

# Sustainability: Designing Interdisciplinary Opportunities for Teaching

Lori De La Cruz



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## **About this Workbook**

The *Sustainability: Designing Interdisciplinary Opportunities for Teaching* workbook is not just about sustainability, in and of itself. It is just a part of a larger sustainability process that:

- 1) illustrates how sustainability correlates with current courses;
- 2) provides interdisciplinary opportunities for teaching;
- 3) equips students with a basic understanding of sustainability in the world and the workforce; and
- 4) improves students' critical thinking skills.

Sustainability has been a part of higher education for many years in the form of energy and water efficiencies, waste minimization and recycling initiatives. More recently, the inclusion of green building programs such as LEED have broadened the scope of campus sustainability efforts.

This workbook was written and designed to serve as a link between college courses and a broad range of sustainability issues.

The *Sustainability: Designing Interdisciplinary Opportunities for Teaching* workbook is the capstone project for Lori De La Cruz, toward the award of an MA in Sustainability and Development from Southern Methodist University in Dallas, Texas.

## **Referenced Web Articles**

Throughout the workbook, links are provided to more information and current events relating to the topic being discussed. Where possible, PDFs of those articles were captured and are available online in folders for each separate subject matter; i.e., geology, business management, etc.

The zipped file can be found at <https://drive.google.com/open?id=0B2qb-gdemxbtnETQyUm1GZnFRVTA>.



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## Sustainability in Higher Education

Although several papers have been written about the importance of incorporating sustainability into college curriculum, barriers still exist. For instance, Robert Van Wynsberghe and Janet Lynn Moore note in their paper *UN Decade on Education for Sustainable Development (UNDESD): Enabling Sustainability in Higher Education*, "...one barrier to creating sustainability programming that supports this social movement at the university level is the disciplinary structure of the institution. Many students and faculty work within a specific discipline of study and see little need to engage outside their own discipline."<sup>1</sup>

In another paper, Janet Moore's survey of barriers to sustainability education says, "A longstanding argument against interdisciplinary undergraduate programs is that it would be 'better' for students to get disciplinary training first. Many faculty members suggested that it is important for students to start with a disciplinary foundation and wait until later on in their schooling to deconstruct that foundation."<sup>2</sup>

Wouldn't it be advantageous for students in a community college setting to have been exposed to cross-discipline theories and discussions prior to transferring to a four-year institution as juniors who lack this background? More importantly, those students who complete only their associate's degree will not have the opportunity to learn how sustainability crosses over several disciplines through systems thinking.

But, what is systems thinking? According to Donella H. Meadows, "A system is a set of things – people, cells, molecules, or whatever – interconnected in such a way that they produce their own pattern of behavior over time. The system may be buffeted, constricted, triggered, or driven by outside forces. But the system's response to these forces is characteristic of itself, and that response is seldom simple in the real world."<sup>3</sup>

In other words, a system is a set of things that may not seem related at first glance, but as students are encouraged to widen their view to take in more information, the broadening scope will increase the number of interrelations and impacts available for students to think more critically about a situation.

How can it be implemented in higher education? She continues, "systems thinking is a critical tool in addressing the many environmental, political, social, and economic challenges we face around the world. Systems, big or small, can behave in similar ways and understanding those ways is perhaps our best hope for making lasting change on many levels."<sup>4</sup>

John A. Cassell and Thomas Nelson makes the case for systems thinking in the classroom when speaking to the problem of students' understanding of civic engagement:

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They call upon educators to create a new type of citizenry by helping students to see patterns and connections, raise questions, and act on knowledge for the benefit of the world around them. Ultimately, teachers must help students develop as citizen stewards, able to grasp and promote concepts of healthy ecological and social systems. As Orr puts it, educators must teach students the ways in which they are part of the natural world and help them gain an understanding of self and a mastery of their personhood so as to use knowledge well in the world, for the benefit of the world.<sup>5</sup>

We also need to teach more broadly and cooperatively:

This will include emotional and social intelligence which...allow us to connect, feel empathy, and see situations from the perspectives of others. It will also involve the active use of ecological intelligence that serves to support the extension of this sense of connectedness to all life on Earth so as to develop the ability to see complex patterns in interconnectedness, cycles and limitations of which humanity is a vital part.<sup>6</sup>

There are hundreds of online resources designed to assist faculty with inserting sustainability into specific disciplines such as engineering, biology, geosciences, business, sociology, STEM, etc. There are also publications that provide an overview of how to implement sustainability initiatives such as developing environmental management systems, designing campus greening projects, landscaping a sustainable campus and planning for climate action. This workbook serves as a tool for bridging disciplinary silos.

### **Illustrate how sustainability correlates with current courses**

Integrating sustainability into higher education courses consists of showing connections, especially where students don't initially see them. For instance, some topics in basic Computer Science courses are also relevant in: business management, geology, environmental science, ethics, government, sociology, biology, economics, marketing, criminal justice, chemistry and engineering. Of course, almost all topics are applicable to papers written in both English and debate courses.

## Provide interdisciplinary opportunities for teaching

Due to the interdisciplinary nature of sustainability, it is the ideal opportunity for the formation of learning communities.

The key goals for learning communities are to encourage integration of learning across courses and to involve students with “big questions” that matter beyond the classroom. Students take two or more linked courses as a group and work closely with one another and with their professors. Many learning communities explore a common topic and/or common readings through the lenses of different disciplines. Some deliberately link “liberal arts” and “professional courses...”<sup>7</sup>

Sustainability is a good fit for writing-intensive courses due to its numerous impacts throughout environmental, economic and social issues. It is also a great exercise in developing research skills such as finding and citing credible sources.

[Writing-intensive] courses emphasize writing at all levels of instruction and across the curriculum, including final-year projects. Students are encouraged to produce and revise various forms of writing for different audiences in different disciplines. The effectiveness of this repeated practice “across the curriculum” has led to parallel efforts in such areas as quantitative reasoning, oral communication, information literacy, and, on some campuses, ethical inquiry.<sup>8</sup>

## Equip students with a basic understanding of sustainability in the world and the workforce

Remember, students are entering the workforce once they have earned their degrees and community colleges are at the forefront of the charge to prepare them. Increasingly, reports show that companies are implementing sustainable practices into their everyday business, so it stands to reason that students who have a basic knowledge of sustainable practices would have an advantage.

For instance, McKinsey & Company reports that:

...much larger shares of executives at the leader organizations say their top leaders prioritize sustainability and report higher employee engagement on sustainability at every level, including CEOs, board members, and sustainability advisory committees. They report that their companies are taking more action to manage the life cycles of their products, and are four times more likely than others to say they have already implemented

## Overview

a life-cycle strategy. And they say their companies face fewer barriers to realizing value from sustainability, because they report better overall performance on the practices that underpin a healthy sustainability organization.<sup>9</sup>

They also offer these three tips for looking forward, from both a corporate and job opportunity viewpoint:

- **Extend the product life cycle.** Today, resource constraints are creating unprecedented prices and volatility in natural-resource markets. Yet the results indicate that most companies have not even begun to implement strategies that extend the life of their products and thereby reduce their resource dependence in a significant way. According to our other research, there is huge value potential in better design and in the optimization of products for multiple cycles of disassembly and reuse. Forward-looking companies should begin investing in the “circularity” of their products, for the benefit of society and for their bottom line. On materials alone, companies could potentially save more than \$1 trillion per year.
- **Look to technology.** Similarly, technological advances are creating opportunities to drive sustainability solutions. Yet only 36 percent of respondents say their companies are mostly or fully integrating sustainability into their data and analytics work. Companies that want to capture increasing value in a resource-constrained world should spend more time thinking about how to integrate their technological capabilities into their overall sustainability agenda.
- **Focus your strategy.** As sustainability becomes more central to the business, companies should align internally on what they stand for and what actions they want to take on these issues, whether it's economic development or changing business practices. Whatever approach companies take, they should develop a strategy with no more than five clear, well-defined priorities – one of the key factors for successful sustainability programs.<sup>10</sup>

### Improve students' critical thinking skills

Because sustainability's three-legged stool of environmental resilience, economic responsibility and social justice touch on every course taught in a college classroom, it is naturally interdisciplinary. And oftentimes thinking across the perceived boundaries of disciplines requires the ability to step back to see the connections and critically analyze their impacts both upstream and downstream.

In his paper “Critical Thinking and Systems Thinking: Towards a Critical Literacy for Systems Thinking in Practice,” Martin Reynolds summarizes by saying,

...systems thinking is indeed interdisciplinary, but coupled with more explicit attention to critical thinking, systems thinking provides for a transdisciplinary engagement; one that transcends conventional disciplinary silos. The critical literacy embodied in such transdisciplinarity is manifest in a framework of systems thinking in practice. The notion of systems thinking in practice derives from a critical systems perspective constituting three activities associated with three entities – (i) a framework for understanding complex interrelationships in the real world context of change and uncertainty, (ii) a framework for practice when engaging with different perspectives amongst people involved and affected in the contexts of interest, and (iii) a composite framework for responsibility acknowledging the limiting and integral features of framing understanding and framing practice in the conceptual world of ideas and tools.<sup>11</sup>

# Introduction to Sustainability



## 1. Three-legged stool

When talking about sustainability, a drawing of a three-legged stool is useful because it illustrates the symmetry of the stool; the fact that all the legs must be even in order for the chair to perform properly. If one leg is shorter than the others, it throws the entire stool – or system – off balance.

The three legs of the stool are environmental resilience, economic responsibility and social justice. All three are woven throughout the fabric of our everyday lives, even though we're often unaware of their impacts.

For instance, the Volkswagen scandal that was uncovered in September of 2015, is a sustainability issue that affects millions of people, even those who don't own one of the VW cars involved in the scandal. Here's what happened:

Since 2009, Volkswagen had touted its "clean diesel" technology on its TDI models as an alternative to hybrid or electric vehicles. Consumers liked the cars because they boasted diesel performance while creating less pollution than a typical diesel. But VW cheated. What they promised consumers turned out to be very expensive to implement, so they instead installed "defeat devices" to trick the

computers used in emissions testing. But when driving, the defeat device would switch off and the car would be a pollution-generating, diesel-fueled vehicle.<sup>1</sup>

In the test mode, the cars are fully compliant with all federal emissions levels. But when driving normally, the computer switches to a separate mode – significantly changing the fuel pressure, injection timing, exhaust-gas recirculation, and, in models with AdBlue, the amount of urea fluid sprayed into the exhaust. While this mode likely delivers higher mileage and power, it also permits heavier nitrogen-oxide emissions (NOx) – a smog-forming pollutant linked to lung cancer – up to 40 times higher than the federal limit. That doesn't mean every TDI is pumping 40 times as much NOx as it should. Some cars may emit just a few times over the limit, depending on driving style and load.<sup>2</sup>

Consumers who bought the cars specifically for the "clean diesel" technology were furious. They had paid a premium price for something that the car only did while hooked up to a computer once a year. Volkswagen also sells cars under the Audi and Porsche brands, so there are twelve models that are affected. Volkswagen is buying back cars or if the consumer decides to keep the car, compensating them for diminished resale value. In addition, the affected models are no longer for sale, even the ones on used car lots.

So, how is this a sustainability issue? Let's break it down:

**Economic Responsibility:** Volkswagen lied to its customers. Since 2009, it sold cars under three brands and marketed the TDI models as "clean diesel." Since they were caught, the company has not only a tarnished reputation, but is facing millions of dollars of fines from all the countries where these cars were sold, but they are also having to pay out billions of dollars to its duped customers. "Pending approval from U.S. District Court Judge Charles Breyer on July 26, Volkswagen will mail notifications to all current affected owners and lessees of 2.0-liter cars informing them of the \$10 billion buyback program, as detailed on June 28."<sup>3</sup> Since production has been stopped, looking downstream, this affects the dealerships that sell the cars. It also affects the factories that build the cars and the manufacturers of the parts that go into the cars. This scandal has far-reaching economic repercussions.

**Environmental Resilience:**

Consumers who bought the TDI models thought they were buying a reliable car with the benefits of a diesel engine – higher mileage and more power – that would be offset by low-emission technology. Instead, as stated above, the cars generated heavier nitrogen-oxide (NOx) emissions, possibly up to 40 times the federal limit. Since NOx is a greenhouse gas, that affects everyone. According to the Environmental Protection Agency (EPA), "Nitrous oxide molecules stay in the atmosphere for an average of 114 years before being removed by a sink or destroyed through chemical reactions. The impact of 1 pound of N<sub>2</sub>O on warming the atmosphere is almost 300 times that of 1 pound of carbon dioxide."<sup>4</sup>



(Photo Credit: MattZ90/iStock/Thinkstock)

Note: Here is where the lines between environmental and social begin to blur, overlap and intersect. Ozone pollution has both environmental and social impacts, so it is difficult to talk about one without the other.

Unlike the Houston-Galveston-Brazoria (HGB) and Beaumont-Port Arthur (BPA) areas, where industrial point sources account for a greater proportion of the total nitrogen oxide (NOx) emissions in the area, point sources account for only about one-tenth of the total NOx emissions in the Dallas-Fort Worth (DFW) area. The majority of NOx emissions in the DFW area come from on-road mobile sources (cars and trucks) and non-road mobile sources (such as construction equipment, aircraft, and locomotives).<sup>5</sup>

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Locally, the Dallas-Fort Worth region – Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise Counties – has been in nonattainment for air quality and ground-level ozone since 1992.<sup>34</sup> Although the air quality has been progressively getting better, the EPA keeps raising the bar until the air quality is deemed acceptable according to federal regulations.

Ozone is created when nitrogen oxide (NOx), carbon monoxide (CO) and volatile organic compounds (VOCs) combine with very hot temperatures. Ozone season in the DFW region is March 1 through October 31. This timeframe is based on when the area is most likely to experience high levels of ozone.

So, what are the health impacts of ozone? According to the American Lung Association, ozone is the most widespread pollutant in the U.S. and one of the most dangerous. It can lead to premature death, immediate breathing problems and cardiovascular problems. And the five groups most affected by high quantities of ozone are: 1) children and teens; 2) anyone 65 and older; 3) people who work or exercise outdoors; 4) people with existing lung diseases, such as asthma, COPD, emphysema, chronic bronchitis; and 5) people with cardiovascular disease.<sup>7</sup>

Then there are the environmental impacts of greenhouse gases and their contribution to global warming and climate change that need to be discussed, specifically when it comes to health issues. In June 2016, the World Health Organization (WHO) released a fact sheet that states, “The direct damage costs to health (i.e. excluding costs in health-determining sectors such as agriculture and water and sanitation), is estimated to be between US \$2–4 billion/year by 2030.”<sup>8</sup>

We must also note that air pollution comes back down with rain to contaminate water, soil and the food supply.

Social Justice: Back to the Volkswagen debacle, you have to also consider the factory workers who build the cars, the dealerships and their salespeople and the manufacturers of VW parts. Plus, this is a global brand that has factories in Europe, North America, South America, Asia and Africa. In Puebla, Mexico, the Volkswagen plant accounts for 25 percent of the state’s gross domestic product and although workers weren’t immediately laid off, overtime work was stopped.<sup>9</sup>

In addition, the shareholders of Volkswagen have seen a loss in their stock value. On October 28, 2015, VW reported a “loss of \$1.83 billion in the third quarter.” The latest news, on June 28, 2016, VW agreed to “settlements that could total as much as \$15.3 billion to resolve environmental and customer claims from the scandal.”<sup>10</sup>

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That is what the three-legged stool system looks like when you follow all of the feedback loops in and around a problem – Volkswagen cheating on emissions testing – that most people wouldn't even consider if they didn't own one of VW's TDI vehicles. This one case makes the sustainability stool terribly wobbly.

The Volkswagen TDI case study can be interpreted through the lens of many college courses, such as technology, economics, ethics, business management, environmental science, marketing, chemistry, engineering, computer science, health and government.

## 2. UN Sustainable Development Goals

Leading up to the Paris Climate Conference (COP21) in December 2015, 193 world leaders at the United Nations Sustainable Development Summit (September 25, 2015) adopted the 2030 Agenda for Sustainable Development. It includes a "set of 17 Sustainable Development Goals (SDGs) to end poverty, fight inequality and injustice, and tackle climate change by 2030."<sup>11</sup>

According to UN Development Programme, "There is an imperative today to foster sustainable development. A vision for what this encapsulates is laid out in the new sustainable development agenda that aims to end poverty, promote prosperity and people's well-being while protecting the environment by 2030."<sup>12</sup>



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The SDGs broaden the scope of the three-legged stool into 17 goals that are both easily understood and interrelated. You can learn more about each goal by hovering and clicking on each goal at <http://sustainabledevelopment.un.org/sdgs>.<sup>13</sup>

If we were to evaluate the wrongdoings by Volkswagen against the SDGs, which ones would it violate? The easy ones are 1, 3, 6, 8, 9, 11, 12, 13, 14, 15, 16. Choices made by Volkswagen to cheat air emissions tests easily violates 11 of the 17 goals. That's 64.7 percent.

Keep in mind that no society, business or community can reasonably be in non-violation of all the SDGs. It's about using these goals to work toward a more sustainable future for all.

## **3. How do these tools work within the workbook?**

As you read through this workbook, you will find notes that will illustrate how topics that you already teach are actually sustainability issues by utilizing the three legs of the sustainability stool and the UN SDGs. The notes will assist in showing cross-curricular opportunities for discussions, projects and learning communities.

I selected five seemingly unrelated courses to illustrate how sustainability shows up throughout college curriculum and how they are interconnected: geology, U.S. government, computer science, business management and engineering.

