

# Official Book & Film Study Guide



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# Welcome Message

Teachers and Educators!

We are so thrilled that you are picking up this guide and thinking about how to introduce critical thinking about climate change and economics to your students. The biggest driver for us in creating the book, film and engagement project *This Changes Everything* was to find ways to share and explore these ideas with others. Of course that includes creating tools to help people to talk about climate and economics in their communities.

We firmly believe that it is not books and films that change the world, but people.

And we see teachers and students as critical to this conversation. After all, it will be the students of today that will inherit the world we have created, and become the leaders navigating the many challenges created by climate change and economic inequality.

We believe that answers to deep-running, high-stakes, convoluted questions about a better world can be found in the stories of people, including the hundreds who opened up their hearts and heartbreak to us during the making of this project over five years. All around the world, we found that people were connecting the dots between the economic system and the environmental havoc it's wreaking on their lives and the planet. In seeing the emergence of a new climate movement - breaking out of economic and environmental silos, making new alliances, and building the next economy in the rubble of the old one, we found hope growing in the cracks of our broken system.

There is a story we've been told about ourselves for hundreds of years: that we are nothing but selfish, greedy, self-gratifying agents, and that the earth is a machine to be manipulated instead of a life-giving force to be respected and revered. You are poised uniquely as educators to start the long, intangible process of questioning and re-imagining this narrative with your students.

Our most passionate hope for this project is that it can be useful to you as concerned educators, to be a tool for students to burst out of isolation and avoidance and find a way to engage.

**Because to change everything, we need everyone.**

Thank you for the work that you do. We look forward to hearing how you and your students explore these ideas in your classrooms.



Avi Lewis & Naomi Klein

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# Using this Study Guide

This guide is designed to help students in grades 9-12 look critically at the idea of how our economic system's push for continual growth impacts both the environment and quality of life for all people.

Excerpts from the *This Changes Everything* book and documentary film are used as starting points throughout the learning activities to spark discussion, and to put a human face on complex issues through case studies and in-depth analysis. The content from these materials emphasizes that addressing climate change can be a catalyzing force for making society stronger and fairer, and that students can shape society's future through active civic engagement.

All excerpts are available for classroom use and can be found at:

[thischangeeverything.org/studyguide](https://thischangeeverything.org/studyguide)

If you're using your own copy of the book, page numbers in this text refer to the first hardcover edition of *This Changes Everything*.

This guide is a great fit for the following subject areas: Civics, Geography, Economics, History, and other types of Social Studies classes; English; Journalism; and Environmental Science. Feel free to adapt the materials to other types of classes as well.

The learning activities in this guide are organized into eight themes that can be taught in any order. Because each section is designed to stand on its own, you can easily pick and choose what learning activities best meet your curricular goals. Each theme includes a handout that provides a framework for how students might organize their ideas. Please note that the handouts referred to in the directions for each activity can be found at the bottom of that theme's section, as well as online at [thischangeeverything.org/studyguide](https://thischangeeverything.org/studyguide). Other materials that can be found on our website are the video clips and the book excerpts. Finally, the guide includes a Resources section with opportunities for deeper study on climate change topics, related curricula, research findings, and tools to support your teaching of the key ideas.

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# About *This Changes Everything*

Both the book and the film *This Changes Everything* use case studies and in-depth analysis to illustrate how the crisis of climate change can be an opportunity to transform our society into one that better cares for each other and for the planet. The economic logic of our time pushes a doctrine of endless economic growth, without acknowledging that that model is powered by finite natural resources, pollutes the planet, and perpetuates social injustices. The climate crisis is an urgent signal that it is time for people to come together and build an economy that reflects our values, creates good jobs, and protects the air, land and water. Confronting climate change is no longer about changing light bulbs – it's about changing everything.

## Naomi Klein



Naomi Klein, author of *This Changes Everything* (2014), is an award-winning journalist and the author of the critically acclaimed #1 international bestseller *The Shock Doctrine: The Rise of Disaster Capitalism* (2007) and of *No Logo: Taking Aim at the Brand Bullies* (2000), which The New York Times called “a movement bible.” Klein is a contributing editor for *Harper’s Magazine*, a reporter for *Rolling Stone*, and a syndicated columnist for *The Nation* and *The Guardian*. She is a member of the board of directors of [350.org](http://350.org) and a Puffin Foundation Writing Fellow at The Nation Institute.

## Avi Lewis



Avi Lewis, director of the *This Changes Everything* (2015) documentary, presents in the film the stories of seven powerful communities around the world affected by the climate change crisis and the economic system that brought it about. These portraits are tied together by Naomi Klein’s narration, which explains the connection between carbon in the air and the economy that put it there, and gives a hopeful take on how people can build a better world. Lewis’s previous works include *The Take* (2004), an award-winning film that followed Argentina’s legendary movement of worker-run businesses; *Fault Lines* (2009-2010), an acclaimed weekly documentary series on Al Jazeera English Television; and a number of current affairs and political talk shows on CBC Television in Canada.

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# Learning Activities

[Lesson 1:](#) Our Global Economy's Impact on the Climate

[Lesson 2:](#) People, the Planet, and Economic Growth

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# **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 [thischangeeverything.org/studyguide](http://thischangeeverything.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](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](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?

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

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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?

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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?

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

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# People, the Planet, and Economic Growth

**Learning Objectives**

Students will:

- Analyze a quotation that describes the conflict between the finite resources of the planet and the current push for growth.
- Break down a case study that illustrates the relationships among people, the environment, and economic growth.
- Work with a partner to develop a solution to the conflict presented in the case study.

**Themes**

- Environmentalism
- Social Inequality
- Economic Development
- Capitalism

**Materials Needed**

All materials are available for download at [thischangeseverything.org/studyguide](https://thischangeseverything.org/studyguide).

**Handout:** People, the Planet, and Economic Growth [p. 17-18 of this guide]

**Film clip:** "People, the Planet, and Economic Growth" (length: 7:13)

**Clip Summary:** As part of the push for rapid economic growth, the government of India supported the efforts of a private company to build a coal-based power plant in Sompeta, Andhra Pradesh. If the plant had been built, it would have covered the local wetland with landfill. Thousands of community members rely on the wetland for their livelihood and believe that the power plant will make them poorer.

**Book excerpt:** for Go Further: "Growing the Caring Economy, Shrinking the Careless One" (pg 93-95, *This Changes Everything*)

**Activities**

1. Ask the class to record their thoughts in writing about this quote from Naomi Klein:

"What the climate needs to avoid collapse is a reduction in the use of finite resources. What the economy needs to avoid collapse is unfettered expansion. These two needs are at war with one another. Only one set of rules can change, and it is not the laws of nature."

