COUNCIL on FOREIGN RELATIONS | CFR Education
Global Matters

Lesson Plan

Climate Change: Introduction

Length
One 45-minute period
Grade Level
High School

Learning Objectives

- Students will understand how the greenhouse effect functions and how it is pushing the earth toward tipping points.

The Greenhouse Effect

How Climate Change Can Get Even Worse

Why Scientists Are Watching Greenland

Instructions for Creating an Infographic

Handout

Homework

- Have students read *The Greenhouse Effect* and answer the questions in the handout.

Class

1. (20 Minutes) Working alone or in small groups, have students create an infographic that explains how the greenhouse effect functions. They should come up with an original representation, not copy the graphics from their homework reading. Refer to the Instructions for Creating an Infographic linked above for tips.
2. (15 Minutes) In small groups, have students read one of the following readings, and complete the corresponding guided reading questions:
    - *How Climate Change Can Get Even Worse* (longer, covers several examples)
    - *Why Scientists Are Watching Greenland* (shorter, focuses on a single case study)
3. (5 Minutes) Have students share their answers. Make sure they understand what a feedback loop is (as well as a tipping point, if they read the first reading) and make sure they articulate why these concepts are important for understanding climate change.
4. (5 Minutes) In small groups, have students brainstorm:
    - What are some ways in which climate change is affecting or will affect their community? *The goal is not to create a comprehensive list, but for students to connect their conceptual learning to their own lives, and to lay groundwork for future lessons.*
    - What are some ways in which they can help address climate change. *This is to help students feel*

empowered rather than despairing as they leave class.

Vocabulary

emissions

refers to the amount of greenhouse gases an entity, such as a country or company, produces.

Industrial Revolution

a transition, beginning in the eighteenth century, from small-scale, largely agricultural economies to more industry-intensive ones.

greenhouse gases

gases that absorb heat in the atmosphere and re-emit it back toward earth, causing a warming effect.

renewable energy

energy derived from sources such as sunlight, wind, and water, which have a steadily replenishing supply.

fossil fuels

hydrocarbon energy sources such as oil, coal, or natural gas.

alternative energy

energy sources that are not fossil fuels. Derived from biofuels, solar, wind, geothermal, tidal, or even nuclear power, these sources release few to no greenhouse gas emissions.

greenhouse effect

the natural process that keeps the earth at a life-sustaining temperature.

mitigation

efforts to reduce or prevent emissions of greenhouse gases.

Paris Agreement

a nearly universal international agreement reached in 2015 that requires signatories to offer concrete emissions reductions pledges, establishes rules to monitor their performance against those pledges, and sets up a process to review and increase the ambition of the pledges over time. The Paris Agreement's goal is to limit global warming by 2 degrees Celsius (about 3.6 degrees Fahrenheit) above pre-industrial temperatures.

ocean acidification

changes in the ocean's seawater chemistry caused by an increase of atmospheric carbon dioxide, which oceans absorb, altering marine ecosystems and disrupting ocean life.

deforestation

the clearing or thinning of forests by people for materials, land-use, medicinal ingredients, farming, paper production, or other non-forest purposes.