Our Global Economy's Impact on the Climate

Learning Objectives

Students will:

- Identify the fossil fuels needed to power a T-shirt's production process from seed to shirt, including transportation to factories overseas.
- Discuss what incentives direct people and businesses in their economic decisions in a free market.
- Examine the global economy's current dependence on fossil fuels and the threats this poses for people and the environment.
- Recognize that there are different and often opposing views about the causes of and solutions to global warming.
- Explain how people in Germany worked to bring about their country's rapid transition to renewable sources of electricity.
- Explore personal ideas about globalization, climate change, and how our world will be in the future.

Themes

- Capitalism
- Climate Change
- Globalization
- Greenhouse Gases
- Incentives
- Renewable Energy

Materials Needed

All materials are available for download at **thischangeseverything.org/studyguide**.

Handout: Rejection and Change [p. 12-13 of this guide]
Film clip: "Rejection and Change" (length: 6:15)

Clip Summary: At a conference on climate change put on by The Heartland Institute, speakers reject the idea of man-made climate change. The president of the organization says that the science on climate change is selectively reported and misrepresented in order to promote a socialist agenda. Others at the conference promote the principles of "free market" capitalism. Naomi Klein (narrating the clip) says that the members of the Heartland Institute recognize that if climate change is taken seriously, it changes everything. One place things are changing is in Germany, where citizens have pressured the government to make the switch to renewables, which now account for 30% of the country's electricity. These changes have created 400,000 jobs in their country. In addition, cities and towns have decided to take back the electricity grid from private companies and run it themselves. What does this mean for the rest of the world?

Activities

1. Before coming to class, have students explore the story, "Planet Money Makes a T-shirt" (http://apps.npr.org/tshirt/).

Ask them to determine what types of energy are needed to power each step of a T-shirt's production. (Ex: diesel fuel and oil to run a cotton picker, heavy fuel oil to power a cargo ship to take the cotton from the U.S. to a yarn-spinning factory in Asia, etc.)

2. In class, point out how many students are wearing a T-shirt. Let them know that approximately two billion T-shirts are sold globally each year. Display a world map and trace the production path of the T-shirts in the Planet Money story that they studied for homework. Begin in Wisconsin where the seeds are engineered, then follow the path to Mississippi where the cotton is grown and harvested. The materials for the men's shirt then go to Indonesia where the cotton is spun into yarn, and to Bangladesh where the yarn is turned into fabric, cut, and sewn into the T-shirt. These steps in the women's shirt all happen in Colombia. The shirts are then shipped to Miami, Florida where they are put on trains and trucks to New York City where they are printed. They are eventually shipped all over the United States to people who buy the T-shirts online. As you trace the production path, ask students to share their findings on what fossil fuels are burned along the way. Point out that burning fossil fuels pollutes the planet and emits greenhouse gases like carbon dioxide.

3. Ask students why T-shirts are not manufactured in the U.S. if that is where the cotton for them is grown. Why ship everything around the world? Explain the economic logic behind a U.S. company's decision to use factories in Indonesia, Bangladesh, and Colombia to produce its T-shirts. Discuss incentives that direct people and businesses in their economic decisions in a free market. For example, companies have an incentive to outsource certain production needs to specialized firms in developing countries where they can pay their workers lower wages than in the U.S. These savings in labor costs are greater than the costs of shipping materials to these factories overseas (which were just $.07 per shirt in the Planet Money T-shirt example), so companies can minimize production costs and maximize profits. Point out how our current economic system has high energy demands to power all of this production and transportation, the bulk of which currently comes from fossil fuels. How are the economic activities of large corporations who seek to maximize profits in conflict with efforts to lower fossil fuel emissions?

4. Show the class an image (http://climatekids.nasa.gov/review/greenhouse-effect/Earth_greenhouse_gases.jpg) that describes how gases like carbon dioxide can increase the temperature of the planet. Explain that the more fossil fuels are burned, the more greenhouse gases are released into the atmosphere; the more greenhouse gases there are in the atmosphere, the more heat is trapped and the temperature of the planet increases. This process is what is referred to as "global warming." Then, display the graphic, "A First in Human History" (http://whirlwindodyssey.org/wp-content/uploads/2014/11/First-in-Human-historygraph_201305141.jpg) and explain that it shows measurements of carbon dioxide concentrations in the atmosphere over time. Ask students to describe the data trend from 1990 to the present. Explain that these increased concentrations of carbon dioxide lead to global warming and changes in the climate that cause droughts, increases in sea level, floods, intensified weather and heat events (hurricanes, typhoons, tornadoes, heat waves, etc.), and other major problems.