Students can consider the following questions as they write: How does the use of finite resources like fossil fuels benefit the economy? How is it harming the environment? What is Klein saying is the way to end this conflict?

2. Give each student a handout and show the class where Sompeta, Andhra Pradesh, India is on a map (an online search will quickly bring this up). Explain that a situation in Sompeta can serve as a case study for exploring issues related to economic growth and its impact on people and the environment. Tell students that they are going to watch a video and record details about these issues on their handout. Review the questions before playing the video so students will know what information to watch for. Then show the clip, "People, the Planet, and Economic Growth" (length: 7:13) from the *This Changes Everything* documentary. It may be helpful for students to be able to watch the clip more than once in order to get all of the information.

3. Ask students how they would resolve the struggle in Sompeta. Are there alternative strategies for providing electricity that are better for people and the planet? Have students work with a partner to consider the needs of those involved, brainstorm and discuss possible solutions, and decide on the best option. Pairs should explain in writing their solution and their rationale for choosing it.

### Go Further

- Evaluate different methods that society uses to measure progress. Gross Domestic Product (GDP), for example, measures the size of an economy based on factors such as production, income, and expenditures. GDP indicators influence important decisions about interest rates, investments, wage increases, and other factors that affect quality of life. Some believe, however, that it is a mistake to place too much emphasis on GDP as a measure of progress. They argue GDP does not do a good job of measuring human well-being, and does not take into account harm to the environment. Have students conduct an in-depth investigation of GDP and alternative measures of progress (Example: <http://www.happyplanetindex.org/>). Create a chart that organizes information for each method about what specifically is measured, how it is calculated, and its limitations and criticisms. Which method do students believe is the best measure of progress? Why?
- Explore alternatives to economic growth that serve human needs and minimize the impact on the environment. Begin by having students read the *This Changes Everything* book excerpt, "Growing the Caring Economy, Shrinking the Careless One" which can be found online. List out the strategies described in the text. Then, have student pairs read and discuss the examples of real-life alternatives provided in the Build Another World activity by the German organization fairbindung.org: <http://www.fairbindung.org/bildungaktuelleprojekte/endlichwachstum/beyond-growth-methods/chapter-5-outlook-and-alternatives/> Afterwards, discuss which of these strategies may already be a part of students' lives. Are there any that they would like to try?



**Handout Lesson 2**

**People, the Planet, and Economic Growth**

Instructions: Watch the video, "People, the Planet, and Economic Growth" from the documentary, *This Changes Everything*. Then respond to the questions below.

1. What action did the government of India take in the area of Sompeta that upset local residents?

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2. Summarize the concerns that the people of Sompeta have about the proposed coal-fired power plants.

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3. What policies and incentives has the government of India put in place to stimulate private energy investments in coal-fired power plants? Who will benefit from these measures?

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4. In the video, V.S. Krishna of the Human Rights Forum criticizes what he calls India's "mindless pursuit of growth." What are his concerns?

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5. How does Naomi Klein (the narrator) describe the Western model of economic growth?

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6. Does nature have limits in terms of how much economic growth it can support? Why or why not?

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# Climate Change and Social Justice

**Learning Objectives**

Students will:

- Compare responses to the 1989 Exxon Valdez oil spill and the pollution caused by the oil industry in Nigeria.
- Discuss how the economic growth of wealthy countries has impacted both poorer countries and the environment.
- Define the term, “climate debt” based on textual information.
- Analyze a proposed plan for wealthy countries to pay Ecuador not to sell its oil.
- Write arguments to explain their position on the strategy of having wealthy countries compensate poorer countries for not exploiting their oil reserves.

**Themes**

- Climate Debt
- Climate Justice
- Social Inequality
- Legacy of Colonialism
- Economic Development

**Materials Needed**

All materials are available for download at [thischangeseverything.org/studyguide](https://thischangeseverything.org/studyguide).

**Book excerpts:**

- “Niger Delta” (p. 305-306, *This Changes Everything*)
- “Climate Debt” (p. 408-409, *This Changes Everything*)
- Go Further: “Polluter Pays Principle” (p. 115-116, *This Changes Everything*)

**Handout:** Climate Debt Analysis (p. 23-24 of this guide)

**Activities**

1. Have students watch this three-minute news story about the 1989 Exxon Valdez oil spill. Focus student viewing by asking them to note how people responded to the disaster and the lingering effects of the spill more than 25 years later.

<http://www.cbsnews.com/news/21-years-later-exxon-valdez-scars-still-healing/>

2. Show the location of Nigeria on a map:

[https://commons.wikimedia.org/wiki/File:Location\\_Nigeria\\_AU\\_Africa.svg](https://commons.wikimedia.org/wiki/File:Location_Nigeria_AU_Africa.svg)

Explain that Nigeria used to be a British colony, which claimed the legal right to the oil in Nigeria and allowed companies to extract and export it to industrialized nations. Then have students read the *This Changes Everything* book excerpt, "Niger Delta" (p. 305-306, *This Changes Everything*).

Discuss:

- What impact did the economic growth of wealthy nations have on the people of Nigeria and the environment?
- How would Americans react if, every year, an Exxon Valdez-worth of oil spilled into waterways in one of their communities? Why do you think so much oil has been allowed to spill in the Niger Delta for more than fifty years? How do you explain the disparities in how problems are solved for different people?

3. Explain that wealthy countries have prospered by using fossil fuels like oil and coal to power their industries, but in the process, they have polluted the planet and emitted massive quantities of greenhouse gases like carbon dioxide that trap heat in the atmosphere. To prevent even more environmental damage, poor countries need to develop differently, but they don't have the resources on their own to make that happen.

4. Point out the location of Ecuador on a map:

[https://commons.wikimedia.org/wiki/File:Ecuador\\_\(orthographic\\_projection\).svg](https://commons.wikimedia.org/wiki/File:Ecuador_(orthographic_projection).svg)

Tell the class that Ecuador is the home of Yasuní National Park and ask them to read the *This Changes Everything* book excerpt, "Climate Debt" (p. 408-409, *This Changes Everything*). Then have students work in pairs or small groups to respond to the questions on the Climate Debt Analysis handout.

5. Conclude by having each student take a position on whether or not they would back the Yasuní plan. Students should write an argument that explains their view and uses valid reasoning and relevant evidence to support it.

