

Investigator's Notebook: Checking the Temperature

Temperature changes predicted by scientists might be enough to make Earth feel like an over-efficient greenhouse. To see what these temperatures might be like try this activity.

Materials Needed

- computer images
- colored pencils or crayons

Procedure

On the next page are two computer images. Image A shows temperature conditions in July 1987. The areas without numbers were not experiencing climate changes at that time. Areas with the number 1 were cooling. Regions labeled 2, 3, or 4 were warming from 2 to 9°C.

Many scientists predict that some parts of Earth will warm in the future. These possible changes are shown in Image B. Use the key to color the maps.

Questions

1. Check an almanac to find the temperature range in your region of the U.S. in 1987.
2. If you live in a region where there may be warming in the future, what do scientists think the temperature range might be in 2029?

Relating science to . . .

Creative writing: Scientists predict that as Earth warms, the upper latitudes will warm more noticeably than areas near the equator. Also, heat will cause the oceans to expand and the sea level to rise. Imagine that you live on a small island off the coast of South Carolina and that your family supports itself through fishing. As the sea level rises, what kinds of changes will take place? Where will your family go? How will they earn a living? What will happen to birds and other shoreline animals? To buildings, roads, and homes? Write a letter describing your problem to a friend in the mountains. If you live in the city, write about what would happen there. How would people get in and out of buildings? What would the street be like? How would you go from one place to another? What would happen to subways and buses? Would your parents' jobs be affected?

Social Studies: Visit the library and look for information on one of the Ice Ages. What was the temperature on the part of Earth where you live? What different kinds of animals lived on Earth then? Are any of those species still on

Earth? Write a 3-paragraph report on those species: what they are and where they live. Or, draw some of these creatures, and write a brief description of each.

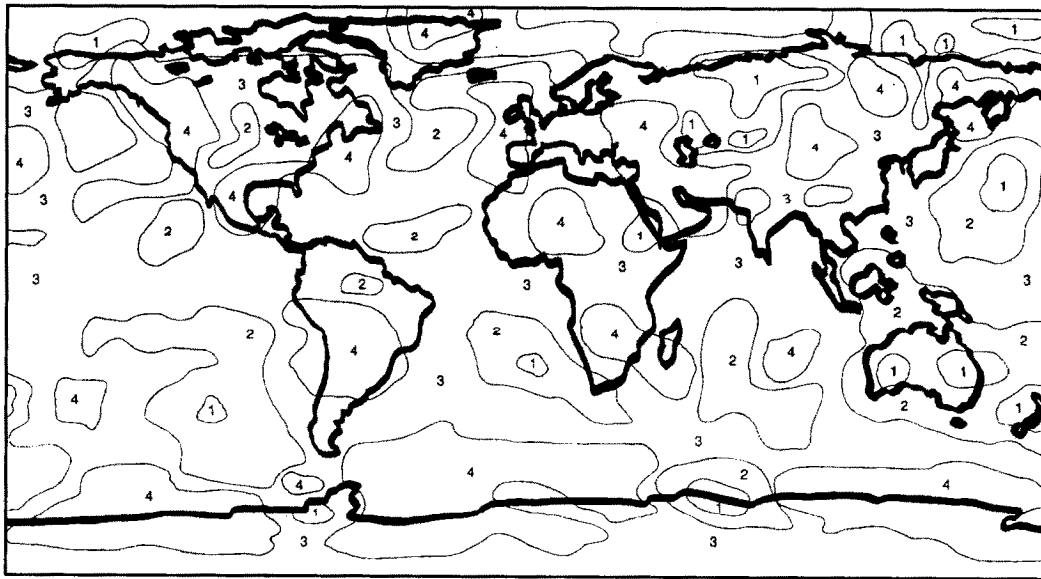
History: In an encyclopedia, look up the Industrial Revolution. What years did it include? What kinds of industry developed then? What was the major source of power? Do you think that there was pollution during that time? Write a 3-paragraph report on what the air and water might have been like during the Industrial Revolution.

Geography: Check an atlas to locate major coastal cities that would be affected by a rise in sea level.

Helping Mother Earth

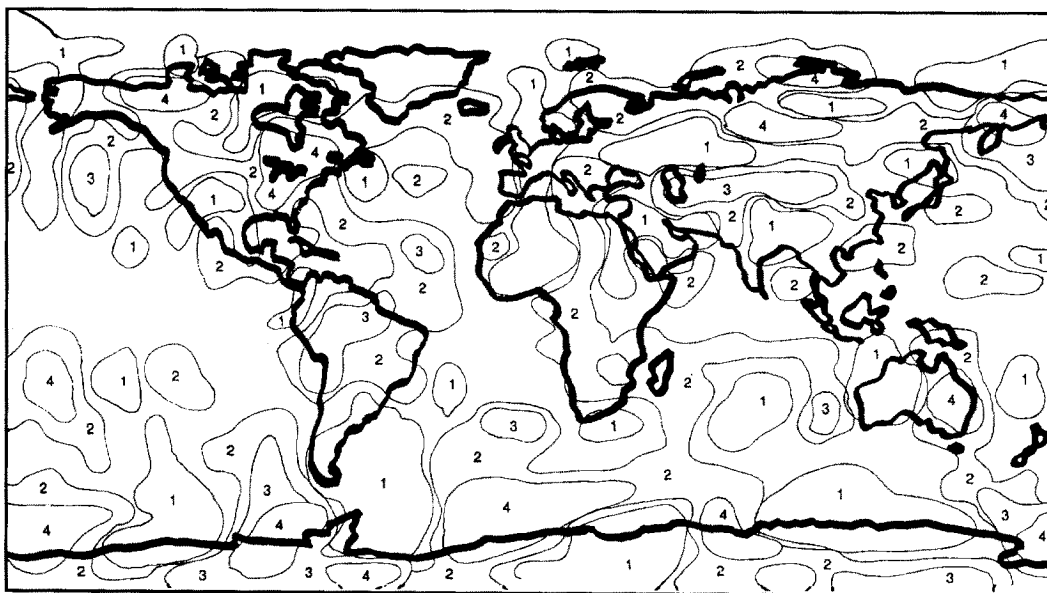
Carbon dioxide helps create the "enhanced greenhouse effect". For every liter of gasoline a car uses, it puts 11.7 kg of carbon dioxide into the atmosphere. To help prevent increases in atmospheric carbon dioxide, walk or ride your bicycle whenever possible, instead of riding in a car.

Checking the Temperature



A. World Temperature Conditions in July 1987

	White.....no change
1	Blue.....cooling
2	Yellow.....warming
3	Orange.....Increasing warmth
4	Red.....warmest



B. Predicted World Temperature Conditions

Answer Key - Investigator's Notebook

1. Answers will depend on the region of the U.S. in which students are living.
2. Answers should be 2 to 9°C higher than current temperatures.

Relating Science to . . .

Creative writing: Encourage students to spend some time imagining before they write.

Social Studies: Student research.

History: The Industrial Revolution began in the late 1700s; most historians set the dates as 1790 to 1850. Manufacturing of items such as clothing and shoes, which had once been done in homes, was now done in factories. Machines began to be used for farming, and factories now built those machines. The major source of power was coal. Some water power was used. Note to Teacher: Students should be helped to see the link between the use of fossil fuels for Power and the increase of carbon dioxide.

Activity from:

NASA "Earth's Mysterious Atmosphere ATLAS 1 Teacher's Guide with Activities" distributed by NASA CORE; Lorain County JVS; 15181 Route 58 South; Oberlin, OH 44074