These five topics can also be cross-connected with: chemistry, biology, sociology, criminal justice, ethics, education, environmental science, history, physics, nutrition, health, architecture and more. Marketing and economics will be included in the second edition.





Photo Credit: tonda/iStock/Thinkstock

## Geology 1403: Physical Geology

Textbook referenced:

*The Changing Earth: Exploring Geology and Evolution*, Sixth Edition  
James S. Monroe and Reed Wicander  
Brooks/Cole. Belmont, CA, 2012

The concepts of systems is introduced in the second paragraph of the book's Introduction. That's a great start for this sustainability workbook!

### Systems p. 4

What is a system? According to Donella H. Meadows, "A system is a set of things – people, cells, molecules, or whatever – interconnected in such a way that they produce their own pattern of behavior over time. The system may be buffeted, constricted, triggered, or driven by outside forces. But the system's response to these forces is characteristic of itself, and that response is seldom simple in the real world."<sup>1</sup>

The authors of *The Changing Earth* say,

We must also not forget that humans are part of the Earth system, and our activities can produce changes with potentially wide-ranging consequences. When people discuss and debate such environmental\* issues as pollution and global warming, it is important to remember that these are not isolated issues, but are part of the larger Earth system.<sup>2</sup>

\* As discussed in the Introduction, pollution and climate change are not just environmental issues; they also have economic and social impacts.

### Systems

Discuss with: architecture, biology, chemistry, economics, engineering, environmental science, history, physics



# Geology

## Careers

**Discuss with:** architecture, biology, chemistry, computer science, economics, engineering, environmental science, ethics, government, history, physics, sociology

## Careers p. 4

When the textbook covers careers in the “What Is Geology?” section, it notes that although geology is a broad discipline, nearly every aspect has some economic or environmental relevance; there are also social aspects.

- 1) exploration for mineral and energy resources: “As the demand for these nonrenewable resources increases, geologists apply the basic principles of geology in increasingly sophisticated ways by focusing their attention on areas that have the greatest chance for economic success.”<sup>3</sup>
- 2) finding groundwater for industry and communities
- 3) geologic engineers: “help find safe locations for dams, waste-disposal sites, and power plants, as well as designing earthquake-resistant buildings.”<sup>4</sup>
- 4) governmental agencies and civil defense planners: make predictions about earthquakes and volcanic eruptions and the possible resulting destruction.



## Everyday lives

**Discuss with:** architecture, biology, chemistry, computer science, economics, engineering, environmental science, ethics, government, history, physics, sociology

## How does geology affect our everyday lives? p. 6

Most people think of geology in association with natural disasters like earthquakes, floods, landslides, etc. But there are also connections between geology and the three-legged stool.

If issues such as non-renewable energy resources, waste disposal, and pollution seem too far removed or too complex to be fully appreciated, consider for a moment just how dependent we are on geology in our daily routines.

Much of the electricity for our appliances comes from the burning of coal, oil, natural gas, or uranium consumed in nuclear-generating plants. Geologists locate the coal, petroleum (oil and natural gas), and uranium. The copper or other metal wires through which electricity travels are manufactured from materials found as the result of mineral exploration. The concrete foundation (concrete is a mixture of clay, sand, or gravel, and limestone), drywall (made largely from the mineral gypsum), and windows (the mineral quartz is the principal ingredient in the manufacture of glass) of the buildings we live and work in owe their very existence to geologic resources.<sup>5</sup>

This illustrates in basic terms that we rely on geology and that it allows for economic development growth around the world.



## Global geologic and environmental issues facing humankind p. 7

The textbook notes that one of the greatest environmental problems is overpopulation. We reached 7 billion people on October 31, 2011. We are currently at 7.4 billion, less than five years later.<sup>6</sup> This can be a difficult, and sometimes volatile subject, so we'll just note that "there is an environmental imbalance created by a human population exceeding Earth's short-term carrying capacity."<sup>7</sup>

**Carrying capacity:** The population that can be supported indefinitely by an ecosystem without destroying that ecosystem. In ecological terms, the carrying capacity of an ecosystem is the size of the population that can be supported indefinitely upon the available resources and services of that ecosystem. Living within the limits of an ecosystem depends on three factors:

- the amount of resources available in the ecosystem,
- the size of the population, and
- the amount of resources each individual is consuming.<sup>8</sup>

## Global issues

Discuss with: biology, chemistry, criminal justice, economics, education, engineering, environmental science, ethics, government, health, history, nutrition, physics, sociology



## Climate change

Discuss with: architecture, biology, chemistry, computer science, economics, engineering, environmental science, ethics, government, history, physics, sociology

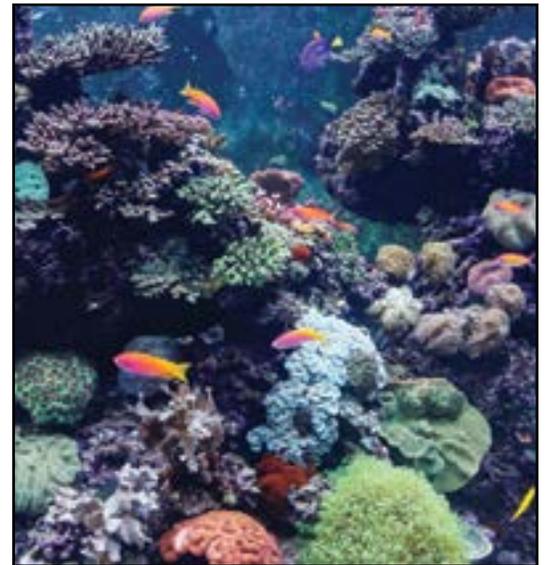
### Climate change p. 9

The textbook discusses the global crisis of climate change and mentions the state-of-the-art climate model simulations published in the 2007 Fourth Intergovernmental Plan on Climate Change.\* They show “a predicted increase in global average temperature from 2000 to 2100 of 1–3°C under the best conditions, to a 2.5–6.5°C rise under business as usual conditions.”<sup>9</sup>

Keep in mind that these temperature increases are measured globally. To those of us in Texas, an increase of a few degrees in the summer is varying degrees of being uncomfortable when we’re outside and higher electricity bills. But when you analyze temperature increases around the world, just two degrees can be catastrophic, leading to water scarcity and crop failures around the globe. On July 23, “Iraq’s state-run Meteorological Department said...that it had registered the hottest day so far this year, with maximum temperatures hitting 53.9 degrees Celsius (129.02 Fahrenheit) in the southern city of Basra.”<sup>10</sup>

\* The Intergovernmental Panel on Climate Change (IPCC) released the Fifth Assessment in 2013–2014. You can find the documents at <https://www.ipcc.ch/report/ar5/>

Also, as climates change, diseases such as malaria are easily spread. The most recent example of diseases taking advantage of warmer temperatures is the Zika virus. Although it has become a serious health issue in Brazil, it has now reached the United States. On July 21, 2016, Florida health officials are investigating the second possible case of Zika spread locally.<sup>11</sup>



Coral.  
(Photo Credit: stlee000/iStock/Thinkstock)



## Mineral deposits p. 53

The majority of copper deposits in the Andes and southwestern US were formed less than 60 million years ago. However, the copper is so widely disseminated that “the deposits contain from 0.2 to 2% copper and are extracted from large open-pit mines.”<sup>12</sup>

The Bingham Copper Mine that is pictured on p. 53 of the textbook suffered a massive landslide in 2013 and is still closed. It was one of the largest human-caused landslides in history with 150 million tons of debris that fell into the pit of the mine. “The wall of dirt that collapsed was on a fault line. ...mixed with spring weather conditions, caused the slide.”<sup>13</sup>



### Mineral deposits

Discuss with: biology, computer science, economics, engineering, environmental science, ethics, government, health, history, physics, sociology

## Economic impacts of minerals p. 60

“Both the U.S. and Canada owe much of their economic success and standard of living to abundant mineral and energy resources.”<sup>14</sup> Ask students to consider iron, copper, tin, aluminum, manganese, minerals to make glass, wallboard, fertilizers and animal feed supplements. Sandpaper and glass are made from quartz. Eye liner and glitter are made from muscovite, and it provides the “lustrous sheen of paint” on cars and appliances. “One reason to study minerals is their economic importance.”<sup>15</sup>

This is an opportunity to discuss the impacts of mining for these minerals and remind students that they are non-renewable resources.

## Gold mining p. 73

The textbook notes that reports of gold in the Black Hills of South Dakota in 1876, and the flood of miners who descended on the area, led to the hostilities with the Sioux Indians and the battle of Little Big Horn in Montana.<sup>16</sup> Joint discussions with U.S. History classes.



### Economic impacts + gold mining

Discuss with: biology, chemistry, computer science, economics, engineering, environmental science, ethics, government, health, history, physics, sociology

# Geology

## Calcium Carbonate

Discuss with: biology, chemistry, economics, engineering, environmental science, ethics, government, health, history, nutrition, physics, sociology

### Calcium Carbonate p. 78

Clams, oysters, and corals use calcium carbonate to construct their shells. But an increase in the oceans' acidity – from the absorption of CO<sub>2</sub> and its reaction with seawater – puts the entire sea food web at risk. "Today, more than a billion people worldwide rely on food from the ocean as their primary source of protein. Many jobs and economies in the U.S. and around the world depend on the fish and shellfish in our oceans."<sup>17</sup>

NOAA/PMEL: "What is Ocean Acidification?" <https://www.pmel.noaa.gov/co2/story/What+is+Ocean+Acidification%3F>

Smithsonian National Museum of Natural History: "Ocean Acidification" <http://ocean.si.edu/ocean-acidification>

Homeland Security News Wire: "Ocean acidification threatens coastal communities" <http://www.homelandsecuritynewswire.com/dr20150226-ocean-acidification-threatens-u-s-coastal-communities>



## Resources & Reserves

Discuss with: biology, chemistry, computer science, economics, engineering, environmental science, ethics, government, health, history, physics, sociology

### Resources & Reserves: Rare Earth Minerals p. 79

All are non-renewable resources, many of which we import from foreign countries.

Rare Earth Minerals: <http://geology.com/articles/rare-earth-elements/>

Conflict Minerals: <https://www.sourceintelligence.com/what-are-conflict-minerals/>



## Ozone Depletion p. 122

An international effort, the Montreal Protocol was reached in 1983 to limit the production of CFCs and other ozone-depleting substances to stop the growth of the ozone hole over Antarctica. But 33 years later, on June 15, 2016, scientists announced in the journal *Science* that the ozone hole has begun to heal.<sup>18</sup>

*Washington Post*: "The Antarctic ozone hole has finally started to 'heal,' scientists report" <https://www.washingtonpost.com/news/energy-environment/wp/2016/06/30/the-antarctic-ozone-hole-has-finally-started-to-heal-scientists-report/>

## Soil pp. 142–149

"All land-dwelling animals depend directly or indirectly on soils for their nutrients"<sup>19</sup> and "Soil is a non-renewable resource"<sup>20</sup> are two important quotes from the section on soil. Oftentimes referred to as "dirt," soil is where our food and other plants grow. Contamination and sterilization strip the soil of nutrients and organisms that allow for plant growth. In addition, air and water pollution contribute to soil contamination which often ends up in our food supply: fruit, vegetables, milk and meats.

## Industrialization and acid rain pp. 144–146

Sulfur emissions from burning coal and, to a lesser degree, CO<sub>2</sub> and NO<sub>x</sub> from internal combustion engines, lead to the creation of acid rain. Acid rain is corrosive and damaging to not only vegetation, but also buildings, monuments and tombstones. Like global warming, acid rain is a global problem that often affects areas downwind from pollution sources.

### Ozone + Soil + Industrialization

#### Discuss with:

architecture, biology, business management, chemistry, economics, education, engineering, environmental science, ethics, government, health, history, nutrition, physics, sociology



# Geology

## Dust Bowl

Discuss with: biology, business management, chemistry, economics, education, engineering, environmental science, ethics, government, health, history, nutrition, physics, sociology

### Dust Bowl p. 152

An extreme case of soil degradation, coupled with a severe drought, led to the Dust Bowl during the 1930s.

The Library of Congress' website says,

Dry land farming on the Great Plains led to the systematic destruction of the prairie grasses. In the ranching regions, overgrazing also destroyed large areas of grassland. Gradually, the land was laid bare, and significant environmental damage began to occur. Among the natural elements, the strong winds of the region were particularly devastating.

With the onset of drought in 1930, the overfarmed and overgrazed land began to blow away. Winds whipped across the plains, raising billowing clouds of dust. The sky could darken for days, and even well-sealed homes could have a thick layer of dust on the furniture. In some places, the dust drifted like snow, covering farm buildings and houses. Nineteen states in the heartland of the United States became a vast dust bowl. With no chance of making a living, farm families abandoned their homes and land, fleeing westward to become migrant laborers.<sup>21</sup>



### Opportunities for discussions with English, U.S. History and U.S. Government students:

John Steinbeck's book *Grapes of Wrath* is set during the Dust Bowl. This was a huge migratory event in U.S. history as those living in the states affected by the Dust Bowl left the area in search of work.

Dust Bowl: Encyclopedia of the Great Depression, 2004. From U.S. History in Context <https://goo.gl/N4KihL>

Rothstein, Arthur, photographer. Liberal vicinity, Kan. Soil blown by dust bowl winds piled up in large drifts on a farm. Photograph. Retrieved from the Library of Congress, <<https://www.loc.gov/item/2012647036/>>.



## Resources in sedimentary rocks pp. 172–173

**Limestone:** used in cement and in blast furnaces where iron ore is refined to make steel

**Rock gypsum:** wallboard

**Phosphate bearing sedimentary rocks:** fertilizers and animal feed supplements

**Bituminous Coal:** burned to make electricity

**Lignite & Bituminous Coal:** synthetic oil and gas



Crocidolite Asbestos Ore Sample.  
(Photo Credit: asbestorama/iStock/Thinkstock)

## Resources in rocks

### Discuss with:

architecture, biology, business management, chemistry, economics, education, engineering, environmental science, ethics, government, health, history, marketing, nutrition, physics, sociology

All of these are non-renewable resources which have huge environmental, economic and social impacts. They must be found, mined, processed, transported, and in the case of coal, burned to make electricity. But there are more:

Although technology and safety measures have greatly improved, mining for coal is a dangerous business, not only from explosions<sup>22</sup>, but also from health problems that affect entire communities:

The continued growth of coal mining has left communities with pervasive and irreparable damage. Until recently, however, the effects of coal on human health have been largely ignored and mining has continued without many appeals for improvement. In both the United States and China, industrial achievements have created a legacy of pollution that is taking a major toll on human health.<sup>23</sup>



# Geology

## Petroleum & natural gas

Discuss with:  
architecture, biology,  
business management,  
chemistry, computer  
science, criminal justice,  
economics, education,  
engineering,  
environmental science,  
ethics, government,  
health, history, marketing,  
nutrition, physics,  
sociology

### Petroleum and Natural Gas p. 173

These are non-renewable resources that are essential parts of our everyday lives, and that poses a problem. Just as with coal, these resources must be mined out of the ground, processed, transported and burned. It's an expensive and damaging journey for carbon to move from underground to the atmosphere.

### Deep Water Horizon (Gulf Oil Spill)

How it happened: <https://www.britannica.com/event/Deepwater-Horizon-oil-spill-of-2010>

Smithsonian, The Science: <http://ocean.si.edu/gulf-oil-spill>

What we know five years later: <http://www.cnn.com/2015/04/14/us/gulf-oil-spill-unknowns/>

### Fracking for natural gas

A series of articles and videos from ProPublica: <https://www.propublica.org/series/fracking>

Aliso Canyon, California, worst greenhouse gas disaster in US history: <https://www.washingtonpost.com/news/energy-environment/wp/2016/02/25/california-gas-leak-was-the-worst-man-made-greenhouse-gas-disaster-in-u-s-history-study-says/>

Methane leaks: <http://www.smithsonianmag.com/science-nature/size-california-methane-leak-isnt-scariest-part-story-180958234/?no-ist>

**Additional items to discuss:** greenhouse gases, climate change, environmental degradation, wildlife/aquatic impacts, health, safety, resale value of homes near fracking wells, insurance costs, etc.



## Tar Sands p. 176

"Tar sand is a type of sandstone in which viscous, asphalt-like hydrocarbons fill the pore spaces. This substance is the sticky residue of once-liquid petroleum from which the volatile constituents have been lost. Liquid petroleum can be recovered from tar sand, but for this to happen, large quantities of rock must be mined and processed. Because the United States has few tar-sand deposits, it cannot look to this source as a significant future energy resource. The Athabaska tar sands in Alberta, Canada, however, are one of the largest deposits of this type. These deposits are currently being mined, and it is estimated that they contain several hundred billion barrels of recoverable petroleum."<sup>24</sup>

TED Talk "The true cost of oil" [https://www.ted.com/talks/garth\\_lenz\\_images\\_of\\_beauty\\_and\\_devastation?language=en](https://www.ted.com/talks/garth_lenz_images_of_beauty_and_devastation?language=en)

National Geographic Megastructures Ultimate Oil Sands Mine: video (48 minutes): <https://www.youtube.com/watch?v=4sPJgmcYcQ4>

## Keystone XL Pipeline

Explained:

<https://www.washingtonpost.com/news/the-fix/wp/2013/04/03/the-keystone-xl-pipeline-and-its-politics-explained/>

April 2016 leak worse than thought: <http://www.usnews.com/news/articles/2016-04-08/keystone-pipeline-leak-worse-than-thought>



## Asbestos p. 183

EPA policy mandates all forms of asbestos be treated as hazardous. But the one most used in the U.S. is non-hazardous, many wonder if dangers are exaggerated. This is where knowledge of geology is vital. What would you do?