**Go Further**

- Delve deeper into environmental racism. Explain to students that the Niger Delta is an example of a “sacrifice zone.” Klein describes sacrifice zones as places that, “...[s]omehow don’t count and therefore can be poisoned, drained, or otherwise destroyed, for the supposed greater good of economic progress.” She points out that people who live on these lands get sacrificed too, because they typically lack political power due to some combination of race, language, and class.
- Then, read Klein’s article, “Why #BlackLivesMatter Should Transform the Climate Debate” (<http://www.thenation.com/article/192801/what-does-blacklivesmatter-have-to-do-climate-change>) and talk about the connections made by the article between race and climate change. Research other examples of sacrifice zones closer to home (for example, New Orleans after Hurricane Katrina). Have students share their examples and evaluate whether each meets Klein’s definition of a sacrifice zone.
- Explore strategies for raising money from the wealthy to help cover the costs to transition away from fossil fuels. Read the *This Changes Everything* book excerpt, “Polluter Pays Principle” (p. 115-116, *This Changes Everything*), and discuss which of the options outlined in the text you would support and why. What additional or alternative ideas can you contribute?
- Explain and respond in writing to this quote: “There is no fight for the environment that does not require a fight for social justice. Nor can you have a struggle for social justice if there is no fight for the environment.”
- For additional teaching materials on climate change and social justice, visit the Climate Justice in BC (<http://teachclimatejustice.ca/>) and Movement Generation (<http://movementgeneration.org/resources/curriculum-tools/>) websites.

**Handout Lesson 3**

**Climate Debt Analysis**

Instructions: read the excerpt "Climate Debt" (p. 115-116) from the book *This Changes Everything*, then respond to the questions below.

1. According to the text, what is "climate debt?" Who owes what to whom? Why?

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2. Explain the Yasuní plan in your own words.

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3. How does the Yasuní plan propose using the funds that would be collected as payment for the climate debt?

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4. Predict how the following people would react to the Yasuní plan. Justify your response:

- CEO of the Ecuadoran state oil company Petroequador
- President of Ecuador
- Leader of a wealthy country asked to pay Ecuador to not drill for its oil

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5. What might be the outcomes for people and the planet if wealthy countries were to pay for developing countries to grow their economies using clean energy? What might be the outcomes if they did not provide funds?

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6. What other ideas do you have for helping poor countries to develop economically in ways that support both people and the environment?

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# What Is Our Relationship with the Earth?

**Learning Objectives**

Students will:

- Write definitions of the concepts of “extractivism” and “regeneration” based on textual information.
- Identify, describe, and evaluate both historical and modern-day examples of “extractivism” and “regeneration.”
- Determine how extractivism and regeneration differ in the ways that each places value on people and the planet’s resources.
- Discuss whether it is possible to have economic growth that values both people and the environment.
- Create posters that visually capture the idea of extractivism or regeneration, using stories from their study for inspiration.

**Themes**

- Extractivism
- Regeneration
- Legacy of Colonialism
- Social Justice
- Economic Growth

**Materials Needed**

All materials are available for download at [thischangeseverything.org/studyguide](https://thischangeseverything.org/studyguide).

**Book excerpts:**

- “Extractivism” (pg 169-170, *This Changes Everything*)
- “Regeneration” (pg 447-448, *This Changes Everything*)

**Handout:** Group Organizer (p. 29 of this guide)

**Film clip:** “Short-term Profits v. Long-term Damage” (length: 7:04)

**Clip Summary:** A group of activists laments a Canadian corporation’s plans to expand a gold mine in their area and the potential destruction of the landscape. One of them thinks the question of whether or not to expand the mine is an ethical issue. She believes the core problem is capitalism and that it promotes short-term profits for companies and long-term damage for residents. Klein describes our economic system as one based on the “logic of extractivism,” a worldview that sees everything as a commodity from which to extract value – nature, people, and entire nations.

### Activities

1. Before class, have students read the *This Changes Everything* book excerpts, “Extractivism” (p. 169-170) and “Regeneration” (p. 447-448). Ask them to write definitions of the concepts of “extractivism” and “regeneration” based on information in the texts. Students should then bring their definitions to class, along with an historical or modern-day example of each concept, conducting research as needed. For example, a student might define “regeneration” as, “Taking purposeful action to generate life so that the environment and communities can grow or revive,” and give as an example the agroecological practice of using “green manures,” or quick-growing plants that prevent erosion and replace nutrients in the soil.
2. In class, organize students into groups of three or four and give each group the handout. Within their groups, students should share their individual definitions of extractivism and regeneration with each other, and then merge them into group definitions of these concepts that they can record on their handout. Have students also take turns sharing their examples of extractivism and regeneration and explaining how they support the definitions. Group members should evaluate whether each example truly fits the definition, asking for clarifications and more details as needed. Add each example to the handout once it has been vetted by the group. Then, the group should identify or label a couple of local examples from home, the school, or the community.
3. Ask the groups to review their handouts to make sure all relevant points of their discussion have been captured. Invite a representative of each group to share the group’s definitions and examples with the class. Ask members of other groups to identify who benefits and who is hurt in each example provided. What patterns does the class notice about the examples of extractivism and regeneration? How do extractivism and regeneration differ in the ways that they place value on people and the planet’s resources?
4. Show students the 7-minute video, “Short-term Profits v. Long-term Damage,” which illustrates the values of extractivism and regeneration coming into conflict in modern-day Greece.

After watching, discuss:

- Based on the information in the video, what are the values of the gold mining company in regards to the land? What are the values of the residents of Halkidiki? Why are these values in conflict?
  - How does the narrator’s definition of “extractivism” compare with yours?
  - Why do you think the woman in the video believes that capitalism is the core problem in their struggle against the proposed expansion of the gold mine? What is your reaction to her perspective? Explain.
  - Is it possible to have economic growth that values both people and the environment? Why or why not? What examples support your view?
5. Have students each create a poster that visually captures the idea of extractivism or regeneration, using stories from their study for inspiration.

**Go Further**

- Ask students to determine whether extractivism or regeneration best describes the economic behavior and decision making of the people, corporations, and government leaders in your country. Have students write persuasive essays about their positions and include specific examples.
- Learn more about a legal strategy based on “regeneration” that seeks to stop harmful corporate activities based on “extractivism.” It focuses on establishing a legal framework for the “rights of Mother Earth” so that these rights can be defended in court if they are violated. In 2010, people at the World People’s Conference on Climate Change and the Rights of Mother Earth collaborated to define these rights in the Universal Declaration of the Rights of Mother Earth (<https://pwccc.wordpress.com/programa/>). Have students write news stories that research and explain the legal strategy for establishing these “rights of nature,” and the progress that proponents have made so far. A good source of information for students to start with is the Frequently Asked Questions page (<http://therightsofnature.org/frequently-asked-questions/>) at the website for the Global Alliance for the Rights of Nature.
- Evaluate the roles that lifestyle choices (such as recycling or consuming less) and economic, political, religious, and cultural systems play in defining humanity’s relationship with the Earth. What are the strengths and limits of each in terms of their ability to place value on both people and the environment? Create a chart that tracks these strengths and limits side by side.
- Have students define and assess their own relationship with the Earth. Do they support an extractivist or a regenerative point of view? Do their everyday decisions reflect their values? Why or why not? Where can improvements be made at both the lifestyle and systemic levels?

