

Is Climate Change Good For Us?

Subject: Science



OBJECTIVES:

- To understand the consequences that climate change will have in students' lives in the Bay Area
- To analyze the adaptations that people will have to make in their daily lives because of climate change



MATERIALS: handout



SETTING: indoors



ESTIMATED TIME:
40 minutes



VOCABULARY:

- Climate change, adaptations, modifications, environmentally-friendly



ACTIVITY SOURCE:

Teaching about Climate Change; Cool Schools Tackle Global Warming—Edited by Tim Grant and Gail Littlejohn (lesson by Jackie Oblak)



Sonoma County Bicycle Coalition

OVERVIEW: During this activity students will explore how changes in climate could affect daily life and influence the economy of the Bay Area.

BACKGROUND: We live in a world in which we expect a certain amount of climate predictability. We have adapted our activities, economies and communities to seasonal cycles and climatic conditions which we have come to depend on. In the Bay Area, for example, we rely on the rains during the winter for our daily activities and agricultural production. Many other businesses rely on the weather as well, including tourist attractions, ski operations and camping facilities, whether they be snow days or sun days, to stay in business.

We tend to take it for granted that climate will stay the same within certain limits of variability; but if our climate does change, many other aspects of our lives could also change. To many people, the thought of temperatures rising two or three degrees Celsius does not seem to be a big deal, and to those who live in areas with cold winters it may even sound appealing. Yet global climate change brings with it a number of uncertainties about how regions will be affected.

These changes will undoubtedly seem scary to students, so it's important to convey to them that their individual actions, including walking and bicycling to school, will make a difference in determining how severe climate change will be.

LESSON SET-UP:

1. Photocopy chart.

STATE STANDARDS

Science:

3d: Students know that the amount of fresh water located in rivers, lakes, underground sources and glaciers is limited and that its availability can be extended by recycling and decreasing the use of water.

3e: Students know the origin of the water used by their local communities.

4c: Students know the causes and effects of different types of severe weather.

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BUILDING BACKGROUND/ DISCUSSION:

1. Have a general discussion about climate change. You can include the following questions:
 - What does the phrase climate change mean to you?
 - What are some most likely causes of climate change?

ACTIVITY:

1. Using the chart (see next page) as a starting point, have students discuss and record what they think would be the consequences of various climate changes. This activity can be done individually, but students will benefit from discussing their ideas in groups. Note that the chart is very general, and does not expect the students to quantify the changes, but only to consider general trends.

The following are examples of ideas that you might expect from your students:

Season: Summer

Type of Change: More rainstorms

How would this affect me?

- My baseball and soccer games are likely to be cancelled more often.
- Water may leak into our house.
- The wind that comes with rainstorms may break branches on the large old trees near my house.

How would this affect things around me?

- Local tomato farmers may have their crops ruined by hail or flooding of the fields.
 - The local summer festival may not make as much money because more events will be rained out and fewer people will attend.
2. Once the groups have completed the chart, discuss the responses as a class. Ask if there are any categories in which there seem to be no negative effects. Remind students to consider the effects of storms and other events on infrastructures such as drainage, roads, electricity and

so on.

3. What adaptations would humans have to make if certain weather events became more common? This can be approached as a “What if?” brainstorming exercise. Adaptations considered might include modifications to infrastructure and buildings; and changes in diet, dress, activities and transportation.

DISCUSSION






Scientists have warned that we have a limited amount of time to drastically reduce greenhouse gases in the atmosphere, which could prevent the worst effects of climate change from happening. Have a discussion with students about what steps they could take both as a group and as individuals to help stop climate change. Some questions that could guide your discussion:

- What kinds of actions can students take as individuals? Brainstorm a list of environmentally-friendly actions. (*Examples include walking or bicycling to school and other places, changing light bulbs to CFL’s, conserving water and electricity, etc.*)
- What kinds of actions can students take as a group? (*Examples include planting trees together, meeting with the principal to discuss recycling or conserving electricity at school, participating in activities that encourage kids to walk and bike to school*)

EXTENSION IDEAS

1. How could changes in climate affect wildlife? Choose two or three species of insects, plants or animals and consider whether or not they would be affected. Since all organisms depend on other things in their habitat, encourage students to look at requirements for food, shelter and water, as well as interdependence with other organisms.
2. Have students select several other different regions of the world, and research how climate change will potentially affect these regions.

Climate Change and the Bay Area

Type of Possible Climate Change	How would it affect me?	How would it affect things around me?
No more fog in San Francisco and other coastal regions 		
More frequent and severe storms in some areas 		
Much less snowmelt in the Sierra Mountains (where much of the Bay Area receives its water supply from) 		
Temperatures are 10 degrees higher. 		
More severe wildfires 		
Sea level rise of 2-4 feet around the coast, including around airports 