## Tar Sands

**Discuss with:** biology, business management, chemistry, economics, education, engineering, environmental science, ethics, government, health, history, marketing, physics, sociology

## Asbestos

**Discuss with:** biology, business management, chemistry, economics, engineering, environmental science, ethics, government, health, history, marketing, sociology

# Geology

## Metamorphic rock

Discuss with: biology, business management, chemistry, economics, engineering, environmental science, ethics, history, marketing, sociology

## Fracking + engineering

Discuss with: architecture, biology, business management, chemistry, criminal justice, economics, education, engineering, environmental science, ethics, government, health, history, marketing, nutrition, physics, sociology

## Metamorphic Rock p. 195

Talc: talcum powder

Graphite: pencils & dry lubricants

All are non-renewable resources & economically important. So what are the economics of using these non-renewable resources?



## Fracking waste water disposal wells & earthquakes p. 219

A series of articles and videos from ProPublica: <https://www.propublica.org/series/fracking>

Earthquake study in Texas: <https://www.smu.edu/News/2016/earthquake-study-17may2016>

Oklahoma: <http://www.latimes.com/nation/la-na-sej-oklahoma-qaques-fracking-20160302-story.html>

**Social impacts:** homeowners suffering damage w/o earthquake insurance, groundwater contamination

**Environmental:** injecting contaminated water into disposal wells, opportunity for groundwater contamination

**Economic:** no responsibility on part of drilling companies

## Engineering and geology p. 246

Slope stability studies and studies of acceptable areas for power plants, highways in mountainous regions, tunnels and canals, bridges, dams, structures to protect riverbanks and seashore communities (levees, sea-walls)



## Mass wasting (landslides, slope failure) due to loss of vegetation p. 263

Mass wasting is an important geologic process that can occur at any time and almost any place. Although all major landslides have natural causes, many smaller ones are the result of human activity and could have been prevented or their damage minimized.<sup>25</sup>

As climate change worsens the drought conditions in California, wild-fire season is longer and area affected is larger: [http://www.upi.com/Top\\_News/US/2016/06/28/Perfect-storm-brewing-for-California-fire-season/9761467137488/](http://www.upi.com/Top_News/US/2016/06/28/Perfect-storm-brewing-for-California-fire-season/9761467137488/)

Santa Clarita Fire July 2016: <http://www.latimes.com/local/lanow/la-me-ln-santa-clarita-fire-day-three-20160724-snap-story.html>

Pine Beetles moving further north as climate warms, killing trees and increasing fuel for wildfires: <http://ngm.nationalgeographic.com/2015/04/pine-beetles/rosner-text>

As vegetation is burned off, the root systems are no longer holding the soil together. Large rain events often result in large mudslides that destroy homes and infrastructure: <http://www.usatoday.com/story/news/nation/2015/10/16/drivers-rescued-mudslide-covers-calif-free-way/74041950/>

### Mass wasting

Discuss with: biology, business management, chemistry, economics, education, engineering, environmental science, ethics, government, health, history, marketing, physics, sociology



# Geology

## Permafrost

Discuss with:  
architecture, biology,  
business management,  
chemistry, economics,  
education, engineering,  
environmental science,  
ethics, government,  
health, history, physics,  
sociology

### Permafrost p. 275

Permafrost is ground that remains permanently frozen. As it melts, it releases methane into the atmosphere, worsening global warming which accelerates the thawing of permafrost. It's a vicious cycle.

Alaska: <http://www.scientificamerican.com/article/warming-may-mean-major-thaw-for-alaskan-permafrost/>

Accelerating: <http://www.bbc.com/news/science-environment-34540414>

Globally: <http://www.pri.org/stories/2015-06-24/thawing-permafrost-could-have-catastrophic-consequences-scientists-warn>

Siberia's "Gateway to the Underworld:" <http://www.bbc.com/earth/story/20170223-in-siberia-there-is-a-huge-crater-and-it-is-getting-bigger>

National Geographic GeoPedia: <http://ngm.nationalgeographic.com/geopedia/Permafrost>



## Building codes

Discuss with: architecture,  
business management,  
economics, education,  
engineering,  
environmental science,  
ethics, government,  
history, physics, sociology

### Building codes p. 278

Municipalities use building codes to determine what should be built where and to what standard. Geology plays a huge role in municipal planning, especially when it comes to slopes and altering the landscape.



## Johnstown Flood p. 286

Heavy rainfall and the failure of a dam upstream unleashed an 18-meter high wall of water on Johnstown, Pennsylvania in 1889. It is still the most deadly river flood in U.S. history.

Documentary narrated by David McCullough (56 min.) <https://www.youtube.com/watch?v=WxXGh65IjiY>

Book: *Johnstown Flood: The incredible story behind one of the most devastating "natural" disasters America has ever known* by David McCullough

An opportunity for a learning community between English, history, ethics and geology students.

## Johnstown Flood

Discuss with: architecture, biology, chemistry, economics, education, engineering, environmental science, ethics, government, health, history, physics, sociology



Johnstown flood. No. 11. View near Main Street. Photograph. Retrieved from the Library of Congress, <<https://www.loc.gov/item/2005680897/>>.

# Geology

## Water

### Discuss with:

architecture, biology, business management, chemistry, computer science, criminal justice, economics, education, engineering, environmental science, ethics, government, health, history, marketing, nutrition, physics, sociology

### Availability of drinking water p. 287

Less than 1% of earth's water is drinkable. In the U.S., we use drinkable water to wash clothes, cook food, wash cars, water lawns, bathe, flush toilets, brush teeth, irrigate crops, generate electricity at coal-fired power plants, fight fires, make beverages, assist in manufacturing, etc. We cannot live without water, yet we contaminate it and waste it every day.

Library of Congress: Earth's Water Cycle in a Changing Climate (NASA, 42 min.): [https://www.loc.gov/today/cyberlc/feature\\_wdesc.php?rec=4339](https://www.loc.gov/today/cyberlc/feature_wdesc.php?rec=4339) (interactive, no PDF)

Library of Congress: Measuring Water from Space (NASA, 61 min.) [https://www.loc.gov/today/cyberlc/feature\\_wdesc.php?rec=6611](https://www.loc.gov/today/cyberlc/feature_wdesc.php?rec=6611)

Syrian Civil War: The Role of Climate Change (and drought): <https://library.ecc-platform.org/conflicts/syrian-civil-war-role-climate-change>

Reuters: "Flint Water Crisis" <http://www.reuters.com/article/us-michigan-water-idUSKBN1582KV>



Three Gorges Dam, China .  
(Photo Credit: prill/iStock/Thinkstock)

### Controlling Water p. 288

Dams and reservoirs are built for flood control, water storage and to generate electricity (hydroelectricity). They also impede spawning migration for salmon in the Northwest, impede on Native American tribal land and sometimes are built for no reason at all (see documentary "DamNation").

"DamNation" documentary trailer: <https://www.youtube.com/watch?v=kuvBRAfT2g0>  
(Copies of documentary available in MVC Library)

Three Gorges Dam (China): [http://news.national-geographic.com/news/2006/06/060609-gorges-dam\\_2.html](http://news.national-geographic.com/news/2006/06/060609-gorges-dam_2.html)

Three Gorges Dam – Discovery documentary (1:25 min.): <https://www.youtube.com/watch?v=P-4FRO1eYdgQ>



## Flood Control p. 298

Levees raise the banks of streams and rivers, increasing a channel's capacity. Flooding streams and rivers account for more than \$5 billion in property damage annually in the U.S., not including flooding caused by hurricanes. The combination of fertile soils, level surfaces, and proximity to water for agricultural, industrial, and domestic use makes floodplains popular places for development. Unfortunately, urbanization increases surface runoff because soils are compacted or covered by asphalt or concrete, reducing infiltration capacity. In addition, storm drains in urban areas quickly carry water to nearby channels, many of which flood more often than they did in the past.<sup>26</sup>

Can levees of the future keep cities safe as hurricanes strengthen due to global warming?

Katrina levee break: <https://www.youtube.com/watch?v=aoMnFGtmCqE>

Doomed New Orleans: Hurricane Katrina (National Geographic 4 min.)  
<https://www.youtube.com/watch?v=7unIPvNxLLA>

Hurricane Katrina: The Storm that Drowned a City (NOVA 54 min.):  
<https://www.youtube.com/watch?v=zBZuPmi4i-U>

## Flood control

Discuss with:  
architecture, biology,  
business management,  
chemistry, computer  
science, criminal justice,  
economics, education,  
engineering,  
environmental science,  
ethics, government,  
health, history, marketing,  
nutrition, physics,  
sociology



Home in Lower Ninth Ward, New Orleans, Louisiana, after Hurricane Katrina. (Photo Credit: briannolan/iStock/Thinkstock).

# Geology

## Specialty Water

Discuss with: biology, business management, chemistry, economics, education, environmental science, ethics, government, health, history, marketing, nutrition, sociology

### Specialty Waters & Greenwashing p. 320

Convincing the public that their tap water is an inferior product to bottled & specialty water is marketing genius. And it's untrue. For instance, artesian water's quality comes from the dissolved minerals it comes in contact with, not the fact that it flows freely from the ground. This article from Geology.com, debunks the myths of health benefits or medicinal qualities of many types of water: mineral, spring, artesian, sparkling, well, bottled and just plain tap.

Geology.com: "Where does bottled water come from?" <http://geology.com/articles/bottled-water.shtml>



## Groundwater, aquifer depletion p. 319

Development in southwestern U.S. places huge demand on the groundwater system. Plus, some of the largest agricultural states are withdrawing water from aquifers that are not being replenished. Unrestricted use will eventually result in failure of crops and restrictions on development.

*USA Today*: "Pumped Dry: The Global Crisis of Vanishing Groundwater" <http://www.usatoday.com/pages/interactives/groundwater/> (Interactive, no PDF)

## Aquifer depletion affecting landscape p. 327

"As excessive amounts of groundwater are withdrawn from poorly consolidated sediments and sedimentary rocks, the water pressure between the grains is reduced, and the weight of the overlying materials causes the grains to pack more closely together, resulting in subsidence of the ground. As more and more groundwater is pumped to meet the increasing needs of agriculture, industry, and the population growth, subsidence is becoming more prevalent."<sup>27</sup>

*The Guardian*: "Beijing sinking" <https://www.theguardian.com/world/2016/jun/24/beijing-has-fallen-chinas-capital-sinking-by-11cm-a-year-satellite-study-warns>

*National Geographic*: "California Drought" <http://news.nationalgeographic.com/news/2014/08/140819-groundwater-california-drought-aquifers-hidden-crisis/>

*The Dallas Morning News*: "The Leaning Tower of San Francisco" <http://www.dallasnews.com/news/news/2016/11/29/leaning-tower-san-francisco-skyscraper-sinking-faster-thought>

USGS California Water Science Center: <https://ca.water.usgs.gov/data/drought/drought-impact.html>

PBS NewsHour: "As drought-desperate California sinks, risk of flood rises" <http://www.pbs.org/video/2365579013/>

## Aquifer depletion

### Discuss with:

architecture, biology, business management, chemistry, economics, education, engineering, environmental science, ethics, government, health, history, marketing, nutrition, physics, sociology



# Geology

## Glaciers

Discuss with:  
architecture, biology,  
business management,  
chemistry, economics,  
education, engineering,  
environmental science,  
ethics, government,  
health, history, physics,  
sociology

### Glaciers and global warming p. 348

Glaciers are shrinking as a consequence of climate change caused by global warming. The textbook notes that “the decade between 2000 and 2009 was the hottest on record.... Indeed, 2010 will likely be among the hottest years ever recorded.”<sup>28</sup> As it turns out, 2010 was the hottest year on record, until it was eclipsed by 2014, then 2015, and then 2016. This is important for two reasons. First, glaciers provide fresh drinking water to populations downstream during the warm months. Second, glaciers that terminate into the world’s oceans will contribute significantly to sea level rise over the next several decades, causing costly problems for coastal cities around the globe.

NASA: “NOAA Data Show 2016 Warmest Year on Record Globally” <https://www.nasa.gov/press-release/nasa-noaa-data-show-2016-warmest-year-on-record-globally>

National Geographic: “The Big Thaw” <http://www.nationalgeographic.com/environment/global-warming/big-thaw/>



Perito Moreno Glacier, Los Glaciares National Park, Patagonia, Argentina.  
(Photo Credit: ailtonsza/iStock/Thinkstock)

NASA: “NASA Releases New, Detailed Greenland Glacier Data” <https://www.nasa.gov/feature/jpl/nasa-releases-new-detailed-greenland-glacier-data>

NOAA Sea Level Rise and Coastal Flooding Impacts: <https://coast.noaa.gov/slr/> (Interactive, no PDF)

National Geographic: “Sea Level Rise” <http://www.nationalgeographic.com/environment/global-warming/sea-level-rise/>

Part of Perito Moreno glacier collapses – video: <https://www.theguardian.com/world/video/2016/mar/10/part-of-perito-moreno-glacier-collapses-video>



## Desertification p. 366

"During the past several decades, deserts have been advancing across millions of acres of productive land, destroying rangelands, croplands, and even villages. Such expansion, estimated at 70,000km<sup>2</sup> per year, has exacted a terrible toll in human suffering. Because of the relentless advance of destruction, hundreds of thousands of people have died of starvation or been forced to migrate as 'environmental refugees' from their homelands to camps, where the majority are severely malnourished. This expansion of deserts into formerly productive land is called desertification and is a major problem in many countries."<sup>29</sup>

See Dust Bowl discussion in Geology, p. 26.

Carrying Capacity being overwhelmed: "Because grasses are the dominant natural vegetation in most desert fringe areas, raising livestock is a common economic activity. However, increasing numbers of livestock in many areas have greatly exceeded the land's ability to support them."<sup>30</sup>

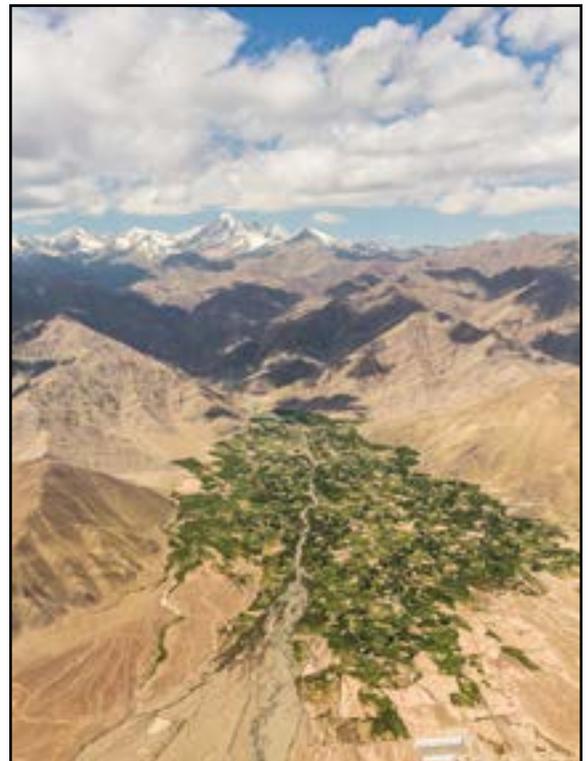
*Smithsonian Magazine*: "The 'Great Green Wall' Didn't Stop Desertification, but it Evolved into Something That Might:" <http://www.smithsonianmag.com/science-nature/great-green-wall-stop-desertification-not-so-much-180960171/>

GreaterKashmir.com: "Desertification: A grave problem in J&K" <http://www.greaterkashmir.com/news/opinion/desertification-a-grave-problem-in-j-k/8621.html>



## Desertification

**Discuss with:** biology, business management, chemistry, economics, education, engineering, environmental science, ethics, government, health, history, nutrition, physics, sociology



Ladakh Valley: In J&K [Jammu & Kashmir] desertification is mainly confined in the Ladakh region and Kathua District, where vegetal degradation, mass wasting, wind and water erosion are the main factors responsible for this process. Owing to its physiographic condition, arid to semi arid climate, Ladakh is a cold desert sandwiched between the leeward sides of Great Himalayan Range and Korakaram Range. (Photo credit: AsianDream/iStock/Thinkstock)

# Geology

## Wind power

Discuss with: business management, economics, education, engineering, environmental science, ethics, government, health, history, physics, sociology

### Wind power p. 378

#### Advantages:

1. A clean source of energy that doesn't pollute the water or atmosphere, or contribute to greenhouse gases. It also reduces the consumption of fossil fuels.
2. The land on which wind farms are sited can continue to be used for farming and ranching, increasing the productivity of the land and providing an additional source of income to the landowner who leases the land to utilities.
3. Wind farms can benefit the local economy of rural and remote areas by supplying wind energy for local consumption.

#### Disadvantages:

1. Wind doesn't always blow strong enough to be reliable, necessitating backup energy generation.
2. Wind farms are often located in rural areas, requiring investment in transmission lines.
3. Siting a wind farm can be difficult due to "not-in-my-backyard" opposition.