**Lesson 4 Handout: Group Organizer**

**Group Members:**

<b>Extractivism</b>	<b>Regeneration</b>
Group Definition:	Group Definition:
Examples:	Examples:

What examples do you see in your home, school, or community?

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# Reinventing a Clean and Just Economy

**Learning Objectives**

Students will:

- Examine a case study in which an entrepreneur creates a decentralized renewable energy company to provide both economic and environmental benefits to the community.
- Identify non-economic factors that can influence economic decision making.
- Analyze strategies for reinventing the economy based on impact, benefits, fairness and potential barriers.
- Create two-minute videos that could be used to educate the public about these strategies to reinvent the economy.

**Themes**

- Capitalism
- Economics
- Incentives
- Just Transition
- Renewable Energy

**Materials Needed**

All materials are available for download at [thischangeseverything.org/studyguide](https://thischangeseverything.org/studyguide).

**Film clip:** “Red Cloud Renewable Energy” (length: 3:38)

**Clip Summary:** The solar power company, Lakota Solar Enterprises, provides clean energy training and jobs for an Indian Reservation in North Dakota and other native communities. The company’s vision is to help First Nations become energy independent before mainstream America. The clip shows Henry Red Cloud providing training to members of the Northern Cheyenne.

**Handout:** Idea Analysis (p. 34-35 of this guide)

**Activities**

1. Show students the video clip, “Red Cloud Renewable Energy” (length: 2:35) from the *This Changes Everything* documentary. Focus student viewing by asking them to identify what motivated Henry Red Cloud to start his own solar power company.

Discuss:

- Why did the owner of Red Cloud Renewable Energy choose to leave his job in the steel industry so he could start his own solar power company?
- How does the solar power company provide both economic and environmental benefits to the community?
- In the video, Vanessa Braided Hair explains the principle, “Take what you need, and then put back into the land.” How is this perspective about land use and economic activity different from capitalism’s continual push for growth?
- Would a solar power company like Red Cloud Renewable Energy help the economy and environment in your community? Why or why not? What incentives could your community provide to create more clean energy jobs in your area?

2. Tell students that in the book, *This Changes Everything*, author Naomi Klein argues that we should choose to address climate change and develop the economy in ways that make society fairer and more humane. She proposes a number of strategies that she believes would fundamentally change our economy to reflect humanitarian values, create good jobs, and protect the air, land and water:

- reducing the gap between rich and poor (ex: basic income for all, higher taxes for the affluent)
- regulating corporations to reduce or eliminate greenhouse gas emissions (ex: tax each unit of pollution, enforce emissions limits on power plants and industrial facilities)
- rejecting extractive projects like deep-water drilling, fracking and tar sands mining
- investing heavily in infrastructure like public transit, health, and education
- re-localizing economies based around the production of food and goods
- recognizing the rights of indigenous people to protect lands from extraction
- putting in place community-controlled clean energy systems



3. Using the provided handout, have students research and write a brief explanation of each proposed strategy. They should also predict short- and long-term results of each proposal, and determine who would benefit from these strategies and who wouldn't.

4. As a class, discuss:

- Are the ideas proposed in these strategies fair? Why or why not?
- What obstacles might prevent these types of changes from happening?
- Which approaches do students support and why?
- How would these strategies affect your community if they were implemented?

5. Organize the class into groups of 2-3 students and have each group create a two-minute video that could be used to educate the public about one of the strategies from the handout. For visuals, students could consider using an interview format, the creative use of photographs, etc. When the groups have finished their videos, share them at a mini film festival with another class, with the principal, or on social media.

### Go Further

- Learn more about the term, "just transition." Have students research its meaning as it applies to climate change. Then, discuss this quote from the Call to Action statement for Canada's March for Jobs, Justice, and the Climate: "We don't have to choose between the economy or the environment. Real climate action means investing in mass public transit, clean energy infrastructure and affordable housing. It means expanding low-carbon sectors like healthcare, education and sustainable agriculture. By taking real climate action, we can create an economy that is more fair and equal and offers hundreds of thousands of good new jobs." Have students explain how the different parts of this statement support the idea of a just transition.
- Analyze organizations that are based on worker and community ownership. Have small student groups visit the Beautiful Solutions section of the *This Changes Everything* website (<https://solutions.thischangeseverything.org/>) and choose a story featuring a cooperative, credit union, clinic, or similar enterprise. Alternatively, groups could choose an organization in your community or one that they learn about in their own research. Each group should create an infographic that illustrates how the organization they selected functions and the values, goals, and incentives that drive its activities. Do students have their own strategies for how to develop a clean and just economy that the group should consider? Allow time for each group to share a summary of their discussion with the rest of the class.

**Lesson 5 Handout: Idea Analysis**

In the book, *This Changes Everything*, author Naomi Klein proposes a number of strategies that she believes would fundamentally change our economy in ways that reflect humanitarian values, create good jobs, and protect the air, land and water.

Use the table below to analyze these ideas.

Proposed Strategy	Brief Explanation	Short-term result	Long-term result	Who benefits? Who doesn't?
Reduce the gap between rich and poor (ex: basic income for all, higher taxes for the affluent).				
Regulate corporations to reduce or eliminate greenhouse gas emissions (ex: tax each unit of pollution, enforce emissions limits on power plants and industrial facilities).				
Reject extractive projects like deep-water drilling, fracking and tar sands mining.				

**Reinventing a Clean and Just Economy**

Proposed Strategy	Brief Explanation	Short-term result	Long-term result	Who benefits? Who doesn't?
Invest heavily in public infrastructure like public transit, health, and education.				
Re-localize economies based around production of food and goods.				
Recognize the rights of indigenous people to protect lands from extraction.				
Put in place community-controlled clean energy systems.				

# How Do People Change the World?

**Learning Objectives**

Students will:

- Describe the impact of citizens who have taken action to address various problems in society.
- Identify strategies used by citizens in a case study to come together, communicate their concerns, and work towards their goals.
- Consider local issues that may require action by members of the community.
- Evaluate the power of government, corporations, and citizens in shaping how society looks and runs.

