the "Spin" button.
6. A red icon indicates an increase in temperature of 0.1 ºF. A blue icon indicates a decrease in temperature of 0.1 ºF. The green dot in the graph at the top of the screen displays the net change in temperature over the 30-year period. Record your data in the graph below.
7. To speed the spin rate up, click on the green "Faster" icon next to the "Spin" button.
8. Repeat steps 5 and 6 until you complete a total of 20 spins.
9. Make sure to record your data in the graph below.



Do You Understand?

1. Was the graph of the temperature data showing above average, average, or below average temperatures during most of the 600 years of data?

2. Based on temperature, was the climate changing in the area over which the temperature data were collected? Discuss your reasoning for your response.

3. Change the percentage of carbon dioxide in the atmosphere by repeating step 4. Make sure to select a different % value in step 4. Repeat steps 5-9. Discuss how the average temperature changed as a result of this new percentage of carbon dioxide. Write a generalization as to how global temperature is affected by

the concentration of carbon dioxide in the atmosphere.