

## CLIMATE CHANGE: Fact or Opinion?

Lesson Plan by Hans G. Friedel

**General Goal (s):** § 113.22. Social Studies, Grade 6,

(3) Geography. The student uses maps, globes, graphs, charts, models, and databases to answer geographic questions. The student is expected to.

(A) create thematic maps, graphs, charts, models, and databases depicting various aspects of world regions and countries such as population, disease, and economic activities;

(B) pose and answer questions about geographic distributions and patterns for selected world regions and countries shown on maps, graphs, charts, models, and databases; and

(C) compare selected world regions and countries using data from maps, graphs, charts, databases, and models

**Specific Objective:** Students will be able to evaluate different political perspectives and arguments for or against climate change (Specifically global warming) by using historical climate data to answer a geographic question: Is the earth getting Warmer? Students will gain technology experience utilizing graphing and trend line data presentation features of Microsoft Excel.

**Required Materials:** Computer lab with Excel, overhead projector, 100 year average yearly temperature data for a variety of locations, a hosting place like TRACS to post the data so students do not have to enter it manually. Instructions for downloading the temperature history data (and a good general resource) can be found here: [www.http://serc.carleton.edu/eet/gso/part\\_1.html](http://serc.carleton.edu/eet/gso/part_1.html)

**Anticipatory Set (Lead-in – 8 minutes):** Students will be shown a brief PowerPoint with different political figures and their statements on climate change including their beliefs on its potential impact and what policy/trade modifications should be made (Some arguments for global warming will be presented and some against). Ask students what they think of the different arguments. Are they fact or opinion? How could we evaluate these arguments and check for ourselves?

**Step-by-step Procedure (7-minutes):** Divide students into groups of three or four. Walk students through opening the historical average yearly temperature data in Excel. Each group will have data for a different geographic location. Walk students through the steps of creating a graph and adding a trend line to data with excel. Each group will receive a handout with the steps. Briefly explain x and y axis and the importance of leveling. Explain to students that they will have to make these line graphs presentable to class.

**Plan for Independent Practice (20-minutes):** Groups will create its line graph and add its trend line. Teacher will circulate throughout computer lab to ensure students are on task, engaged, and understand the assignment (CFU).

**Closure (Reflect Anticipatory Set – 15 minutes):** Each group prints its line graph and quickly presents their findings to the class. What does the data show? Which argument does it support? Which arguments from the beginning were based upon facts (if any) and which on opinions, or political expediency? Does the data support any conclusion at this point? How does time scale impact the findings? Show the students a variety of scientific temperature graphs going back through the epochs and eons (paleoclimatology).

**Assessment Based on Objectives:** Check for group member participation. Assess the quality of the graphs, the presentation, etc. Were the graphs labeled properly? Did the students follow directions? Were the students able to make sense of the data? Was the analysis correct?

**Modifications:** Suggest students assume different roles within the small group. One may be a data analyst, one may be a creative director, one may be a presenter, etc. This way different learning styles are incorporated, and everyone has a chance to participate.

**Extensions (For GT Students):** Explain why the issue of climate change has become a polarizing political issue.

**Connections to Other Subjects:** Strong connection to math, political science, government, technology and science.