

Lesson One: The Climate Change Pretest

Subjects

Science, Current Events

Estimated Time

10 to 15 minutes

Grade Level

9-12

Objectives

This pretest is designed to evaluate students' knowledge of climate change. Teachers should use this pretest to determine how much time is needed to devote to background material.

Materials

- The Climate Change Pretest (provided)
- The Climate Change Pretest Key (provided)

Procedure

To understand climate change and its effects on Earth, it is necessary to have a basic understanding of some terms and definitions. This test should be used to help teachers get a better understanding of how much their students already know about weather and climate science, atmospheric structure, and terms used throughout the rest of the curriculum.

The Climate Change Pretest

Directions: Using what you have learned from other classes and resources, answer each question below.

- 1. True or False:** The difference between climate and weather is that Earth's climate is the average condition in a given place over many years, whereas, weather includes only the immediate conditions for a specific place.
- 2. True or False:** The atmosphere is a relatively thin layer of gas that scientists divide into four sections based only on chemical composition.
- 3. True or False:** Greenhouse gases (GHGs) act like a blanket in the atmosphere, trapping heat and warming the planet.
- 4. True or False:** The following gases are not GHGs: nitrous oxide (N₂O), methane (CH₄), water vapor (H₂O) and chlorofluorocarbons (CFCs).
- 5. True or False:** Climate change refers only to the increasing temperature of the earth's surface.
- 6. True or False:** Without the human race, GHGs would not exist.
- 7. True or False:** Human-caused emissions of carbon come from both the burning of fossil fuels and from land-use changes such as deforestation and land-clearing.
- 8. True or False:** The majority of human-caused carbon emissions come from the burning of fossil fuels.
- 9. True or False:** Climate change is predicted to greatly affect the natural resources (such as water) that people depend on.
- 10. True or False:** Individual actions, such as replacing all of your old light bulbs with Compact Fluorescent light bulbs, will help reduce the amount of GHGs in the atmosphere.

The Climate Change Pretest - Key

Directions: Using what you have learned from other classes and resources, answer each question below.

- True or False:** The difference between climate and weather is that Earth's climate is the average condition in a given place over many years, whereas, weather includes only the immediate conditions for a specific place.
- True or False:** The atmosphere is a relatively thin layer of gas that scientists divide into four sections based only on chemical composition.
<http://liftoff.msfc.nasa.gov/academy/space/atmosphere.html>
- True or False:** Greenhouse gases (GHGs) act like a blanket in the atmosphere, trapping heat and warming the planet.
- True or False:** The following gases are not GHGs: nitrous oxide (N₂O), methane (CH₄), water vapor (H₂O) and chlorofluorocarbons (CFCs).
<http://www.pbs.org/wgbh/nova/ice/greenhouse.html>
- True or False:** Climate change refers only to the increasing temperature of the earth's surface. See definitions for Climate and Climate Change in the WWF glossary or online here:
http://www.pewclimate.org/global-warming-basics/full_glossary/glossary.php?term=a
- True or False:** Without the human race, GHGs would not exist.
<http://www.epa.gov/climatechange/emissions/index.html>
- True or False:** Human-caused emissions of carbon come from both the burning of fossil fuels and from land-use changes such as deforestation and land-clearing.
- True or False:** The majority of human-caused carbon emissions today comes from the burning of fossil fuels.
- True or False:** Climate change is predicted to greatly affect the natural resources (such as water) that people depend on.
- True or False:** Individual actions, such as replacing all of your old light bulbs with Compact Fluorescent light bulbs, will help reduce the amount of GHGs in the atmosphere.