5. Give each student a handout (see p. 12 -13 of this guide) to complete while watching the video clip, "Rejection and Change" from the *This Changes Everything* documentary. Review the questions before playing to clip to help students focus their viewing.

6. As a class, discuss student responses from the handout. Then, close the activity by having students write a personal response to the ideas in this activity about economic growth and climate change.

Ask them to consider the following questions as they write:

- What did you learn about the global production of goods that you didn't know before?
- How concerned are you about greenhouse gas emissions and their effect on the climate?
- How do you imagine our world in 20 years?
- Will our air, land, and water be in better or worse shape than today? What about our societies? Why do you believe things will be better or worse?
- What role do you see for yourself in shaping the future?

Go Further

- Explore different perspectives about climate change. Have students research and collect statements by various scientists and political leaders who have explained climate change, its root causes, and likely consequences, and who have expressed views about how to respond. Aim for variety in political parties and perspectives. (For example, from Pope Francis to Flood Wall Street to Jeb Bush.) Ask students to then choose one of these individuals and write a persuasive essay evaluating the strength of his or her arguments and their real-world implications. What are the sources of this person's information, ideas, or assertions? How credible are his or her statements, and what makes you think that? Help students distinguish between facts and opinions. How does this person's perspective on climate change reflect or influence public opinion, and government action on climate change? How effectively would his or her preferred course of action address the causes and consequences of climate change?

- Play a game that simulates the tension between capitalism and the climate. The Rethinking Schools publication, *A People's Curriculum for the Earth (2014)* (see the Resources section on p. 53 of this guide) (http://www.rethinkingschools.org/proddetails.asp?ID=9780942961577) includes a section called 'The Thingamabob Game' in which small groups of students represent competing manufacturers of "thingamabobs" who must balance the quest for profits with greenhouse gas output.

- Introduce students to the concepts of "per capita emissions" and "emissions outsourcing," two terms used to analyze a country's responsibility for climate change. Have them research the definitions of each, how they are determined, and their significance. For example, China emits the highest levels of carbon dioxide each year of any country, but on a per capita basis, it does not even rank in the top 50. Also, data from the Global Carbon Project (http://www.globalcarbonproject.org/carbonbudget/index.htm) indicates that 16% of China's emissions in 2012 came from manufacturing goods that were exported to other countries. Explain to students that there have been even higher estimates of China's "outsourced emissions": one study found that in the period 2002-08, 48% of the country's emissions were related to exported goods. How is such data useful in discussing climate change and how various countries should respond? Practice forming questions, answering them with data from the Global Carbon Project report, and then creating infographics to display student findings.

- Conduct an in-depth exploration of the dominant system of producing and consuming, sometimes described as the materials economy. The Story of Stuff provides a series of ten free lesson plans (http://storyofstuff.org/resources/high-school-curriculum-buy-use-toss/) that address Extraction, Production, Distribution, Consumption, and Disposal.

Handout Lesson 1

Rejection and Change

Instructions: Watch the video, "Rejection and Change" from the documentary, *This Changes Everything*. Then respond to the questions below.

1. What opinion do attendees of the Heartland Institute Conference on Climate Change have about global warming? How does this view compare to Naomi Klein's, who is shown attending the conference and narrates the video?

2. What worldview is illustrated by one man's statement about the value of trees and elephants? What is your reaction to his comment?

3. Joe Bast, President of the Heartland Institute, said, "If human activity is causing climate change, then almost anything could be justified in terms of a government response." How would you restate what he is saying in your own words? What would you justify in terms of a government response to climate change?

4. The German government has invested billions in the development of renewable energy systems, which now account for 30% of the country's electricity. According to the video, what have been the benefits of this transition?

5. What strategies did Germans use to bring about their country's rapid energy transition?