Wind turbines on farm in Iowa.  
(Photo Credit: Purestock/Thinkstock)

NPR: Wind energy takes flight in the heart of Texas oil country: <http://www.npr.org/2017/03/08/518988840/wind-energy-takes-flight-in-the-heart-of-texas-oil-country>

EIA: "How much of the world's electricity supply is generated from wind and who are the leading generators?" [https://www.eia.gov/cfapps/energy\\_in\\_brief/wind\\_power.cfm](https://www.eia.gov/cfapps/energy_in_brief/wind_power.cfm)

PBSNewsHour: "U.S. builds first offshore wind farm" <http://www.pbs.org/newshour/bb/u-s-builds-first-offshore-wind-plant/>



## Sea level rise pp. 388-389

"In this enormous body of water we call oceans, wave energy is transferred through the water to shorelines where it has a tremendous impact. Accordingly, understanding shoreline processes is important to many people including oceanographers, geologists, and coastal engineers, as well as elected officials and city planners of coastal communities. Indeed, tourism is an important part of the economies of many coastal communities such as Myrtle Beach, South Carolina; Fort Lauderdale, Florida; and Padre Island, Texas. Another important aspect of shorelines is rising sea level, because buildings or even entire communities that were once far inland are now in peril, must be protected or moved, or have already been destroyed. Furthermore, hurricanes expend much of their energy on shorelines resulting in extensive coastal flooding, numerous fatalities, and widespread property damage."<sup>31</sup>

### Sea level rise

**Discuss with:** architecture, biology, business management, chemistry, economics, education, engineering, environmental science, ethics, government, health, history, marketing, nutrition, physics, sociology

EPA: Climate Impacts on Coastal Areas: <https://www.epa.gov/climate-impacts/climate-impacts-coastal-areas>

Time: See How Your City May Be Affected by Rising Sea Levels: <http://time.com/4257194/sea-level-rise-climate-change-miami/>

CBS News: Sea level rise will disproportionately hit U.S. this century, NOAA warns: <http://www.cbsnews.com/news/sea-level-rise-will-hit-the-us-this-century-noaa-warns/>

NOAA: Climate Change: Global Sea Level: <https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level>

NOAA: Sea Level Rise Viewer: <https://coast.noaa.gov/digitalcoast/tools/slr>



Rising sea levels eroding island off Cape Cod, Massachusetts. (Photo Credit: Velvetfish/iStock/Thinkstock)



# Geology

## Coral Reefs

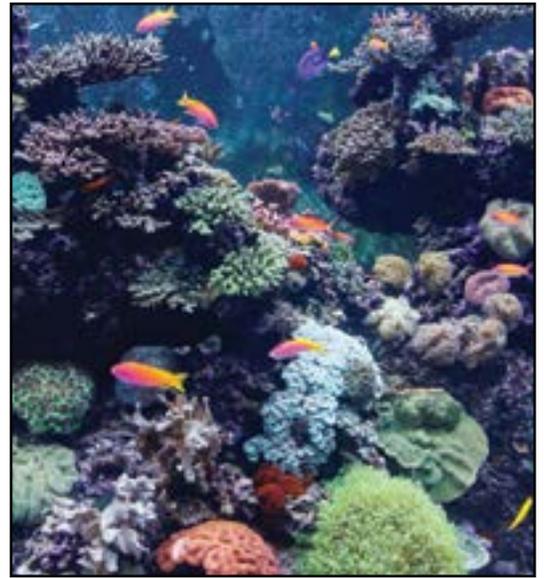
**Discuss with:** biology, business management, chemistry, economics, education, engineering, environmental science, ethics, government, health, history, physics, sociology

### Coral Reefs p. 392

"Coral reefs are some of the most diverse and valuable ecosystems on Earth. Coral reefs support more species per unit area than any other marine environment, including about 4,000 species of fish, 800 species of hard corals and hundreds of other species. Scientists estimate that there may be another 1 to 8 million undiscovered species of organisms living in and around reefs. Storehouses of immense biological wealth, reefs also provide economic and environmental services to millions of people. Coral reefs may provide goods and services worth \$375 billion each year. This is an amazing figure for an environment that covers less than 1 percent of the Earth's surface."<sup>32</sup>

*National Geographic:* "Bleaching on Great Barrier Reef" <http://news.nationalgeographic.com/2016/03/160321-coral-bleaching-great-barrier-reef-climate-change/>

CNN: Coral reef found in Amazon River: <http://www.cnn.com/2016/04/23/world/amazon-river-coral-reef-irpt/>



(Photo Credit: stlee000/iStock/Thinkstock)

How Stuff Works: "What happens if all the coral reefs die?" <http://science.howstuffworks.com/science-vs-myth/what-if/what-if-all-coral-reefs-disappeared.htm> (no pdf)

*The Guardian:* Video: "Great Barrier Reef changed forever" <https://www.theguardian.com/environment/video/2016/jun/07/coral-bleaching-has-changed-the-great-barrier-reef-forever-video>



## Anthropocene p. 417

"Human activity has been a geologically recent, yet profound, influence on the global environment. The magnitude, variety and longevity of human-induced changes, including land surface transformation and changing the composition of the atmosphere, has led to the suggestion that we should refer to the present, not as within the Holocene Epoch (as it is currently formally referred to), but instead as within the Anthropocene Epoch.

"The case for a new epoch appears reasonable: what matters when dividing geological-scale time is global-scale changes to Earth's status, driven by causes as varied as meteor strikes, the movement of continents and sustained volcanic eruptions. Human activity is now global and is the dominant cause of most contemporary environmental change. The impacts of human activity will probably be observable in the geological stratigraphic record for millions of years into the future, which suggests that a new epoch has begun."<sup>32</sup>

*Nature*: "Anthropocene: The human age" <http://www.nature.com/news/anthropocene-the-human-age-1.17085>

*Smithsonian*: "What is it and are we in it?" <http://www.smithsonian-mag.com/science-nature/what-is-the-anthropocene-and-are-we-in-it-164801414/?no-ist>

Anthropocene Working Group: <http://quaternary.stratigraphy.org/work-ingroups/anthropocene/>

## Anthropocene

**Discuss with:** architecture, biology, business management, chemistry, criminal justice, economics, education, engineering, environmental science, ethics, government, health, history, marketing, nutrition, physics, sociology





## Business Management 1307: Business Management

Textbook referenced:

*Management*, Fourth Edition

Thomas S. Bateman, Scott A. Snell, Rob Konopaske  
McGraw-Hill Education. New York, New York 10121

### Control includes monitoring p. 7

According to the textbook, controlling is one of four business functions: planning, organizing, leading and controlling. "By controlling, managers make sure the organization's resources are being used as planned and the organization is meeting its goals for quality and safety."<sup>1</sup> The authors continue by giving an example of what control involves and the consequences of ignoring the facets of this function.

"Control must include monitoring. If you have any doubts that this function is important, consider some control breakdowns that caused the catastrophic problems for workers, the environment and local economies. Consider the explosion of Transocean Ltd.'s Deepwater Horizon oil rig in the Gulf of Mexico on April 20, 2010, which killed 11 workers."<sup>2</sup>

*Politico*: "BP reaches \$18.7 billion settlement in Gulf spill" <http://www.politico.com/story/2015/07/bp-reaches-187-billion-settlement-in-gulf-spill-119682>

*The Times-Picayune*: "Holding BP accountable for bad decisions that led to oil spill disaster: An editorial" [http://www.nola.com/opinions/index.ssf/2011/09/holding\\_bp\\_accountable\\_for\\_bad.html](http://www.nola.com/opinions/index.ssf/2011/09/holding_bp_accountable_for_bad.html)

**Control**

Discuss with: biology, chemistry, criminal justice, economics, education, engineering, environmental science, ethics, government, health, history, physics, sociology



Oil rig in the Gulf of Mexico.  
(Photo Credit: michaelbwatkins/iStock/Thinkstock).

# Business Management

## PepsiCo

Discuss with: biology, chemistry, economics, education, engineering, environmental science, ethics, government, health, nutrition, sociology

### PepsiCo's sustainability strategy p. 10

Human sustainability: "PepsiCo's business is three pieces. It has fun-for-you beverages and snacks: Pepsi, Mountain Dew, Lay's, Doritos, Fritos, Cheetos...I could go on. All the 'tos. [Laughs] The second is what I would call better-for-you: Diet Pepsi, Baked Lay's, Baked Doritos. And then there's the good-for-you piece: Quaker Oats, Tropicana, Naked Juice. We are trying to take the fun-for-you portfolio and reduce the salt, sugar, and fat," says CEO Indra Nooyi.<sup>3</sup>

Environmental sustainability: \$375 million in estimated cost savings since 2010. Unfortunately, powder packs are single-use, non-recyclable garbage.

PepsiCo press release: <http://www.pepsico.com/live/pressrelease/pepsico-sustainability-initiatives-delivered-more-than-375-million-in-estimated-09242015>

Fast Company: "How PepsiCo CEO Indra Nooyi is Steering the Company Toward a Purpose-Driven Future" <https://www.fastcompany.com/3066378/how-pepsico-ceo-indra-nooyi-is-steering-the-company-tow>



## PepsiCo Social and environmental challenges p. 13

"Managers (like Indra Nooyi of PepsiCo) are increasingly required to think out of their comfort zones to make 'new connections between social and environmental challenges on the one hand and firm growth and innovation on the other, and to plan far beyond the quarter and into the future.'"<sup>4</sup>

### Major Challenges:

- 1) non-recyclable garbage from packaging: snack bags, plastic wrap
- 2) health issues related to sugary drinks and less-than-nutritious snacks (expand conversation to disproportionate impact on lower income families and then to lack of health insurance)
  - See PepsiCo's "Facts About Your Favorite Beverages" <http://www.pepsicobeveragefacts.com/>
- 3) transportation of products
- 4) use of palm oil
  - See PepsiCo Palm Oil Action Plan Progress Report: September 2016 <https://www.pepsico.com/docs/album/policies-doc/pepsico-palm-oil-action-plan-progress-report-august-2016.pdf>
  - See Years of Living Dangerously Season One
    - Episode 1: Harrison Ford & Palm Oil Industry: <https://www.youtube.com/watch?v=brvHCnYvxQQ>
    - Episode 2: Harrison Ford & Palm Oil Industry: <https://www.youtube.com/watch?v=AAJWxD1lhHA>



# Business Management

## Global business

Discuss with: architecture, biology, chemistry, computer science, criminal justice, economics, education, engineering, environmental science, ethics, government, health, history, marketing, nutrition, physics, sociology

### Business operates on a global scale p. 14

The textbook looks at globalization from the aspect of overseas demand for goods, a global talent pool and the prevalence of the Internet. But globalization should also consider issues of low pay, unsafe working conditions, transportation of goods & emissions, and lack of environmental laws. These include all three legs of the sustainability stool: ecological resilience, economic responsibility and social justice. See these examples:

*The Guardian*: "Bangladesh factory fires: fashion industry's latest crisis" <https://www.theguardian.com/world/2013/dec/08/bangladesh-factory-fires-fashion-latest-crisis>

*The Guardian*: Bangladesh: "The Shirt on your Back" interactive site <http://www.theguardian.com/world/ng-interactive/2014/apr/bangladesh-shirt-on-your-back>

*The Guardian*: "Rare-earth mining in China comes at a heavy cost for local villages" <https://www.theguardian.com/environment/2012/aug/07/china-rare-earth-village-pollution>

BBC: "The dystopian lake filled by the world's tech lust" <http://www.bbc.com/future/story/20150402-the-worst-place-on-earth>

Apple was under fire in 2010–2013 when it was discovered that employees at one of its Chinese iPhone manufacturers were working unpaid overtime and committing suicide.

ABC News: "Inside Apple's Factories in China" Slideshow <http://abcnews.go.com/International/photos/inside-apples-factories-china-15750239/image-15750703> (no PDF)

But in April 2016, a Bloomberg reporter visited a different plant where Apple addressed claims of excess overtime.

*Bloomberg*: "Inside One of the World's Most Secretive iPhone Factories" <https://www.bloomberg.com/news/features/2016-04-24/inside-one-of-the-world-s-most-secretive-iphone-factories>



## Diversity in hiring p. 19

The textbook authors recognize that the U.S. labor force is very diverse in "...race, ethnicity, age, gender, physical characteristics, or sexual orientation."<sup>5</sup> Religion should also be included in this list. Yet, state governments are outlawing diversity ordinances.

NPR: "North Carolina 'Religious Freedom' Law Makes Some Reconsider Moving There" <http://www.npr.org/2016/04/03/472859061/north-carolina-religious-freedom-law-makes-some-reconsider-moving-there>

*The New York Times*: "Anti-Gay Laws Bring Backlash in Mississippi and North Carolina" [http://www.nytimes.com/2016/04/06/us/gay-rights-mississippi-north-carolina.html?\\_r=1](http://www.nytimes.com/2016/04/06/us/gay-rights-mississippi-north-carolina.html?_r=1)

Amnesty International: "Discrimination" <https://www.amnesty.org/en/what-we-do/discrimination/>

*Washington Blade*: "Texas high court sidelines Houston pro-LGBT ordinance" <http://www.washingtonblade.com/2015/07/24/texas-high-court-sidelines-houston-pro-lgbt-ordinance/>

## Diversity

**Discuss with:** criminal justice, economics, education, ethics, government, history, sociology



# Business Management

## Low costs increase sales

Discuss with: economics, education, ethics, government, health, history, sociology

### Low costs help increase your sales p. 22

Walmart: "It introduced a computerized system that schedules employees based on each store's sales, transactions, units sold, and customer traffic. It compares seven weeks' worth of data in those areas with the prior year's performance and uses the results to determine how many employees will be needed during which hours. The system is intended to schedule just enough workers, with full staffing only at the busiest times and days of the week, so it requires more flexibility from Walmart's employees."

*Al Jazeera America*: "The threat of just-in-time scheduling" <http://america.aljazeera.com/opinions/2014/8/just-in-time-schedulingshiftswalmartlow-wage.html>

*Washington Post*: "The next labor fight is over when you work, not how much you make" <https://www.washingtonpost.com/news/wonk/wp/2015/05/08/the-next-labor-fight-is-over-when-you-work-not-how-much-you-make/>

*SF Gate*: "Just-in-time scheduling means no life for workers" <http://www.sfgate.com/opinion/reich/article/Just-in-time-scheduling-means-no-life-for-workers-6219861.php>

Retail Law Advisor: "Pushing Back on Just-in-Time Scheduling" <http://www.retaillawadvisor.com/2016/01/13/pushing-back-on-just-in-time-scheduling/>



**Systems Theory p. 37**

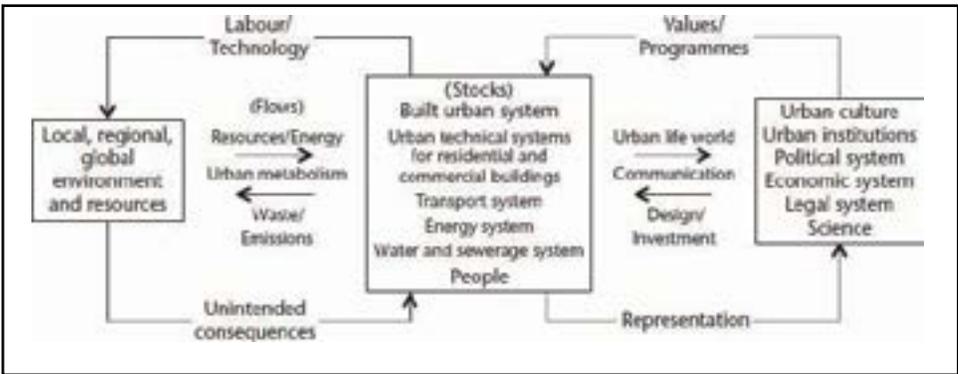
The textbook recognizes that an organization is an open system “dependent on inputs from the outside world, such as raw materials, human resources, and capital. They [the organizations] transform these inputs into outputs that (ideally) meet the market’s needs for goods and services.”<sup>6</sup>

But a system is much more complicated. According to Donella H. Meadows, “A system is a set of things – people, cells, molecules, or whatever – interconnected in such a way that they produce their own pattern of behavior over time. The system may be buffeted, constricted, triggered, or driven by outside forces. But the system’s response to these forces is characteristic of itself, and that response is seldom simple in the real world.”<sup>7</sup>

**Systems theory**

Discuss with: economics, engineering, ethics, government, history, sociology

Compare the linear open-system perspective graphic on page 37 of the textbook to the one below, which better illustrates the complexities of systems.



The urban social-ecological system.<sup>8</sup>



# Business Management

## Green power

Discuss with: architecture, economics, education, engineering, environmental science, ethics, government, health, history, marketing, physics, sociology

### Are companies really shifting to green power? p. 40

"Purchasing green power reduces the environmental impacts of electricity use, decreases the cost of renewable power over time, and supports the development of new renewable generation," says former Houston mayor Annise Parker.<sup>9</sup>

Houston, Texas: "The facility will produce about 7 percent of the city's annual electricity needs and will use the new solar power to replace the equivalent amount of electricity that today is purchased from coal-fired generators," said Houston sustainability director Laura Spanjian.<sup>10</sup>

EPA: "Green Power Partnership" <https://www.epa.gov/greenpower>

*Houston Chronicle*: "City Council OKs 20-year solar energy contract" <http://www.houstonchronicle.com/news/politics/houston/article/City-Council-OKs-20-year-solar-energy-contract-6623583.php?t=442ee-a9a73438d9cbb> (no PDF)

Georgetown, Texas Press Release: "Georgetown utility to be powered by solar and wind by 2017" <https://georgetown.org/2015/03/18/georgetown-utility-to-be-powered-by-solar-and-wind-energy-by-2017/>

*Fortune*: "Elon Musk's Solar City Spikes After Winning Solar Panel Deal with Whole Foods" <http://fortune.com/2016/03/08/elon-musks-solar-city-spikes-after-winning-solar-panel-deal-with-whole-foods/>

*Greenbiz.com*: "Apple's new campus partially built with green bonds" <https://www.greenbiz.com/article/apples-new-campus-partially-built-green-bonds> (no PDF)

*Business Insider*: "Facebook is opening a new wind-powered data center in Texas" <http://www.businessinsider.com/facebook-opens-wind-powered-data-center-in-fort-worth-texas-2015-7>



**Keurig (see also discussion in Marketing) p. 43**

Keurig’s single-cup coffee market has tripled since 2011. Keurig has also entered into partnerships with several competitors, expanding its reach and increasing the non-recyclable garbage.