**Themes**

- Activism
- Civic Engagement
- Democracy
- Environment

**Materials Needed**

All materials are available for download at [thischangeseverything.org/studyguide](http://thischangeseverything.org/studyguide).

**Handout:** How Do People Change the World? (p. 40-41 of this guide)

**Film clip:** "Saying No in Greece" (length: 5:17)

**Clip Summary:** Activists in Halkidiki, Greece come together to protest the treatment of a fellow protestor and the proposed expansion of a gold mine in their region run by Eldorado Gold, a Canadian mining company. Local residents are concerned about the long-term effects that mining activities will have on their land and water, which in turn affect agriculture, tourism, and the health of community members. Government officials are committed to the mine expansion. Police use tear gas against the protestors. The protests continue and the mine expansion is delayed. In the next mayoral election, the candidate supported by the protesters wins, and the mayor who favored the mine is voted out.

**Activities**

1. Ask students to think about this question: “How do people change the world?” Give each student a copy of the handout and ask them to read the passage and respond to the questions. After a few minutes, have students compare their responses with a partner, and then invite pairs to share an example of a transformative movement and how they think society would be different if people had not spoken up or taken action on that movement’s issue. Emphasize how citizens can bring about important changes in society when they raise awareness about problems and get involved in social and political activities to address the issue.

2. Tell students that they are going to watch a modern-day example of how members of a community in Greece organized themselves around an issue of importance to them – stopping the proposed expansion of a gold mine in their region run by Eldorado Gold, a Canadian mining company. Then, show students the video clip, “Saying No in Greece” (length: 5:17) from the *This Changes Everything* documentary. Focus student viewing by having them take notes on the strategies they observe citizens using to come together, communicate their concerns, and work towards their goals.

3. After watching the clip, discuss:

- Why were the activists against the expansion of the gold mine? Why were the government leaders for it?
- What strategies did citizens use to come together, communicate their concerns, and work towards their goals?
- How did the government and police respond to the protestors? What is your reaction to their response? Explain.
- How did the persistence and unity of the protestors pay off in the mayoral election? What can you do to ensure that your elected officials advocate for the needs of your community?
- What do students think would have happened if the citizens shown in the film had not voiced their concerns and continued with their protests? Why?
- What examples are there in your community of people speaking up about issues of importance to them? Are there local issues that students think require more action by members of the community? If so, what should be done and who should do it? How can those most affected by the issue play a central role?

4. Who do you think are the most powerful forces in society? Government? Corporations? Citizens? Who decides how society looks and runs? Have students write an opinion piece on this topic that supports their positions with specific evidence from their studies.

**Go Further**

- Discuss what is meant by change happening from the “top down” or from the “bottom up?” Have students read excerpts from Howard Zinn’s *A People’s History of the United States (1980)* to prepare. What examples of each can you draw from history? How might popular pressure and grassroots activism have shaped moments of change that are often considered “top down?” (Examples for discussion: the New Deal and the civil rights movement). Why might different groups of people choose to focus on one approach to political and social change over the other? Which do you think is more effective? Why? Change from the “bottom up” requires mass participation from everyday people. What do you think would motivate people in your community to challenge things as they are and work to build something better? What would motivate you?
- Ask students what an “activist” looks like. Do they consider themselves activists? Why or why not?
- Brainstorm and research various types of protest and list each on its own index card or sticky note. Draw examples from the website *Beautiful Trouble: a Toolbox for Revolution* (<http://beautifultrouble.org/tactic/>). Student pairs could participate in several categorization rounds in which they discuss and move their cards or sticky notes under labels such as, “Legal/Illegal,” “Ethical/Unethical,” “Effective/Not Effective,” “Something I Would Participate In/Something I Would NOT Participate In,” etc. Each student could then focus on one set of labels, research a specific protest in history or modern times, and justify in writing why that protest belongs in one category versus the other. Have students apply one of the tactics to addressing an issue at school or in the community.

**Lesson 6 Handout**

**How Do People Change the World?**

Instructions: read the excerpt from the book *This Changes Everything* below, then respond to the questions.

Excerpt from *This Changes Everything*, by Naomi Klein:

“...There are certainly lessons to learn from the transformative movements of the past. One such lesson is that when major shifts in the economic balance of power take place, they are invariably the result of extraordinary levels of social mobilization. At those junctures, activism becomes something that is not performed by a small tribe within a culture, whether a vanguard of radicals or a subcategory of slick professionals (though each play their part), but becomes an entirely normal activity throughout society—it’s rent payers associations, women’s auxiliaries, gardening clubs, neighborhood assemblies, trade unions, professional groups, sports teams, youth leagues, and on and on. During extraordinary historical moments—both world wars, the aftermath of the Great Depression, or the peak of the civil rights era—the usual categories dividing “activists” and “regular people” became meaningless because the project of changing society was so deeply woven into the project of life. Activists were, quite simply, everyone.” (pg. 459)

Questions:

1. What does “transformative” mean?

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2. According to the text, what is the key to success for any transformative movement?

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3. What is an "activist"?

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4. Choose an example of a transformative movement (i.e., abolition, suffrage, labor rights, civil rights, etc.). What would have happened if citizens had not chosen to speak up about issues of importance to them or to work to make things better in the community?

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# Crisis and Opportunity

**Learning Objectives**

Students will:

- Explain how a crisis can be a moment of change, and that our response to crisis can lead to something better or worse.
- Analyze the recovery effort of the town of Greensburg, Kansas following its destruction by a super tornado in 2007.
- Create specific plans for how they would reimagine and rebuild a model “green school” if a crisis like a natural disaster destroyed your school.

**Themes**

- Civic Engagement
- Economics
- Democracy
- Environmental Stewardship
- Social Justice

**Materials Needed**

All materials are available for download at [thischangeseverything.org/studyguide](http://thischangeseverything.org/studyguide).

**Handout:** A Model “Green Town” (p. 45-46 of this guide)

**Film clip:**

- “Climate Crisis in China” (6:38) (for optional Go Further activity)
- “Transportation in New Delhi” (2:10) (for optional Go Further activity)

**Activities**

1. Ask students to consider the question, “Can a crisis also be an opportunity?” Then give each student a handout and instruct them to read the text and answer the related questions. After students have completed the handout, discuss their responses as a class. Emphasize how in the process of reinventing their town, the citizens of Greensburg re-energized civic participation, sought solutions that benefited everyone, and created an alternative economy that worked in partnership with nature for the success of the community.

2. Ask students to now imagine that their school has been destroyed by a major storm and it is up to them to rebuild it. Divide the class into teams of 3-4 students. Each team will develop a plan to reinvent their school as a model “green school.”

