

Climate Change Makes Us Sick

Subject: Biology, AP Environmental Science, Environmental Systems

Grade Level: 10th – 12th

Rational or Purpose: The purpose of this project is to raise students' awareness of how global climate change affects the health of humans. Through the project, students will read and discuss information on different topics such as climate, environment, and health issues. Students should understand that global climate change has an extensive impact on human society at different aspects.

Materials:

Computer with internet access

Project Duration: 2-3 weeks

TEKS Objectives:

112.43. Biology.

(c) (4C)

112.44. Environmental Systems.

(c) (7D)

AP Themes:

AP Environmental Science

III. Population

B. Human Population

3. Impacts of population growth

Background Information:

The most prominent features of global climate change include higher atmospheric temperature and more rainfall. In many developing countries, and even some developed countries, hygiene concerns are still a major social issue. If hygienic problems combine with hotter, humid climate, humans' health will be impacted because such conditions have helped disease to spread rapidly. Some vector-borne diseases, such as malaria and dengue fever, spread at a rapid rate through mosquitoes. Warmer climate will encourage the increases in mosquito populations. Therefore, we must not underestimate how climate change can possibly impact on our health.

Activity

This activity will require students' motivation and curiosity to work on their project. Each group member will be a "specialist" in a certain area, such as environment, medicine, etc. They will be responsible for the sections that they will be presenting in class. Audience (students and teacher) will ask questions after the presentation and assess the depth of their knowledge.

Procedure

Teacher will divide students into groups. Each group should have about 4-5 students. There are several roles within a group: physician, environmentalist, climatologist, and technician. Each student must sign up for a role within a group. (If there are 5 students in a group, the fifth student will be a co-climatologist.) Below are the role descriptions:

Physician

This project is based on the linkage between climate change and vector-borne diseases. As a physician, you should be aware that the number of some infectious vector-borne diseases is rising in an unprecedented rate. Meanwhile, some diseases are changing and become harder to treat. The mission of the project is to specify a certain vector-borne disease, which is related to the current global climate change. With the help of group members and your teacher, you will elaborate on some questions and information that people should be aware of. You will be responsible for educating the public.

Environmentalist

Human-caused damages on nature include deforestation, air pollution, light pollution, etc. Nature reacts to our actions by means of increasing air and ocean temperatures, extreme weather conditions (e.g. drought, hurricane), melting ice-sheets, etc. As an environmentalist, you need to assess the current conditions, such as water level and amount of rainfall of your area. You will need to predict the impact on the environment due to the natural events. You will be responsible for raising people's awareness of the damages we have inflicted on nature and how human may suffer from the natural consequences. Particularly, you need to focus on how those impacts help spread the vector-borne diseases.

Climatologist

Natural events, such as drought, hurricane and severe storms, are happening more frequently and the intensity of the events is increasing. As a climatologist, you need to find out the mechanism behind these events. Are they interrelated to each other? How do these events have an impact on the society? You will be responsible for explaining to the public about the reason of the formation of more violent natural events.

Technician

As a technician, you are responsible for putting materials of everyone into a PowerPoint presentation. This is not your only job. As a group, all members will discuss to initiate a campaign to cope the problems induced by global climate change. The campaign must be attractive and financially feasible. It should be innovative and original. You will be the one to present the campaign to the public.

Teachers are welcome to further define the roles in each group. After the role assignment, teacher will give a lecture on vector-borne disease so that students will have ideas where they are heading to. Students are encouraged to find resources from primary literature, if available.