*The Atlantic*: “How Bad Are K-Cups for the Environment?” <http://www.theatlantic.com/technology/archive/2015/03/the-abominable-k-cup-coffee-pod-environment-problem/386501/>

*Forbes*: “Distribution Deals with Major Coffee Brands to Help Keurig Green Mountain Gain Market Share” <https://www.forbes.com/sites/greatspeculations/2014/08/28/distribution-deals-with-major-coffee-brands-to-help-keurig-green-mountain-gain-market-share/#2af53eb468ea>

Keurig even teamed up with Campbell’s in 2013 to provide soup K-cups. But after two years of lackluster sales, it was discontinued in 2016.

*Food Navigator*: “Campbell’s discontinues soup in a K-cup amid disappointing sales” <http://www.foodnavigator-usa.com/Markets/Campbell-s-cuts-K-Cup-soup-from-product-line-up>

Single-use beverage pods, or capsules, as they’re called in Britain, are everywhere. But Hamburg, Germany, has banned them from state-run buildings as an effort to reduce waste.

BBC: “Is there a serious problem with coffee capsules?” <http://www.bbc.com/news/magazine-35605927>

**Keurig**  
Discuss with: economics, education, engineering, environmental science, ethics, government, health, history, marketing, sociology



Single-use coffee pods and machine. (Photo Credit: Davizro/iStock/Thinkstock).



# Business Management

## Social entrepreneurship

Discuss with: economics, ethics, government, history, marketing, sociology

### Social Entrepreneurship p. 47

The buy-one give-one model of social entrepreneurship has become very popular since 2006 when TOMS Shoes launched its business model. But, “questions have also been raised about the actual social impact of this type of giving, saying that it only alleviates the symptoms of a problem (lack of shoes or eyeglasses) and does not address the roots of the problem (poverty or lack of health care).

“Based on our research and analysis, we believe that the buy-one give-one model is not only a viable way to create both commercial and social value but also a model of social entrepreneurship that is likely to increase in prevalence and power. Trends in consumer behavior, particularly in the millennial generation, which puts a high value on social issues, along with the model’s simple yet effective marketing message, provide a way for companies to leverage their core competencies for a social cause.”<sup>11</sup>

*Stanford Social Innovation Reivew: Inside the Buy-One, Give-One Model:* [http://www.people.hbs.edu/cmarquis/inside\\_the\\_buy\\_one\\_give\\_one\\_model.pdf](http://www.people.hbs.edu/cmarquis/inside_the_buy_one_give_one_model.pdf)

But here’s another take on the same topic:

*Fast Company: “The Buy-One-Give-One Might Make You Feel Good, But It Doesn’t Make the World Better”* <http://www.fastcoexist.com/3053596/the-buy-one-give-one-model-might-make-you-feel-good-but-it-doesnt-make-the-world-better>

All three of these companies practice “Buy One, Give One” social programs:

TOMS Shoes: “...its model does little to address the root causes of poverty, and may even reduce demand for locally-produced products.”: <http://www.forbes.com/sites/ashoka/2014/10/08/a-better-way-to-buy-one-give-one/#6fd3d1666755>

Roma Boots: <http://www.dallasnews.com/business/business/2015/03/28/dallas-company-puts-best-foot-forward-with-buy-one-give-one-rain-boots>

Warby Parker: <https://www.entrepreneur.com/article/242437>



**Workforce p. 48**

"A more diverse workforce has many advantages, but managers have to ensure they provide equality for women and minorities with respect to employment, advancement opportunities, and compensation. They must recruit, retain, train, motivate, and effectively utilize people of diverse demographic backgrounds who have the skills to achieve the company's mission."<sup>12</sup>

**Workforce**  
Discuss with: economics, education, engineering, ethics, government, history, sociology

Off-shoring jobs: "Most workers separated in extended mass layoffs involving domestic or offshore outsourcing had been employed by manufacturers. In extended mass layoffs associated with the movement of work offshore, jobs most often are shifted to Mexico and China."<sup>13</sup>

Immigration: "Although many are concerned that immigrants compete against Americans for jobs, the most recent economic evidence suggests that, on average, immigrant workers increase the opportunities and incomes of Americans. Based on a survey of the academic literature, economists do not tend to find that immigrants cause any sizeable decrease in wages and employment of U.S.-born citizens and instead may raise wages and lower prices in the aggregate."<sup>14</sup>



Washington Times: Foreign guest workers snatch up H-1B visas: <http://www.washingtontimes.com/news/2016/apr/7/h-1b-visas-quickly-snatched-up-as-critics-decry-lo/>

Fortune: "How to Keep Your Job When Robots Take Over" <http://fortune.com/2016/08/17/ai-u-s-workforce/> (no PDF)



# Business Management

## Social values

Discuss with: economics, engineering, environmental science, ethics, geology, government, history, marketing, sociology

### Social values shape attitudes toward companies p. 48

Young people want to work for companies that do good.

"Of those born between 1981 and 1996, 62% want to work for a company that makes a positive impact, half prefer purposeful work to a high salary, and 53% would work harder if they were making a difference to others."<sup>15</sup>

*The Guardian*: "Millennials want to work for employers committed to values and ethics" <https://www.theguardian.com/sustainable-business/2015/may/05/millennials-employment-employers-values-ethics-jobs>

FastCoExist: "The Kids Are Alright: Millennials Want Meaningful Jobs That Fix Social Problems" <https://www.fastcoexist.com/1682573/the-kids-are-alright-millennials-want-meaningful-jobs-that-fix-social-problems>

### Natural Resources

"Protection of the natural environment will factor into social concerns and many types of management decisions."<sup>16</sup>

### Drilling for oil in formerly protected areas in the U.S.

*The New York Times*: "U.S. Will Allow Drilling for Oil in Arctic Ocean" <http://www.nytimes.com/2015/05/12/us/white-house-gives-conditional-approval-for-shell-to-drill-in-arctic.html>

*Bloomberg*: "Obama Bars Atlantic Offshore Oil Drilling in Policy Reversal" <http://www.bloomberg.com/news/articles/2016-03-15/obama-said-to-bar-atlantic-coast-oil-drilling-in-policy-reversal>

*The Guardian*: "Obama administration blocks new oil drilling in the Arctic" <https://www.theguardian.com/world/2015/oct/16/obama-blocks-new-arctic-oil-drilling-cancels-leases>



## Nike differentiation p. 50

### Sustainable Business Case Study

Nike differentiated itself from its competitors by adopting principles of sustainability throughout the company. "These days, sustainability is built into every part of the design process, with designers being equipped with a Sustainability Index to guide them on environmentally preferred materials."<sup>17</sup>

### Nike Materials Sustainability Index (2004)

"...which serves as the primary method for selecting environmentally preferred materials for use in Nike products and feeds into the Nike Apparel and Footwear Sustainability Indexes."<sup>18</sup>

<http://bw-environmental.com/nike/>

### Nike Considered (2005)

<http://solecollector.com/news/2015/04/the-history-of-nike-considered>

### MAKING App (2015)

MAKING is a tool to inspire designers and creators to make better choices in the materials they use. We know that every decision a designer makes in the product creation process has an impact on the environment.

[https://itunes.apple.com/us/app/making-of-making-powered-by-nike-  
msi/id662227880?mt=8](https://itunes.apple.com/us/app/making-of-making-powered-by-nike-msi/id662227880?mt=8)

### Sustainable Innovation

<http://about.nike.com/pages/sustainable-innovation>

### Nike FY 2014/2015 Sustainable Business Report

[http://s3.amazonaws.com/nikeinc/assets/56356/NIKE\\_FY14-15\\_Sustainable\\_Business\\_Report.pdf](http://s3.amazonaws.com/nikeinc/assets/56356/NIKE_FY14-15_Sustainable_Business_Report.pdf)

## Nike

Discuss with: biology, chemistry, computer science, economics, education, engineering, environmental science, ethics, marketing, physics, sociology



## Energy substitutes

Discuss with:  
architecture, biology,  
chemistry, computer  
science, economics,  
education, engineering,  
environmental science,  
ethics, geology,  
government, health,  
history, marketing,  
physics, sociology

### Product substitutes in energy p. 52

"In addition to current substitutes, companies need to think about potential substitutes that may be viable in the future. For example, possible alternatives to fossil fuels include nuclear fusion, solar power, and wind energy. The advantages promised by each of these technologies are many: inexhaustible fuel supplies, inexpensive electricity, zero emissions, universal public acceptance, and so on. Yet each of these faces economic and technical hurdles."<sup>19</sup>

Climate change and non-renewable resources are spurring the movement toward and innovation of new renewable energy sources. There are growth opportunities for both jobs and innovation.

Bloom Energy makes solid oxide fuel cells that use natural gas, air and heat to create clean, affordable energy. Customers include: Target, IKEA, Walmart, Home Depot, Apple, Google, Coca-Cola, NASA and more.  
<http://www.bloomenergy.com/>

Press Release from Climate Week NYC 2015

36 Fortune 500 companies pledge to use 100% renewable energy including Johnson & Johnson, Steelcase, Voya Financial, Goldman Sachs, Procter & Gamble, Nike, Autodesk, Starbucks and H&M.

<http://www.climateweeknyc.org/news-media/fortune-500-listed-companies-pledge-to-use-100-renewable-electricity>



### Suppliers provide your resources – supply chain management p. 52

Sourcemap was born as a research project at the MIT Media Lab to publish and measure the environmental footprint of all the products on earth. The first platform was launched in 2009 and was instantly recognized for its novel supply chain mapping approach: for the first time individuals could see every aspect in the life of products, the good and the bad.<sup>20</sup>  
<http://www.sourcemap.com/> (Interactive, no PDF)

**China mining Africa's resources:**  
*Fortune:* "China's Growing Footprint in Africa is Potentially Damaging"  
<http://fortune.com/2015/11/20/china-africa-damaging-ties/>

*Fast Company:* "China Saps Mozambique of Timber Resources" <http://www.fastcompany.com/849679/china-saps-mozambique-timber-resources>

*Business Case Studies:* "Building a sustainable supply chain: an IKEA case study" <http://businesscasestudies.co.uk/ikea/building-a-sustainable-supply-chain/sectors-of-industry-and-sustainable-supply-chains.html>

Nike Manufacturing Map: <http://manufacturingmap.nikeinc.com/> (Interactive, no PDF)

**Supply chain**

Discuss with: biology, chemistry, computer science, economics, education, engineering, environmental science, ethics, geology, government, health, history, marketing, physics, sociology



## Ethics & Responsibility

Discuss with: biology, chemistry, criminal justice, economics, education, engineering, environmental science, ethics, geology, government, health, history, marketing, physics, sociology

### Ethics and Corporate Responsibility p. 67

Companies often produce annual or bi-annual reports outlining their environmental, social, and sustainability initiatives. You can search corporate websites for their reports, or thousands of global companies post their reports to the GRI Sustainability Disclosure Database. Search for companies such as Coca-Cola, Monsanto, General Electric (GE), Kellogg, Estée Lauder and more. <http://database.globalreporting.org/>

*Business Insider*: "How Nike solved its sweatshop problem" <http://www.businessinsider.com/how-nike-solved-its-sweatshop-problem-2013-5>

*USA Today*: "Ten retailers urged to pull potentially toxic products" <http://www.usatoday.com/story/news/nation/2013/04/09/retailers-products-toxic-chemicals/2067113/>

### Union Carbide – Bhopal, India

On December 2, 1984, "an accident at the Union Carbide pesticide plant in Bhopal, India, released at least 30 tons of a highly toxic gas called methyl isocyanate, as well as a number of other poisonous gases. The pesticide plant was surrounded by shanty towns, leading to more than 600,000 people being exposed to the deadly gas cloud that night. The gases stayed low to the ground, causing victims' throats and eyes to burn, inducing nausea, and many deaths. Estimates of the death toll vary from as few as 3,800 to as many as 16,000, but government figures now refer to an estimate of 15,000 killed over the years."<sup>21</sup>

Photos: <https://www.theatlantic.com/photo/2014/12/bhopal-the-worlds-worst-industrial-disaster-30-years-later/100864/>

### Exxon Valdez – Prince William Sound, Alaska

"On March 24, 1989, the oil tanker Exxon Valdez had just entered Alaska's Prince William Sound, after departing the Valdez Marine Terminal full of crude oil. At 12:04 a.m., the ship struck a reef, tearing open the hull and releasing 11 million gallons of oil into the environment. Initial responses by Exxon and the Alyeska Pipeline Company were insufficient to contain much of the spill, and a storm blew in soon after, spreading the oil widely. Eventually, more than 1,000 miles of coastline were fouled, and hundreds of thousands of animals perished. Exxon ended up paying billions in clean-up costs and fines, and remains tied up in court cases to this day."<sup>22</sup>

Photos: <https://www.theatlantic.com/photo/2014/03/the-exxon-valdez-oil-spill-25-years-ago-today/100703/>

## Garment Industry, Bangladesh

The Shirt on your Back – “How did the clothes you’re wearing get to you? We trace the human cost of the Bangladeshi garment industry in video, words and pictures.”<sup>23</sup>

Interactive Site: <http://www.theguardian.com/world/ng-interactive/2014/apr/bangladesh-shirt-on-your-back>



# Business Management

## Social Responsibility

Discuss with: biology, chemistry, computer science, criminal justice, economics, education, engineering, environmental science, ethics, geology, government, health, history, marketing, physics, sociology

### Social Responsibility p. 83

Although Coca-Cola (and almost all global corporations) tout their social responsibility cred, there is a dark underbelly when it comes to selling sugar water. This report should serve not as a verified truth, but as a conversation-starter: <http://www.corporatecrimereporter.com/news/200/buying-respectability-coca-cola-co-opts-corporate-social-responsibility-movement/>

The insurance industry seems to have profited from Superstorm Sandy, which destroyed homes, businesses, and infrastructure in New York and New Jersey on October 29, 2012. Read the four accounts below and determine whether insurance companies have acted in a socially responsible manner.

CBS News: Superstorm Sandy retrospective of news. <http://www.cbsnews.com/superstorm-sandy/>

PBS: "Frontline and NPR investigate Superstorm Sandy Recovery Efforts" <http://www.pbs.org/wgbh/frontline/announcement/frontline-pbs-and-npr-investigate-superstorm-sandy-recovery-efforts/>

60 Minutes: "The storm after the storm" <http://www.cbsnews.com/news/hurricane-sandy-60-minutes-fraud-investigation/>

NPR: "Business of Disaster: Insurance Firms Profitted \$400 Million After Sandy" <http://www.npr.org/2016/05/24/478868270/business-of-disaster-insurance-firms-profitted-400-million-after-sandy>

In 2015, regulators found that Volkswagen had equipped 11 million of its vehicles with software used to cheat on emissions tests. Also see the sustainability analysis of this scandal on page 18.

*The New York Times*: "How Volkswagen Has Grappled With Its Diesel Scandal" <http://www.nytimes.com/interactive/2015/business/international/vw-diesel-emissions-scandal-explained.html>



Home destroyed by Superstorm Sandy in Seaside Heights, New Jersey. (Photo Credit: Aneese/iStock/Thinkstock).



## Natural Environment p. 85

Development can be sustainable (UN definition of sustainability): Meeting the needs of the present without compromising the ability of future generations to meet their own needs.

Environmental Agenda: "Companies not only have the ability to solve environmental problems; they are coming to see and acquire the motivation as well. Some now believe that solving environmental problems is one of the biggest opportunities in the history of commerce."<sup>24</sup>

Life Cycle Analysis: "...a process of analyzing all inputs and outputs, through the entire 'cradle-to-grave' life of a product to determine the total environmental impact of its production and use. LCA quantifies the total use of resources and the releases into the air, water, and land."<sup>25</sup>

Business must move past "cradle-to-grave" and into the "Circular Economy." This is where manufacturers are responsible for their products even after its useful life, instead of passing off responsibility to the consumer and, in the end, municipalities who contract with garbage and recycling companies to manage the disposal of products. Through take-back programs, manufacturers will improve on their products to make them recyclable, compostable, remanufacturable, repairable and less toxic. This is also referred to as the "Cradle to Cradle" approach, made famous by William McDonough and Michael Braungart in their book by the same name. (Two copies are available in the MVC Library.)