Following the example of the citizens of Greensburg, teams will first identify a set of core values shared by members of the school community. For the purposes of this assignment, the value of “being good environmental stewards” will be a given. To determine other values, all students should survey five of their friends and ask them

what phrases, values, and attitudes should represent what is best and most important about your school.

Teams should then meet to review the responses they have gathered, find common threads among them, and pare them down to a set of 4-6 core values (including being good environmental stewards) that they believe best represent the school community and should be used to guide the rebuilding process.

3. Have teams connect each of their core values to a specific strategy they will use to create the model "green school." Some examples of values and related strategies could include: "Be good stewards of the environment" - Install solar panels on the roof of the school, or "Promote healthy living" - Provide space for an organic vegetable garden. Conduct additional research as needed. Students should create a poster or digital slideshow to display their ideas.

4. Allow time for each group to share their plans with the class. Discuss which parts of their plans your school could implement now and how students could take action to make those things happen.

### Go Further

- Explore how something considered a "crisis" affects how we spend our time and money. Start the discussion by having students bring in news articles about a recent crisis, such as a natural disaster. How have citizens and government leaders responded to the situation? What has prompted them to take action? Then have students watch the *This Changes Everything* film clip, "Climate Crisis in China" (length: 6:38). What does Naomi Klein mean when she says, "China is literally choking on its own economic growth." How did the air quality crisis provide a moment of change for China? What are some specific ways that Chinese citizens responded to this crisis and fought for something better? What strategies shown in the video demonstrate that China is starting to shift its model of economic growth to reduce its negative impact on the climate? What motivated the actions of both citizens and government leaders? Based on this case study, what would it take for climate change to be considered a crisis in other areas of the world and prompt more aggressive levels of response? How could this happen in your community?
- Design a better transportation system for your city. Begin by having students review and discuss the *This Changes Everything* video, "Transportation in New Delhi" (length: 2:10). How do the 15% of residents in Delhi who own a car affect the quality of life for everyone else in the city? How can the transportation crisis in Delhi be an opportunity to create a better mobility pattern for all? After discussing the video, divide students into small groups and have them brainstorm a list of the various ways that people get from place to place in your community (ex: car, bus, train, bicycle, walking, etc.). Use a T-chart to discuss the pros and cons of each type of transportation (ex: how much does each benefit or harm the environment, what impact does each have on human health, etc.). How does your community's existing infrastructure affect people's transportation choices? How could your city's mobility patterns be reimagined and improved? Conduct additional research as needed. Have groups then create an online slideshow that proposes specific changes to your city's transportation system that are more environmentally-friendly and improve public health. Allow time for each group to present their ideas to the class. Consider inviting a city official to hear the student presentations and give feedback on their proposal.

**Lesson 7 Handout****A Model “Green Town”**

Instructions: read the excerpt from the book *This Changes Everything* below, then respond to the questions. Excerpt from *This Changes Everything*, by Naomi Klein:

“In 2007, a super tornado ripped through the [rural town of Greensburg, Kansas], turning about 95 percent of the town into rubble. As a result of an extraordinary, community-led process that began just days after the disaster, with neighbors holding meetings in tents amid the wreckage of their former lives, Greensburg today stands as a model “green town,” often described as the greenest in America. The hospital, city hall, and school have all been built to the highest certification level issued by Leadership in Energy and Environmental Design (LEED). And the town has become a destination for hundreds of policy makers, anxious to learn more about its low-energy lighting and its cutting-edge green architecture and waste reduction, as well as the wind turbines that earn municipal revenue by producing more power than local residents need.

Most striking of all, this “living laboratory” is taking place in the heart of an overwhelmingly Republican-voting county, where a great many people are entirely unconvinced that climate change is real. But those debates seem to matter little to residents: the shared experience of tremendous loss, as well as the outpouring of generosity that follow the disaster, have, in Greensburg, rekindled the values of land stewardship and intergenerational responsibility that have deep roots in rural life. “The number one topic at those tent meetings was talking about who we are—what are our values?” recalls Greensburg mayor Bob Dixson, a former postmaster who comes from a long line of farmers. He added, “Sometimes we agreed to disagree, but we were still civil to each other. And let’s not forget that our ancestors were stewards of the land. My ancestors lived in the original green homes: sod houses.... We learned that the only true green and sustainable things in life are how we treat each other.” (pg 406-407)

Questions:

1. How is a crisis like a natural disaster a moment of change that can lead to something better or worse?

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2. According to the text, how did values play a central role in the decisions made by the citizens of Greensburg to build a model "green town?"

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3. How did the crisis faced by the people of Greensburg transform these types of activities: Political, Social, Economic?

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4. Would you describe the Greensburg, Kansas recovery as a success? Justify your response.

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# Is Geoengineering the Answer to Global Warming?

**Learning Objectives**

Students will:

- Describe a number of proposed geoengineering strategies that show how technology could potentially be used to manipulate the climate and curb global warming.
- Analyze the pros and cons of spraying chemicals into the stratosphere in an effort to decrease the temperature of the planet.
- Discuss the ethical and political challenges of trying to manipulate the climate.
- Develop a series of Tweets that provide concise summaries of their views about geoengineering as a solution to global warming.

**Themes**

- Environmental Ethics
- Environmental Stewardship
- Geoengineering
- Technology
- Social Justice

**Materials Needed**

All materials are available for download at [thischangeseverything.org/studyguide](http://thischangeseverything.org/studyguide).

**Book excerpt:** "Managing the Sun" (pg 257-261, *This Changes Everything*)

**Handout:** Is Geoengineering the Solution to Global Warming? (p. 51-52 of this guide)

**Film clip:** "Mastering the Earth" (1:23) (for optional Go Further activity)

**Activity**

1. As a warm-up, have students respond in writing to whether or not they agree with the statement, "The Earth is ours to control." After a few minutes, allow students to share their views with a partner and then invite a few to read what they have written with the class. Explain that views about this statement play a central role in how people respond to issues related to our use of fossil fuels and their impact on the environment.

2. Tell the class that a scientific organization called the Royal Society held a meeting in 2011 to discuss issues related to "geoengineering," a term that describes how technology might be used to manipulate the climate and curb global warming. Give each student a handout and ask them to complete it as they read more about this meeting in the *This Changes Everything* book excerpt, "Managing the Sun" (pg 257-261)



3. As a class, discuss the ethical and political issues related to geoengineering:
- Who should decide whether or not something is put into the earth's atmosphere to alter the temperature of the planet? How confident are you that something like the Pinatubo Option could be managed fairly and responsibly? Explain.
  - As you consider the pros and cons of the Pinatubo Option, do you think the technique should be used to address global warming? Why or why not?
  - Are there limits to human control over nature? Give examples to support your answer.
4. Have students express their views about geoengineering as a solution to global warming in a series of three Tweets that concisely summarize their points in 140 characters or less. Students can choose whether to tag you and post their Tweets on Twitter or to submit them to you as a list.