## Defining the circular economy:

<https://www.greenbiz.com/article/defining-circular-economy-beyond-recycling-material-reuse>

## Circular Economy Toolkit:

<http://circulareconomytoolkit.org/Toolkit.html>

## 10 things you need to know about the circular economy:

<https://www.theguardian.com/sustainable-business/10-things-need-to-know-circular-economy>

## Ellen Macarthur Foundation:

"A circular economy is one that is restorative and regenerative by design, and which aims to keep products, components and materials at their highest utility and value at all times, distinguishing between technical and biological cycles."<sup>26</sup>

<https://www.ellenmacarthurfoundation.org/circular-economy>

## Natural Environment

**Discuss with:** architecture, biology, chemistry, computer science, economics, education, engineering, environmental science, ethics, geology, government, health, history, marketing, physics, sociology



# Business Management

## Environmental Analysis

Discuss with: architecture, biology, chemistry, computer science, economics, education, engineering, environmental science, ethics, geology, government, health, history, marketing, physics, sociology

### Environmental analysis p. 98

"The environmental analysis should examine other forces in the environment, such as economic conditions and technological factors. One critical task in environmental analysis is forecasting future trends."<sup>27</sup>

Although forecasting works well for determining what might happen with the stock market and GDP, it doesn't work as well for setting goals for sustainability. The Framework for Strategic Sustainable Development (FSSD), formerly called The Natural Step, asks companies to set far-reaching goals, then Backcast to determine how to get there using a non-linear process.

FSSD Backcasting: "Backcasting is often more effective than forecasting, which tends to produce a more limited range of options, hence stifling creativity. More importantly, forecasting relies on what is known today – but that knowledge is always imperfect and things change over time."<sup>28</sup>

<http://www.thenaturalstep.org/sustainability/backcasting/>

Moving toward renewable energy sources is going to become more important, and more economically feasible, as time goes on. See the innovations at <http://energy.gov/science-innovation/energy-sources/renewable-energy>

Garbage (EPA refers to garbage as Municipal Solid Waste, or MSW), landfills: See 2015 report here: [https://www.epa.gov/sites/production/files/2015-09/documents/2013\\_advncng\\_smm\\_fs.pdf](https://www.epa.gov/sites/production/files/2015-09/documents/2013_advncng_smm_fs.pdf)

Zero S Motorcycle (featured on p. 103), The 2016 model now "can recharge three times faster" than previous models.<sup>29</sup> Remember that to be a "green" motorcycle, the energy used to recharge the cycle must be from renewable sources. <http://www.zeromotorcycles.com/zero-s/>



### Discounting the Future p. 112

(short term costs vs long term costs & benefits)  
"Discounting the future in evaluating alternatives, weighing short-term costs and benefits more heavily than longer-term costs and benefits. ... partly explains government budget deficits, environmental destruction, and decaying urban infrastructure."<sup>30</sup>

McKinsey & Company: "When sustainability means more than 'green'" <http://www.mckinsey.com/business-functions/strategy-and-corporate-finance/our-insights/when-sustainability-means-more-than-green>



**Discounting the future**

Discuss with: architecture, biology, chemistry, computer science, economics, education, engineering, environmental science, ethics, geology, government, health, history, marketing, physics, sociology

### IPM (Integrated Pest Management) p. 120

NaturaLawn: "Years ago Phillip Catron became disillusioned with his job as a manager at ChemLawn because he concluded that the lawn care company's reliance on pesticides contributed to illness in its employees, its customers' pets, and even the lawns themselves."<sup>31</sup>

Synthetic fertilizer is made from petroleum, a non-renewable resource. In addition, a large quantity of fertilizers are washed into storm drains – right into our drinking water systems.

"Integrated Pest Management (IPM) is an environmentally friendly, common sense approach to controlling pests. IPM programs take advantage of all appropriate pest management strategies, including the judicious use of pesticides. Preventive pesticide application is limited because the risk of pesticide exposure may outweigh the benefits of control, especially when non-chemical methods provide the same results."<sup>32</sup>

**Integrated Pest Management**

Discuss with: biology, chemistry, economics, education, environmental science, ethics, government, health, history, marketing, sociology



# Business Management

## Intrapreneurship

Discuss with: biology, chemistry, economics, environmental science, ethics, marketing, sociology

### Intrapreneurship p. 138

Being sustainable is a large part of IKEA's business model. Switching to a lighter "paper variant" pallet saves money on fuel costs related to transportation. It also reduces the amount of CO2 emissions related to their large shipping footprint.

In October 2016, Walmart revealed their three updated sustainable packaging goals and measurements outlined in the new Walmart Sustainable Packaging Playbook. 1. Optimize Design. 2. Source Sustainably. 3. Support Recycling. With these three clear goals, Walmart hopes to reignite the passion around sustainable packaging with vendors, store buyers, packaging suppliers and consumers.<sup>33</sup>

Packaging Digest: "Walmart unveils new sustainable packaging priorities"  
<http://www.packagingdigest.com/sustainable-packaging/walmart-unveils-new-sustainable-packaging-priorities-2016-10-26>

Download Walmart's Sustainable Packaging Playbook: [https://www.resource-recycling.com/images/e-newsletterimages/Walmart\\_Sustainable\\_Packaging\\_Playbook.pdf](https://www.resource-recycling.com/images/e-newsletterimages/Walmart_Sustainable_Packaging_Playbook.pdf)



**Education: skilled workforce p. 169**

As the number of labor-intensive jobs decrease, there are more technical, financial and service-oriented jobs being created. These require more training and education. Where a high school education may have sufficed in the past, technical certificates or higher education degrees are now necessary for well-paying jobs. Education should not be viewed as a luxury by society, but as a necessity.

“The business community – local and multinational companies alike – is interested in a vibrant labor market that can supply the necessary skills for business growth and sustainability. But increasingly around the world, employers are complaining about the difficulty of finding the skills that they need in the marketplace.”<sup>34</sup>

The Brookings Institution: “Tomorrow’s Skilled Workforce Requires Investing in Young Children Today: The Importance of Early Childhood Development” <https://www.brookings.edu/2014/09/22/tomorrows-skilled-workforce-requires-investing-in-young-children-today-the-importance-of-early-childhood-development/>

National Conference of State Legislatures: “The Changing Role of Community Colleges in Workforce Development” <http://www.ncsl.org/research/education/building-community.aspx>

**Education**

Discuss with: economics, education, ethics, government, history, sociology



# Business Management

## Equal employment laws

Discuss with: economics, ethics, government, history, sociology

### Equal employment laws p. 179

Federal equal employment laws increase sustainability throughout the workforce. Outlawing discrimination makes social justice stronger. However, the unpaid family leave legislation can cripple a family that is already living paycheck-to-paycheck. The employer cannot fire an employee for taking the family leave time, but it can be a huge financial burden for the employee.

*U.S. News & World Report: "6 Things You Need to Know About the Family and Medical Leave Act"* <http://money.usnews.com/money/careers/articles/2013/04/04/6-things-you-need-to-know-about-the-family-and-medical-leave-act>

*PBS: "A working mom on her employer's unpaid family leave policy"* <http://www.pbs.org/newshour/making-sense/working-mom-employers-unpaid-family-leave-policy/>



## Employee benefits

Discuss with: economics, ethics, government, history, sociology

### Employee benefits p. 187

Whereas some benefits are required by law – social security, workers' compensation, unemployment insurance – other benefits such as employer-provided health insurance, paid leave, dental insurance and pension plans are becoming more rare.

The Robert Wood Johnson Foundation's 2013 report states that fewer Americans are obtaining their health insurance through their employers since 2000. "The percentage of Americans who receive health insurance through employers has fallen significantly over the last decade – from 69.7 percent nationwide in 2000 to just 59.5 percent in 2011.

"In all, 47 states and the District of Columbia saw a statistically significant decline in nonelderly adults with employer-sponsored insurance (ESI), with 22 states experiencing decreases of 10 percentage points or more. The report finds that in total, 11.5 million fewer Americans receive their health coverage through their job, or a family member's job, than did at the start of the century."<sup>35</sup>



### Stonyfield Farm p. 246

#### Sustainable Business Case Study

- Local sourcing
- Organic, non-GMO, pasture raised
- Employee environmental education

Owned by megacorporation Danone.

See "Indicators of Sustainable Production: A Case Study on Measuring Sustainability at Stonyfield Farm, Inc." produced with the Lowell Center for Sustainable Production at the University of Massachusetts (in Web Articles for Business Management folder)

In 2010, Stonyfield Farms switched to bioplastics for its multipack containers.<sup>36</sup> One of the benefits of switching from petroleum-based plastics is that the containers are compostable. However, most municipalities do not offer composting programs, so these containers end up in landfills.

### Stonyfield Farm Case Study

Discuss with: biology, economics, education, engineering, environmental science, ethics, government, health, marketing, nutrition, sociology



# Business Management

## Social Impact

Discuss with: biology, chemistry, economics, education, engineering, environmental science, ethics, geology, government, health, history, marketing, physics, sociology

### Social Impact by Design p. 270

The Biomimicry Global Design Challenge addresses critical global sustainability issues using nature as a guide.

“Whether you are looking for a way to get started learning biomimicry, want to put your biomimicry skills to the test, or already have an innovation in development that you hope to advance in the Accelerator program, the Biomimicry Global Design Challenge has a place for you. We offer two categories for entry, a variety of tools and resources to help you learn and apply biomimicry, and access to mentors to support you along the way.”<sup>37</sup>  
<http://challenge.biomimicry.org/>

Open Source design solutions: OpenIDEO <https://openideo.com/>

GreenBiz: “Crowdsourcing, Open Innovation, and the Future of Sustainable Cities” <https://www.greenbiz.com/blog/2012/01/23/crowdsourcing-open-innovation-and-future-cities>

Harvard Business Review: “Can you crowdsource a big idea?” <https://hbr.org/2014/05/can-you-crowdsource-a-big-idea>



## Technology

Discuss with: computer science, economics, environmental science, ethics, geology, government, health, sociology

### Technology reducing travel & impacts p. 292

“Communicating electronically can reduce time and expenses devoted to traveling while expanding participation to a larger number of people.”<sup>38</sup>

Online Guide to using technology to reduce travel in higher education: “Business travel in universities and colleges is a large contributor to the environmental footprint of the sector, but doing something about it can be difficult as the issues are multi-factored and much travel is essential for both academic and administrative staff, not to mention students.”<sup>39</sup>

Jisc (UK): “Using videoconferencing and collaboration technology to reduce travel and carbon emissions” <https://www.jisc.ac.uk/guides/using-videoconferencing-and-collaboration-technology-to-reduce-travel-and-carbon-emissions>



## Telecommuting p. 296

Telecommuting can save not only money in gas and car maintenance, but also saves on employee stress from commuting. As far as reducing the amount of CO2 produced from driving a gasoline-powered car, that could be negated by the fact that the employee is at home using electricity (lights, computer, printer, heating, air conditioning) generated from a coal-fired power plant. But if many, many more people telecommuted, maybe it could reduce highway construction and the environmental consequences of moving soil, making concrete and creating more stormwater runoff problems, not to mention the aggravation of drivers navigating miles of orange traffic barrels.

“Telecommuting allows you to work with top talent, regardless of where they are or what timezone they might be in. Not only that but offering telecommuting options is also a great way to retain top talent by giving them more flexibility.”<sup>40</sup>

**Forbes:** “Five Things You Need to Know About Telecommuting” <http://www.forbes.com/sites/jacobmorgan/2015/05/04/5-things-you-need-to-know-about-telecommuting>

Global Workplace Analytics: “Advantages of Agile Work Strategies for Companies” <http://globalworkplaceanalytics.com/resources/costs-benefits>



## Terracycle p. 322

### Sustainable Business Case Study

Terracycle accepts discards such as toys, empty drink pouches, sporting goods, shoes, Solo® cups, snack bags, painting supplies and even “used” chewing gum! The discards are then made into shopping bags, gardening supplies, office supplies and creative gifts (<http://www.dwellsmart.com/TerraCycle>). Although some collection boxes are free, they are only available for locations near their manufacturing plant in Trenton, New Jersey. Other boxes can be purchased and the cost of shipping the full box back is included. For instance, the Zero Waste Toy Box is \$90 USD. <http://zerowasteboxes.terraceycle.com/collections/all>



## Telecommuting

Discuss with:  
computer science,  
economics,  
environmental science,  
ethics, geology,  
government, health,  
marketing, sociology

## Terracycle

Discuss with: economics,  
environmental science,  
ethics, marketing,  
sociology

# Business Management

## Profit & Loss Statement

Discuss with:  
computer science,  
economics,  
environmental science,  
ethics, health, marketing,  
sociology

### Sustainability in P&L statement p. 325

In 2011, Puma was the first U.S. company to release an Environmental Profit & Loss statement. Now, more companies are jumping to assess environmental impacts on their balance sheets.

Puma: "Environmental Profit and Loss Account" <http://about.puma.com/en/sustainability/environment/environmental-profit-and-loss-account>

GreenBiz: "Environmental profit & loss: The new corporate balancing act" <https://www.greenbiz.com/blog/2014/02/18/environmental-profit-and-loss-new-corporate-balancing-act>

The software Puma used, the Sustainable Apparel Coalition's Higgs Index, has become a web portal. It is "used by the coalition's members to measure metrics such as energy usage, greenhouse gas emissions, water consumption, chemical policies, waste management and labor practices from factories around the world."<sup>41</sup>

GreenBiz: "Supply chain tool for Gap, H&M, Levi's gets a makeover" <https://www.greenbiz.com/blog/2013/12/12/sustainable-apparel-resource-higg-index-gets-makeover>

Trucost: "Natural social human capital valuation" <http://www.trucost.com/environmental-profit-and-loss-accounting>



### Big Data and Sustainable Farming p. 354

Big data is the future of farming.

However, it must be noted that Monsanto creates a cycle of debt that is impossible for farmers in poor countries to overcome. Because farmers must buy their seeds from Monsanto every season – they are not allowed to reuse seeds – and utilize synthetic fertilizers, the expenses are often-times overwhelming to farmers in Africa and India.

Global Research: “The Seeds of Suicide: How Monsanto Destroys Farming” <http://www.globalresearch.ca/the-seeds-of-suicide-how-monsanto-destroys-farming/5329947>

GreenBiz: “Small sustainable farmers struggle against Monsanto in Africa” <https://www.greenbiz.com/article/small-sustainable-farmers-struggle-against-monsanto-africa>

La Via Campesina: “African civil society slams Monsanto junk GM maize deal” <https://viacampesina.org/en/index.php/main-issues-mainmenu-27/biodiversity-and-genetic-resources-mainmenu-37/1827-african-civil-society-slams-monsanto-junk-gm-maize-deal>

Monsanto video: “Improving Lives In Africa”: <https://www.youtube.com/watch?v=BV7SpCNzE84>

**Big Data & Farming**

Discuss with: biology, chemistry, computer science, economics, education, engineering, environmental science, ethics, geology, government, health, history, marketing, nutrition, sociology

### Big Data and the Future of Agriculture

Dr. Sonny Ramaswamy delivered a speech entitled “Big Data and the Future of Agriculture” at the Soil, Big Data, and Future of Agriculture Conference held on June 25, 2015 in Canberra, Australia.

<https://nifa.usda.gov/resource/big-data-and-future-agriculture>



Harvesting corn.  
(Photo Credit: fotokostic/iStock/Thinkstock).



Photo Credit: Stockbyte/Getty/Thinkstock

## Computer Science 1405: Business Computer Applications

Textbook Referenced:

*GO! All In One: Computer Concepts & Applications*, Second Edition  
Shelley Gaskin, Nancy Graviett, Debra Geoghan  
Pearson. Upper Saddle River, New Jersey 07458

Aligning computer science curriculum with sustainability is more general in the sense that technology hardware requires the mining of nonrenewable resources, often imported from foreign countries. Consideration should also be given to both the economic and social consequences of mining operations both at home and abroad.



### Mined materials

Geology.com: "Rare Earth Elements" <http://geology.com/articles/rare-earth-elements/>

Source Intelligence: "What are conflict minerals" <https://www.sourceintelligence.com/what-are-conflict-minerals/>

60 Minutes: "Rare Earth Minerals" <https://www.youtube.com/watch?v=N-1HiX0HiAuo>

FastCompany: "How a handful of countries control the Earth's most precious materials" <http://www.fastcompany.com/1694164/how-handful-countries-control-earths-most-precious-materials>

EIC Coalition: "Conflict-free Minerals Reporting Initiative" <http://www.eic-coalition.org/initiatives/conflict-free-sourcing-initiative/>

FastCoExist: "In 2016, Intel's entire supply chain will be conflict-free" <http://www.fastcoexist.com/3055066/change-generation/in-2016-intels-entire-supply-chain-will-be-conflict-free>

### Recycling

60 Minutes: "The Wasteland" <https://www.youtube.com/watch?v=cVORB-bZBbOk>

### Computer Science

Discuss with: biology, business management, chemistry, criminal justice, economics, education, engineering, environmental science, ethics, geology, government, health, history, marketing, nutrition, physics, sociology

## China

*FastCompany*: "Special Report: China Storms Africa" <http://www.fastcompany.com/849662/special-report-china-storms-africa>

*The Guardian*: "Rare-earth mining in China comes at a heavy cost for local villages" <https://www.theguardian.com/environment/2012/aug/07/china-rare-earth-village-pollution>

*BBC*: "The dystopian lake filled by the world's tech lust" <http://www.bbc.com/future/story/20150402-the-worst-place-on-earth>

## Environmental damage

For instance, a discussion on the damage caused by mining operations which include all three legs of the sustainability stool: environmental resilience, economic responsibility and social justice. On the environmental leg, strip mining specifically destroys ecosystems by clearing trees and vegetation (which clean the air, sequester carbon, prevent erosion and provide habitat and food for birds and small animals) and contaminates soil as large trucks and machinery drip oil, antifreeze and diesel fuel into it. One of the non-renewable resources necessary for all electronics is copper. One U.S. copper ore mine is the ASARCO Mission Mine in Arizona, 18 miles south of Tucson.

According to a study by Elmhurst College, the Mission Mine is 2 miles long, 1.75 miles wide and a quarter mile deep. "The copper ore 'contains' chalcopyrite (and not that much of it) is 0.67% copper, which means that thirteen pounds of copper are produced for every ton of ore. In addition, about three tons of waste rock need to be removed to recover one ton of copper ore." At Mission Mine, the waste rock to ore ratio is 3 to 1. The mine opened in 1961 and is scheduled to close in 2033.<sup>1</sup>

ASARCO claims that the mine's economic impacts in 2014 totaled \$252.1 million through wages, salaries, taxes, fuel, supplies and royalties.<sup>2</sup> But are the economic impacts worth the environmental damage over a presumed 82-year lifespan of mining?

The social aspect of strip mining consists of the loss of biodiversity and destruction of the land that is no longer available for the enjoyment of the public. Notably, \$1.4 million dollars of royalties in 2014 were disbursed to a tribal community. So although the tribe benefits economically, 3.5 square miles of their tribal land has been dramatically altered. Additionally, the mine transports the mined materials to a refinery in Amarillo, Texas and a smelter in Hayden, Arizona. The transportation of materials contributes to air pollution through the burning of diesel fuel and, looking upstream, has its own impacts across the sustainability spectrum. The air pollution also contributes to climate change and health problems such as asthma.

Computers and other electronics also use rare earth minerals such as neodymium, terbium, europium and yttrium. China supplies 97% of the world's rare earth minerals, so the U.S. (and every other nation that manufactures electronics) must import them.<sup>3</sup> But the environmental and social costs to the citizens of Baotou, China are enormous.

A short walk from the 43-year-old former farmer's dilapidated brick home in Xinguang Number One Village, is the world's largest rare earths mine tailings pond – an endless expanse of viscous grey sludge built in the 1950s under Mao Zedong. The pond, owned by the Inner Mongolia Baotou Steel Rare-Earth Hi-Tech Company, or Baotou Steel, lacks a proper lining and for the past 20 years its toxic contents have been seeping into groundwater, according to villagers and state media reports. It is trickling towards the nearby Yellow River, a major drinking water source for much of northern China, at a rate of 20 to 30 metres a year, a local expert told the influential Chinese magazine Caixin.

'In the beginning, there was no tap water here, so we all drank from wells,' Wang said. 'The water looked fine, but it smelled really bad.' In the 1990s, when China's rare earths production kicked into full gear, his sheep died and his cabbage crops withered. Most of his neighbours have moved away. Seven have died of cancer. His teeth have grown yellow and crooked; they jut out at strange angles from blackened gums.<sup>4</sup>

The story continues by stating that "processing one ton of rare earths produces 200 tons of toxic waste; Baotou's rare earths enterprises produce 10m tons of wastewater per year."<sup>5</sup>

Another article about Baotou, published by the BBC fifteen months later, in April 2015, says:

One of Baotou's other main exports is neodymium, another rare earth with a variety of applications. Again it is used to dye glass, especially for making lasers, but perhaps its most important use is in making powerful yet lightweight magnets. Neodymium magnets are used in consumer electronics items such as in-ear headphones, cellphone microphones, and computer hard-drives. At the other end of the scale they are a vital component in large equipment that requires powerful magnetic fields, such as wind farm turbines and the motors that power the new generation of electric cars.<sup>6</sup>

The article provides photos of the toxic lake created by the byproduct of mining for rare earth elements. It also has video of the wastewater flowing freely into the unlined lake. It's breathtakingly terrible.

60 Minutes highlights importance of Rare Earth Elements:  
<https://www.youtube.com/watch?v=N1HiX0HiAuo>

But that's only half the story.

There are four rare earth minerals that are used in electronics, tantalum, tin, tungsten and gold, collectively known as 3TG. They are also conflict minerals. According to *National Geographic's* Marcus Bleasdale, they have "bankrolled unspeakable violence in the Congo."

The first child soldier pops out of the bush clutching an AK-47 assault rifle in one hand and a handful of fresh marijuana buds in the other. The kid, probably 14 or 15, has this big, goofy, mischievous grin on his face, like he's just stolen something – which he probably has – and he's wearing a ladies' wig with fake braids dangling down to his shoulders. Within seconds his posse materializes from the thick, green leaves all around us, about ten other heavily armed youngsters dressed in ratty camouflage and filthy T-shirts, dropping down from the sides of the jungle and blocking the red dirt road in front of us. Our little Toyota truck is suddenly swarmed and immobilized by a four-and-a-half-foot-tall army.

This is on the road to Bavi, a rebel-controlled gold mine on the Democratic Republic of the Congo's wild eastern edge. Congo is sub-Saharan Africa's largest country and one of its richest on paper, with an embarrassment of diamonds, gold, cobalt, copper, tin, tantalum, you name it – trillions' worth of natural resources. But because of never ending war, it is one of the poorest and most traumatized nations in the world. It doesn't make any sense, until you understand that militia-controlled mines in eastern Congo have been feeding raw materials into the world's biggest electronics and jewelry companies and at the same time feeding chaos. Turns out your laptop – or camera or gaming system or gold necklace – may have a smidgen of Congo's pain somewhere in it.<sup>7</sup>

As part of the Dodd-Frank Wall Street Reform and Consumer Protection Act, Congress directed the Securities and Exchange Commission (SEC) to "issue rules requiring certain companies to disclose their use of conflict minerals if those minerals are 'necessary to the functionality or production of a produce' manufactured by those companies. Congress enacted Section 1502 because of concerns that the exploitation and trade of conflict minerals by armed groups is helping to finance conflict in the DRC [Democratic Republic of the Congo] region and is contributing to the emergency humanitarian crisis."<sup>8</sup>

Companies that use the conflict minerals in their products are required to trace the origins of the minerals and file Form SD with the SEC. Eighty-five percent of the SD filers are headquartered in the United States.<sup>9</sup>

Then there is the issue of recycling electronics to recover the precious minerals. Despite industry assurances that electronics would be recycled both responsibly and domestically, there is still evidence that some materials are still being exported overseas. According to Public Radio International (PRI), "...electronics make up the fastest growing source of waste on the planet, and the US is the single largest producer of electronic waste. And a new investigation suggests that despite assurances from many US electronics and recycling companies, much of the e-waste we produce is not being recycled responsibly here in the US."<sup>10</sup>

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (known simply as the Basel Convention), is a global environmental treaty signed by 170 member countries to protect against the disposal of electronic waste in developing countries, making it illegal to traffic in hazardous and other wastes without "Prior Informed Consent."

According to the Basel Convention:

E-waste is categorized as hazardous waste due to the presence of toxic materials such as mercury, lead and brominated flame retardants are considered as hazardous waste. E-waste may also contain precious metals such as gold, copper and nickel and rare materials of strategic value such as indium and palladium. These precious and heavy metals could be recovered, recycled and used as valuable source of secondary raw materials. It has been documented that e-wastes are shipped to developing countries where it is often not managed in an environmentally sound manner, thus posing a serious threat to both human health and the environment.<sup>11</sup>

The United States is the only developed country in the world that has signed, but not ratified the treaty. On March 13, 1996, the Secretary-General of the Basel Convention received from the U.S. government a formal objection to the treaty.<sup>12</sup> Therefore it is not illegal for U.S. companies to ship their electronic waste to foreign countries, but most of those countries have signed the treaty thereby making it illegal for them to accept U.S. e-waste.

So it falls to American corporations to uphold pledges to their customers that reclaimed electronics will be recycled in a responsible manner. Yet, due to a soft recycling market, electronics recycling is becoming less prof-

itable. “Responsible recyclers lose business every day to companies that ship electronic scrap overseas or simply dump it in warehouses instead of processing it,” says Robert Houghton, who is also the CEO of Sage Sustainable Electronics, a tech services firm focused on extending the useful life of technology.”<sup>13</sup>

Although China has instituted a “green fence” to keep out U.S. electronic waste, there is a stream of materials sneaking through, specifically in rural Hong Kong, also known as the New Territories. This is where electronics are dismantled by immigrants who are provided with neither safety procedures nor protective clothing.

During a two-year investigation (2014–2016) by the non-profit Basel Action Network (BAN) and with the help of the Massachusetts Institute of Technology (MIT), they...

...put 200 geolocating tracking devices inside old computers, TVs and printers. They dropped them off nationwide at donation centers, recyclers and electronic take-back programs – enterprises that advertise themselves as ‘green,’ ‘sustainable,’ ‘earth friendly’ and ‘environmentally responsible.’

‘The trackers are like miniature cell phones,’ said Jim Puckett, founder of BAN. “The little devices went out and spoke to us, called home regularly, saying ‘this is where I am.’

About a third of the tracked electronics went overseas – some as far as 12,000 miles. That includes six of the 14 tracker-equipped electronics that Puckett’s group dropped off to be recycled in Washington and Oregon.

The tracked electronics ended up in Mexico, Taiwan, China, Pakistan, Thailand, Dominican Republic, Canada and Kenya. Most often, they traveled across the Pacific to rural Hong Kong.<sup>14</sup>

So, some electronics are shipped to developing nations for recycling. What’s all the fuss about? The fuss is about the deplorable working conditions and the threat to human health and environmental damage.

In the 2016 Oregon Public Broadcasting article, “On the Trail of America’s Dangerous, Dead Electronics,” BAN founder Jim Puckett discovers an electronics recycling operation on the outskirts of Hong Kong where workers are dismantling LCD TVs. “The ground at their feet is littered with broken white tubes. These fluorescent lamps were made to light up flat-screens. When they break they release invisible mercury vapor. Even a minuscule amount of mercury can be a neurotoxin. The workers aren’t wearing protective face masks. One worker says he isn’t aware of the risks.”<sup>15</sup>

A recent study by Toxics Link reported contamination in both the soil and water in two regions in India, Loni and Mandoli.

The soil in both Loni and Mandoli contains high levels of heavy metals and other contaminants. Soil samples from both regions contained lead, with the highest level in Loni coming in at almost 147 times the control sample. Drinking water has also been contaminated, the study found, with observable amounts of toxic metals. One sample in each region even contained mercury – 710 times the Indian standard limit in Mandoli, and about 20 times the limit in Loni.<sup>16</sup>

**View these three short documentaries for more information:**

- EarthFixMedia and Basel Action Network: "The Circuit: Tracking America's Electronic Waste:" <https://www.youtube.com/watch?v=O5JssN0sN9o>
- PBS *Frontline*: "Ghana: Digital Dumping Ground:" <https://www.youtube.com/watch?v=N1oyFaOpJOo>
- *60 Minutes*: "The Wasteland:" <https://www.youtube.com/watch?v=cVORBbZBbOk>

All of this comes to you courtesy of your smartphones, laptops, tablet devices, TVs...your electronics that we rely on every day in both business and leisure.



Bridge under construction in Gdansk, Poland.  
(Photo Credit: Pawel\_Kisiolek/iStock/Thinkstock)

## Engineering 1201: Introduction to Engineering

Textbook Referenced:

*Foundations of Engineering*, Second Edition

Mark T. Holtzapple, W. Dan Reece

McGraw Hill Higher Education. New York, New York 10020

Aligning engineering curriculum with sustainability is more general in the sense that all engineering disciplines utilize sustainability principles and rely heavily on the sciences:

environmental resilience: project environmental impact studies, impacts of the selected materials on air, water, soil, wildlife

economic responsibility: efficiencies of energy, water, materials

social justice: jobsite safety, project impact on both surrounding and global communities



**These are the engineering disciplines and related fields discussed in the textbook, pages 8–13.**

“Nearly all disciplines are thought to have evolved from civil engineering. Note that all engineering disciplines require extensive knowledge of physics, whereas chemical and materials engineering require extensive knowledge of physics and chemistry. Some recent disciplines (biochemical and biomedical) require extensive knowledge of physics, chemistry and biology.”

### Civil Engineering

Civil engineers are responsible for constructing large-scale projects such as roads, buildings, airports, dams, bridges, harbors, canals, water systems and sewage systems.

Huitt-Zollars: “Structures | Margaret Hunt Hill Bridge” <http://www.huitt-zollars.com/tran-hwyb-structures/structures-margaret-hunt-hill-bridge>

Norwich University: “Top 10 Most Impressive Civil Engineering Projects of

# Engineering

All Time" <http://graduate.norwich.edu/resources-mce/infographics-mce/top-10-most-impressive-civil-engineering-projects/>

ASCE News: "5 Issues Dominating the Civil Engineering Profession" <http://news.asce.org/5-issues-dominating-the-civil-engineering-profession/>

## Mechanical Engineering

Mechanical engineers make engines, vehicles (automobiles, trains, planes), machine tools (lathes, mills), heat exchangers, industrial process equipment, power plants, consumer items (typewriters, pens), and systems for heating, refrigeration, air conditioning, and ventilation. Mechanical engineers must know structures, heat transfer, fluid mechanics, materials, and thermodynamics, among many other things.

US Dept. of Energy: "Career Map: Mechanical Engineer (Wind Program)" <https://energy.gov/eere/wind/career-map-mechanical-engineer>

ASME: "Sustainability Resources for Mechanical Engineers" <https://www.asme.org/engineering-topics/sustainability>

TriplePundit: "Survey Shows Mechanical Engineers Embrace Sustainable Design" <http://www.triplepundit.com/2012/12/mechanical-engineers-and-sustainable-design/>



Electrical engineer working in modern geothermal power plant. (Photo Credit: Kinwun/iStock/Thinkstock).

## Electrical Engineering

Modern life is largely characterized by electronic equipment. Daily, we rely on many electrical devices – televisions, telephones, computers, calculators, and so on. In the future, the number and variety of these devices can only increase. The fact that electrical engineering is the largest engineering discipline – comprising over 25% of all engineers – underscores the importance of electrical engineering in modern society.

MDPI: "Special Issue – Sustainability in Electrical Engineering" [http://www.mdpi.com/journal/sustainability/special\\_issues/electrical-engineering](http://www.mdpi.com/journal/sustainability/special_issues/electrical-engineering) (scroll down the site page to access Published Papers)

SemanticsScholar: "Teaching Sustainability Analysis in Electrical Engineering Lab Courses" <https://pdfs.semanticscholar.org/23b3/261601c91f2dd952f5c7f0397f7351cb89d4.pdf>

## Chemical Engineering

Chemical engineers process raw materials (petroleum, coal, ores, corn, trees) into refined products (gasoline, heating oil, plastics, pharmaceuticals, paper). Biochemical engineering is a growing subdiscipline of chemical engineering. Biochemical engineers combine biological processes with traditional chemical engineering to produce food and pharmaceuticals and to treat wastes.

Sciencing: "How Can Chemical Engineers Prevent Pollution to Our Environment?" <http://sciencing.com/can-chemical-engineers-prevent-pollution-environment-16409.html> (no PDF)

Indiana University Bloomington Newsroom: "IU chemists create molecular 'leaf' that collects and stores solar power without solar panels" <http://news.indiana.edu/releases/iu/2017/03/carbon-reduction-molecule.shtml>

EPA Science Inventory: "Sustainability in the Design, Synthesis and Analysis of Chemical Engineering Processes 1st edition (Preface)" [https://cfpub.epa.gov/si/si\\_public\\_record\\_report.cfm?dirEntryId=325990](https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=325990)

## Industrial Engineering

Industrial engineers are famous for designing and operating assembly lines that optimally combine machinery and people. However, they can also optimize train or plane schedules, hospital operations, banks, or overnight package delivery services. Industrial engineers who specialize in human factors design products (e.g., hand tools, airplane cockpits) with the human user in mind.

Northeastern University abstract: "The Emerging Roles of Industrial Engineers in Preventing Pollution and Creating a Sustainable Environment" <http://www.northeastern.edu/nuwriting/current-issue/the-emerging-roles-of-industrial-engineers-in-preventing-pollution-and-creating-a-sustainable-environment/>



Industrial engineer  
(Photo Credit: ndoeljindoel/iStock/Thinkstock).

ASEE: "Sustainable Industrial Engineering Modules" [http://www.asee.org/file\\_server/papers/attachment/file/0002/2981/Industrial\\_Engineering\\_Modules\\_Paper\\_Final.pdf](http://www.asee.org/file_server/papers/attachment/file/0002/2981/Industrial_Engineering_Modules_Paper_Final.pdf)

ENGJ: "The Industrial Engineer and Energy and Environment" <http://engj.org/index.php/ej/article/download/29/5>

# Engineering



Military aviation engines  
(Photo Credit: AntonMatveev/iStock/Thinkstock).

## Aerospace Engineering

Aerospace engineers design vehicles that operate in the atmosphere and in space. It is a diverse and rapidly changing field that includes four major technology areas: aerodynamics, structures and materials, flight and orbital mechanics and control and propulsion. Aerospace engineers confront problems associated with wind effects on buildings, air pollution, and other atmospheric phenomena.

Universidad Politécnica de Madrid: "Aerospace Engineer and the Environment" <http://webserver.dmt.upm.es/~isidoro/Env/Aerospace%20engineering%20and%20the%20environment.pdf>

University of Bristol: "Aerospace Engineering" <https://wikis.bris.ac.uk/display/BristolESD/Aerospace+Engineering>

## Materials Engineering

Materials engineers are concerned with obtaining the materials required by modern society. Materials engineers may be further classified as:

- **Geological engineers**, who study rocks, soils, and geological formations to find valuable ores and petroleum reserves.
- **Mining engineers**, who extract ores such as coal, iron and tin.
- **Petroleum engineers**, who find, produce, and transport oil and natural gas.
- **Ceramic engineers**, who produce ceramic (i.e., nonmetallic mineral) products
- **Plastics engineers**, who produce plastic products.
- **Metallurgical engineers**, who produce metal products from ores or create metal alloys with superior properties.
- **Materials science engineers**, who study the fundamental science behind the properties (e.g., strength, corrosion resistance, conductivity) of materials.