### Go Further

- Show the film clip, "Mastering' the Earth" (length: 1:23). Ask students to explain in their own words how learning how to extract and burn fossil fuels was such a turning point in human history. Create timelines that illustrate this turning point with examples of how humans handled different tasks before and after this discovery. What impact did this discovery have on how humans viewed themselves and their relationship with the planet? What have been the positive and negative consequences of these changes?
- Have students create political cartoons or infographics that represent this point made by Klein in her book about geoengineering. "These technologies respond to the lack of balance our pollution has created by taking our ecosystems even further away from self-regulation. [Geoengineering] would require machines to constantly pump pollution into the stratosphere and would be unable to stop unless we invented other machines that could suck existing pollution out of the lower atmosphere, then store and monitor that waste indefinitely... And the risks are greater still because we might well be dealing with multiple countries launching geoengineering efforts at once, creating unknown and unknowable interactions. In other words, a Frankenstein world, in which we try to solve one problem by making new ones, then pile techno-fixes onto those."
- Compare and contrast the following perspectives on the relationship between humans and the earth:

"Our Earth needs constant concern and attention. Each of us has a personal responsibility to care for creation, this precious gift which God has entrusted to us. This means, on the one hand, that nature is at our disposal, to enjoy and use properly. Yet it also means that we are not its masters. Stewards, but not masters. We need to love and respect nature, but instead we are often guided by the pride of dominating, possessing, manipulating, exploiting; we do not 'preserve' the Earth, we do not respect it, we do not consider it as a freely given gift to look after. Respect for the environment, however, means more than not destroying it; it also means using it for good purposes." – Pope Francis

“...it is possible to find a practical philosophy, by means of which, knowing the force and the actions of fire, water, air, the stars, the heavens, and all the other bodies that surround us, just as distinctly as we know the various skills of our craftsmen, we might be able, in the same way, to use them for all the purposes for which they are appropriate, and thus render ourselves, as it were, masters and possessors of nature.” – René Descartes, *The Discourse on the Method*, 1637

- For a more in-depth analysis of the geoengineering issues explored in these activities, see this paper from climate scientist and geoengineering expert Alan Robock: “20 Reasons Why Geoengineering May Be a Bad Idea” (<http://climate.envsci.rutgers.edu/pdf/20Reasons.pdf>).
- As part of the class discussion about the ethics and politics of the Pinatubo Option, watch Stephen Colbert interview geoengineering researcher and advocate David Keith on The Colbert Report (<http://www.cc.com/video-clips/lv0hd2/the-colbert-report-david-keith>). What do students think is the biggest risk of spraying sulfuric acid into the stratosphere? Is there a place for geoengineering in the discussion for how to address global warming? Why or why not?
- Explore society’s lack of control over the earth by considering whether humans are addicted to extreme risk in finding new energy, financial instruments, and more. Watch Naomi Klein’s 2010 TED Talk, “Addicted to Risk” ([http://www.ted.com/talks/naomi\\_klein\\_addicted\\_to\\_risk](http://www.ted.com/talks/naomi_klein_addicted_to_risk)). Discuss what can be done to help society stop its reckless behavior and recognize that the planet has limits.

**Lesson 8 Handout****Is Geoengineering the Answer to Global Warming?**

Instructions: Read the *This Changes Everything* book excerpt, "Managing the Sun," which describes a number of geoengineering proposals, or how technology could be used to manipulate the climate and curb global warming. Then, respond below.

1. List the different geoengineering strategies described in the text. For each strategy, note how it is intended to reduce global warming.

Strategy	Intended Effect

2. Describe how the Pinatubo Option would work.

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3. According to the text, what are the pros and cons of the Pinatubo Option?

Pros	Cons

4. What impact could Solar Radiation Management (SRM) strategies like the Pinatubo Option potentially have on global weather patterns?

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5. According to the text, who would be most at risk if SRM caused widespread drought and reduced freshwater resources? What are the potential consequences of these conditions? In your view, how does the potential risk of these consequences compare to the potential benefit of curbing global warming?

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6. In your view, do geoengineering strategies encourage or discourage efforts to reduce pollution? Explain.

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# Resources

The following resources include opportunities for deeper study on climate change topics, related curricula, research findings, and tools to support your teaching of the key ideas presented in *This Changes Everything*.

## Related Curricula

### Rethinking Schools

<http://www.rethinkingschools.org/index.shtml>

Rethinking Schools publishes a seasonal magazine, books, and other materials that feature participatory, experiential learning experiences and articles about critical teaching and issues beyond the classroom. Their publication, *People's Curriculum for the Earth* (2014) provides a collection of articles, role plays, simulations, stories, poems, and graphics for teaching about climate change, and is available for purchase here: <http://www.rethinkingschools.org/earth>. Also, the book, *Rethinking Globalization* (2002) raises critical issues about the impact of globalization on our planet and those who live here. It can be purchased here: <http://www.rethinkingschools.org/ProdDetails.asp?ID=0942961285>

### Facing the Future

<https://www.facingthefuture.org/CurriculaFreeUnits/CurriculaCatalog/tabid/652/Default.aspx>

This organization provides sustainability curricula for purchase for all grade levels.

### Story of Stuff

<http://storyofstuff.org/resources/>

This organization seeks to help society focus on people, not things, and features a free high school curriculum, "Buy, Use, Toss?" with ten lesson plans that provide a closer look at the things we buy.

### Sustainability and Environmental Education UK

<http://se-ed.co.uk/edu/resource-home-page/>

This organization seeks to share best practices in sustainability and environmental education. Their site groups a number of resources for primary and secondary schools by topic.

### Teach Climate Justice

<http://teachclimatejustice.ca/>

This curriculum from the Canadian Centre for Policy Alternatives' Climate Justice Project features eight free modules designed for grades 8-12 that address climate change and rising inequality.

### **Zinn Education Project**

<http://zinnedproject.org/>

This organization provides free, downloadable lessons and articles that support the teaching of history in middle and high school classrooms. Its goal is to introduce students to a more accurate, complex, and engaging understanding of United States history than is found in traditional textbooks and curricula.

### **Some resources related to climate change from the Zinn Education Project**

#### **Coal, Chocolate Chip Cookies, and Mountaintop Removal**

<http://zinnedproject.org/materials/coal-mountaintop-removal/>

Students play and analyze a game to explore coal mining and its consequences.

#### **Indigenous Peoples' Global Summit on Climate Change**

<http://zinnedproject.org/materials/dont-take-our-voices-away/>

This role play has students create a list of demands to present at a climate change meeting.

#### **Mystery of the Three Scary Numbers**

<http://zinnedproject.org/materials/three-scary-numbers/>

This mixer has students solving the mystery of three data figures about global warming.

#### **Paradise Lost**

<http://zinnedproject.org/materials/paradise-lost-climate-change/>

This activity introduces students to climate change through the story of the island nation of Kiribati.

#### **Tar Sands and the Keystone XL Pipeline**

<http://zinnedproject.org/materials/dirty-oil-tar-sands-keystone-pipeline/>

In this role play, students take on the characters of key stakeholders in an imaginary public hearing about whether or not to approve the Keystone XL pipeline.

### **For Further Study**

#### ***A People's History of the United States (1980)***

Howard Zinn

Known for its lively, clear prose as well as its scholarly research, *A People's History* is the only volume to tell America's story from the point of view of—and in the words of—America's women, factory workers, African-Americans, Native Americans, the working poor, and immigrant laborers.

#### ***Economics for Everyone (2008)***

<http://economicsforeveryone.ca/>

This book teaches the basics of economics and provides an accessible critique of the wasteful practices of the financial industry. The website includes excerpts from the book, free curricula, an online glossary, and details on how to buy the book.

### **Eyes Wide Open**

<http://www.eyeswideopenupdates.com/>

This site provides curated and original news on a variety of environmental issues.

### **Fuel Poverty Action Energy Bill of Rights**

<http://www.fuelpovertyaction.org.uk/home-alternative/energy-bill-of-rights-2/>

This document by Fuel Poverty Action details consumer energy rights that support the idea of bringing energy under democratic, public control, where people can make sure it is both affordable and sustainable for all of us and future generations.

### **Global Warming and Climate Change Myths**

<http://www.skepticalscience.com/argument.php>

This resource from Skeptical Science provides “what science says” responses to more than 150 arguments against global warming and climate change. This site also provides a downloadable “Scientific Guide to Global Warming Skepticism” (<http://www.skepticalscience.com/The-Scientific-Guide-to-Global-Warming-Skepticism.html>).

### ***Inequality for All***

<http://inequalityforall.com/>

This documentary featuring Robert Reich examines the problem of widening income inequality. The Web site provides downloadable graphics from the film, curricula, and more.

### ***The Shock Doctrine (2007)***

<http://www.naomiklein.org/shock-doctrine>

Naomi Klein’s book, *The Shock Doctrine* tells the story of how American policies have exploited disaster-shocked people and countries. Site resources include documents cited in the book, background on economic theories, and more.

### **To Understand Climate Change, Understand These Three Numbers**

<https://www.youtube.com/watch?v=5KtGg-Lvxso>

A video (length: 3:08) showing Bill McKibben as he describes the three numbers to watch in the climate crisis.

It is an excerpt from the film *Do the Math* (length: 45 minutes), available at:

<http://act.350.org/signup/math-movie/>

### Research

#### **1M Climate Jobs**

<http://www.campaigncc.org/greenjobs>

This report produced by the Campaign Against Climate Change trade union group shows how to create a million secure government jobs in renewable energy, increase energy efficiency by insulating homes and public buildings free of charge, expand cheap public transport to get people and freight onto cleaner forms of transit, and develop the “green skills” that we need through education and training.

#### **Tyndall Centre for Climate Change Research**

<http://www.tyndall.ac.uk/>

This research group provides interdisciplinary and policy-relevant research on climate change, which it shares with the public on social media and in publications.

### Tools

#### **Beautiful Solutions**

<https://solutions.thischangeseverything.org/>

An easy-to-navigate gallery of real-world examples of Values, Stories, Solutions and Theories for “building a more just, democratic and resilient world.”

#### **Beautiful Trouble**

<http://beautifultrouble.org/>

This website on the nuts and bolts of successful grassroots movements provide details about tactics, principles, theories, case studies of various campaigns, and practitioners of revolution.

#### **Climate 101 with Bill Nye**

<https://www.youtube.com/watch?v=3v-w8Cyfoq8>

This video (length: 4:33) from the [climaterealityproject.org](http://climaterealityproject.org), narrated by Bill Nye, presents the basics of climate change.

#### **Climate and...**

<http://thischangeseverything.org/>

Digital toolkits on the *This Changes Everything* website laying out the connections between climate and issues like austerity, Indigenous rights, and trade.

#### **Environmental Justice Atlas**

<http://ejatlas.org/>

The environmental justice atlas documents and catalogues social conflict around environmental issues. The map can be used to find case studies of environmental activism, and to see where conflicts are taking place around the world.

#### **Global Nonviolent Action Database**

<http://nvdatabase.swarthmore.edu/>

This continuously updated database houses narratives that describe nonviolent campaigns.



### **Intro to Climate Justice**

<https://www.youtube.com/watch?v=5PQKYt6H4Fw#t=15>

This video (length 3:45) provides a succinct explanation of climate justice.

### **Our Power Campaign**

<http://www.ourpowercampaign.org/>

This organization unites communities and stimulates grassroots action to achieve a just transition towards local living economies. Site resources include documents, toolkits, and reports to support grassroots movements.

### **The Solutions Project**

<http://thesolutionsproject.org>

Stanford Professor Mark Jacobson and a team of researchers analyzed how all 50 US states could transition to 100% clean, renewable energy by 2050. Teachers can embed a map of his findings on their Web sites for classroom studies on your state's potential for transitioning to renewables.

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# Credits

## Writer

Writer Cari Ladd, M.Ed., is a curriculum and media specialist who has created educational materials for *P.O.V.*, *FRONTLINE*, *Independent Lens*, and Bill Moyers programs on PBS; *The Sound of Mumbai* on HBO; Latino Public Broadcasting; *No Impact Man*; *Pay 2 Play: Democracy's High Stakes*, and others.

## Other Credits

Impact & Distribution Producer Alex Kelly is a filmmaker and activist who works in communications strategy and culture-led social change. Alex has been part of managing the global grassroots distribution, social media and movement outreach for *This Changes Everything*.

Rajiv Sicora worked with Naomi Klein as leader of the research team on *This Changes Everything* from 2010-14, and was an Associate Producer on Avi Lewis' companion documentary film.

Special thanks to Bill Bigelow, Katie McKenna, Kaela Bamberger, Shane Hofeldt, Amber Hammill and Pip Kelly Varela for their feedback and assistance during the production of this guide.

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