Science Direct: "Materials and Sustainable Development" <http://goo.gl/jZxHYj>

Cambridge University Press: Materials science and engineering's pivotal role in sustainable development for the 21st century" <https://goo.gl/KLLr9>

University of British Columbia: "Nanomaterials – Materials from the Bottom Up" <http://mtrl.ubc.ca/prospective-students/undergraduate-students/impact-of-materials-engineering/nanomaterials/>

## Agricultural Engineering

Modern agricultural engineers apply knowledge of mechanics, hydrology, computers, electronics, chemistry, and biology to solve agricultural problems. Agricultural engineers may specialize in: food and biochemical engineering; water and environmental quality; machine and energy systems; and food, feed, and fiber processing.

TechRepublic: "Why engineers are critical to the future of sustainable farming" <http://www.techrepublic.com/article/why-engineers-are-critical-to-the-future-of-sustainable-farming/>

UN Centre for Sustainable Agricultural Mechanization: "Agricultural Engineering and Mechanization for Sustainable Agriculture" <http://un-csam.org/Activities%20Files/A0711/02my.pdf>

ResearchGate: "The role of agricultural engineers in sustainable rural development in SEE (South Eastern Europe) countries" <https://www.researchgate.net/publication/47657970> The role of agricultural engineers in sustainable rural development in SEE South Eastern Europe countries

## Nuclear Engineering

Nuclear engineers design systems that employ nuclear energy, such as nuclear power plants, nuclear ships (e.g., submarines and aircraft carriers), and nuclear spacecraft. Some nuclear engineers are involved with nuclear medicine; others are working on the design of fusion reactors that potentially will generate limitless energy with minimal environmental damage.

International Atomic Energy Agency: "Nuclear Power and Sustainable Development" <http://www-pub.iaea.org/MTCD/Publications/PDF/Pub-1754web-26894285.pdf>

Idaho National Laboratory: "Changing the World's Energy Future" <https://www.inl.gov/>



US Navy submarine  
(Photo Credit: Purestock/Thinkstock).

Nuclear Information and Resource Service: "Nuclear Power, Climate Policy and Sustainability" <https://www.nirs.org/wp-content/uploads/climate/background/austriangovtreport607.pdf>

## Architectural Engineering

Architectural engineers combine the engineer's knowledge of structures, materials, and acoustics with the architect's knowledge of building aesthetics and functionality.

CTBUH Research Paper: "Tall Buildings: Sustainability from the bottom up" <http://global.ctbuh.org/resources/papers/download/1322-tall-buildings-sustainability-from-the-bottom-up.pdf>

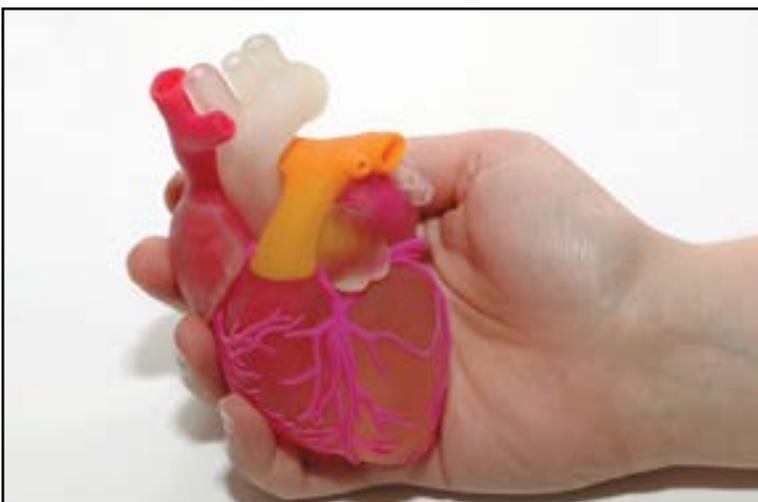
Engineering for Change: "Earthship Biotechure's Six Best Practices for Sustainable Architecture" <https://www.engineeringforchange.org/earthship-biotechures-six-best-practices-for-sustainable-architecture/>

University of Michigan: "Qualities, Use and Examples of Sustainable Building Materials" <http://www.umich.edu/~nppcpub/resources/compendia/ARCHpdfs/ARCHsbmlIntro.pdf>

## Biomedical Engineering

Biomedical engineers combine traditional engineering fields (mechanical, electrical, chemical, industrial) with medicine and human physiology. They develop prosthetic devices (e.g., artificial limbs), artificial kidneys, pacemakers, and artificial hearts. Recent developments will enable some deaf people to hear and some blind people to see.

ICDS: "Open Source Biomedical Engineering for Sustainability in African Healthcare: Combining Academic Excellence with Innovation" [https://www.thinkmind.org/download.php?articleid=icds\\_2014\\_2\\_40\\_10173](https://www.thinkmind.org/download.php?articleid=icds_2014_2_40_10173)



Live Science: "Tomorrow's Wearable Tech is Straight Out of 'Star Trek'" <https://www.livescience.com/43564-future-wearable-tech-would-make-data-proud.html>

ASME: "3D Printing Blooms in Biomedical" <https://www.asme.org/engineering-topics/articles/bioengineering/3d-printing-blooms-in-bio-medical>

3D printed human heart  
(Photo Credit: Danor\_a/iStock/Thinkstock).

## Computer Science and Engineering

Computer scientists and engineers design and build computers ranging from super-computers to personal computers, network computers together, write operating system software that regulates computer functions, or write applications software such as word processors and spreadsheets.

Cornell University: "UDiscoverIt – Institute for Computational Sustainability" <http://www.udiscover.it/>

*The Cornell Daily Sun*: "Students Come Together to Code, Solve Problems at BigRed Hacks" <http://cornellsun.com/2016/09/19/students-come-together-to-code-solve-problems-at-the-bigred-hacks/>

National Research Council: "Computing Research for Sustainability" (PDF in Engineering folder)



Computer network technicians  
(Photo Credit: shironosov/iStock/Thinkstock).



Portrait of boy holding his hand to his chest.  
(Photo Credit: Digital Vision/Thinkstock)

## Government 2304: Intro to Political Science

*We the People: An Introduction to Political Science*, Tenth Edition  
Benjamin Ginsberg, Theodore J. Lowi, Margaret Weir, Caroline J. Tolbert  
W. W. Norton & Company. New York, NY 10110

Government affects every single citizen, every single day. From public safety to food safety, payroll tax deduction to social security, national security to national parks, hurricane forecasting to printing currency, funding for medical research to support for the arts, government plays a part in almost every aspect of our daily lives. It's important to remember that government does not just refer to the federal government in Washington, D.C., it includes state, county and municipal government, as well. Municipal governance attracts the least amount of participation in elections, but has the most effect on our daily lives: fire and police protection, garbage collection, road maintenance, water and sewer infrastructure, youth and social programming through public libraries and recreation centers, traffic engineering, urban development policies, etc.

Governance also affects every one of the UN's Sustainable Development Goals.

### Digital Divide p. 12

The ability to access the internet has become a necessity for both workplace and educational activities. The "digital divide," the inability of individuals to access online resources due to cost or lack of infrastructure, affects lower-income and less-educated Americans the most. And they are being left behind in both educational opportunities and the ability to participate in government and the online economy. Equal access to the internet means equal access to the twenty-first century.

According to the National Education Agency, the "homework gap" is negatively affecting students without home access to high-speed internet due to teachers relying more on digital learning: when schools incorporate Internet-based learning into daily school work.

According to a recent study from the Hispanic Heritage Foundation, Family Online Safety Institute and My College Options, nearly 50 percent of students say they have been unable to complete a homework assignment because they didn't have access to the Internet or a computer. Furthermore, 42 percent of students say they received a lower grade on an assignment due to lack of access.<sup>1</sup>

Keith Krueger, CEO of the Consortium for School Networking says that the dilemma has become "the civil rights issue of today."<sup>2</sup>

### Digital Divide

Discuss with: computer science, economics, education, ethics, history

## Government

The digital divide has also affected those with vision and hearing disabilities. In October 2010, President Obama signed the Twenty-First Century Communications and Video Accessibility Act.

The CVAA is divided into two broad titles or sections. Title I addresses communications access to make products and services using Broadband fully accessible to people with disabilities. For example, smart phones will be required to be usable by blind and visually impaired people as well as people with hearing aids. Title II of the accessibility act breaks new ground to make it easier for people with disabilities to view video programming on television and the Internet. For example, programs shown on television with captioning will be required to include the captioning when they are re-shown on the Internet. Both titles include provisions to ensure that people with disabilities have access to emergency information such as the next generation of 911 services and emergency information on the television.<sup>3</sup>



## Immigration p. 17

One new feature of American society in recent years is the very large number of immigrants who live in the country without legal authorization. Estimates [in 2012] put the number of undocumented immigrants at almost 12 million, the majority of whom are from Mexico and Central America. The large unauthorized population became a flashpoint for controversy as states and cities passed a variety of conflicting laws regarding illegal immigrants' access to public services. Some states have offered driver's licenses to undocumented immigrants, while others have sought to bar them from public services, such as education and emergency health care, both of which are constitutionally guaranteed to unauthorized immigrants.<sup>4</sup>

### Immigration

Discuss with: criminal justice, economics, education, ethics, history, sociology

Have we lost sight of the words inscribed on the Statue of Liberty? "Give me your tired, your poor, Your huddled masses yearning to breathe free, The wretched refuse of your teeming shore. Send these, the homeless, tempest-tost to me, I lift my lamp beside the golden door!"

There are arguments about entering the United States legally versus being undocumented. But shouldn't we open our hearts and homeland to those less fortunate? Shouldn't we offer sanctuary to those seeking respite from distant war-torn countries? Will compassion make us less of a world leader? All questions for thoughtful discussion, but it really comes down to how we treat our fellow man. As the United Nations strives to eradicate poverty and hunger, and provide quality education and clean water and sanitation around the globe, isn't the United States in a position to help from the inside?



## Income Inequality

Discuss with: economics, education, ethics, history, nutrition, sociology

### Income equality p. 25

According to the referenced textbook, economic inequality has been steadily growing since the 1970s, but large-scale public protests did not occur until 2011, with the Occupy Wall Street movement. "Americans have generally tolerated great differences among rich and poor citizens, in part because of the pervasive belief that mobility is possible and that economic success is the product of individual effort."<sup>5</sup> However, due to a lack of a policy agenda, the Occupy movement has subsided.

In February 2016, researchers Kathryn Edin, author of *\$2.00 a Day: Living on Almost Nothing in America* and co-author Luke Shaefer presented their findings "that the number of families with a cash income of \$2.00 a day or less had grown from 600,000 in 1996 to more than 1.5 million in 2011."<sup>6</sup>

Yet, in March 2016, the House of Representatives approved a budget proposal that:

...would cut programs for low- and moderate-income people by about \$3.7 trillion over the next decade. In 2026, it would cut such programs overall by 42 percent – causing tens of millions of people to lose health coverage and millions to lose basic food or other support.

In addition, the plan would secure 62 percent of its budget cuts from low-income programs even though they account for just 28 percent of total non-defense program spending (and just 24 percent of total program spending, including defense).<sup>7</sup>

These low-income programs include the Affordable Care Act, Medicaid, Supplemental Nutrition Assistance Program (SNAP, formerly known as food stamps), Pell Grants, Social Services Block Grant and the low-income portion of the Child Tax Credit.

Stepping back, looking at numerous reports, and utilizing a systems approach to analyzing the inequality situation, you see that poverty, hunger and housing insecurity all impact a child's success in school; A lack of a quality education leads to lost job opportunities and a continuing cycle of poverty. Then, on January 15, 2016, Oxfam announced that eight men have the same combined wealth as the poorest 50 percent of the world's population.

The world's eight richest billionaires control the same wealth between them as the poorest half of the globe's population, according to a charity warning of an ever-increasing and dangerous concentration of wealth.

In a report published to coincide with the start of the week-long World Economic Forum in Davos, Switzerland, Oxfam said it was

“beyond grotesque” that a handful of rich men headed by the Microsoft founder Bill Gates are worth \$426bn (£350bn), equivalent to the wealth of 3.6 billion people.<sup>8</sup>



## Liberty vs regulation for public protection p. 26

Liberty vs regulation is often a contentious topic. According to the textbook, “the American concept of liberty means economic freedom.”<sup>9</sup> Where the concept of laissez-faire economics allowed for very little oversight by the federal government, regulations instituted by both state and federal governments “deploy a wide array of regulations in the name of public protection. These include health and safety laws, environmental rules, and workplace regulation.”<sup>10</sup>

In 2017’s political climate, the rhetoric has increased. On January 30, 2017, President Trump signed an executive order “to eliminate two federal regulations for every new regulation enacted.”<sup>11</sup> The first regulation to be eliminated, the Interior Department’s Stream Protection Rule.

The Interior Department rule requires mining companies such as Arch Coal Inc. and Peabody Energy Corp. to monitor water quality and to take other safeguards to protect surrounding communities from the impacts of mountain top removal and other mining techniques. The rule, which updates regulations issued in 1983, would protect 6,000 miles of streams and 52,000 acres of forests, primarily in Appalachia, according to the Interior Department.<sup>12</sup> [no PDF]

In essence, the rule “forbids coal companies from dumping rocks and other debris created by mountain top removal mining into nearby streams.”<sup>13</sup> Senate Majority Leader Mitch McConnell, who referred to the rule as part of former President Barack Obama’s “War on Coal,” made eliminating the rule a top priority. Senator McConnell represents Kentucky, a coal-producing state.

## Liberty vs regulation

Discuss with: biology, business management, chemistry, economics, engineering, environmental science, ethics, geology, history



# Government

**Voting Rights**

Discuss with: computer science, criminal justice, ethics, history

### Voting Rights p. 31

Voting is a right conferred to American citizens and instilled in the Bill of Rights. But, "just securing the right to vote does not end concerns about democracy..."<sup>14</sup> Although African Americans were granted the right to vote with the Fifteenth Amendment in 1870, it took almost one hundred years for the Voting Rights Act of 1965. With the Nineteenth Amendment in 1920, women gained the right to vote. However, exclusionary actions by state governments continue to erode the ability of all voters to cast their ballots. In 2016, a federal appeals court found that Texas' voter ID law violates the Voting Rights Act and is misleading.

Thirty-two states – a figure that has been steadily rising – now have some form of voter ID laws, based on a count by the National Conference of State Legislatures. The number of states with the strictest laws is rising as well: Voters in seven states will be required to show photo identification in order to cast their ballots this year. In 2012, only four states required it.<sup>15</sup>

"The Government Accountability Office, in a report last year, acknowledged the challenge of making 'a complete estimate of the incidence of in-person voter fraud,' but its review of five studies 'identified few instances of in-person voter fraud.'"<sup>16</sup>

SDGs: 5, 10, 11 (Expand to all SDGs to discuss the impacts of Voting Rights on minorities and the poor and how they are impacted by representation and laws they have no voice in.)



## Judicial Branch – Supreme Court p. 55

Two topics come to mind when considering how the Supreme Courts has shaped the nation – through eminent domain and access to water – through litigation. "...as the country developed a national economy, it came to rely increasingly on the federal judiciary, rather than on the state courts, for the resolution of disputes."<sup>17</sup>

In the 1990s, after the closing of a naval research facility in the Fort Trumbull area of New London, Connecticut, the town fell onto economic hard times. In *Kelo v The City of New London*, a lawsuit was filed by Susette Kelo who wanted to keep her "little pink house" despite buy-out offers from the city as part of a redevelopment project that included a new headquarters for Pfizer, a major pharmaceuticals firm. The case made its way to the Connecticut Supreme Court where, "The majority ruled that almost any public benefit counts as a "public use" under the state and federal constitutions, and that courts must generally defer to government planners."<sup>18</sup>

According to Ilya Somin, Professor of Law at George Mason University:

Property law experts were well aware that longstanding Supreme Court precedent permitted the government to take property for almost any reason. But very few members of the general public knew that. Many ordinary Americans were shocked to learn a city could condemn homes and small businesses in order to promote private development – a reality they were unaware of until the publicity surrounding *Kelo* drove it home to them.<sup>19</sup>

The Supreme Court upheld the lower court's ruling in 2005.

In the end, the redevelopment plan fell through and the land still sits vacant.

Although the *Kelo* case was the first to gain national attention, in Texas, a city's use of eminent domain hit home in 1997 when the city of Hurst forced 127 homeowners to sell or have their homes condemned in order to expand North East Mall, in the name of public good.

For Hurst, the \$220 million expansion of the North East Mall means increased tax revenues. Built in 1971, the North East Mall, owned by the Simon DeBartolo Group of Indianapolis, is Hurst's biggest taxpayer. By doubling the size of the mall, said Allan Weegar, assistant city manager, the city will increase sales taxes by \$11 million a year.<sup>20</sup>

A recent example of the Supreme Court settling a dispute between states occurred in 2013 when the court ruled unanimously that the Tarrant Regional Water District (TRWD) of Texas had no rights to water from Oklaho-

## Judicial Branch

Discuss with: biology, criminal justice, economics, engineering, environmental science, ethics, geology, history, physics

ma upstream of the Red River. The Red River Compact (1980) allows for signatory states that border the river to an “equitable” share of the water. However, the TRWD maintained that “by the time the water reaches Texas it is essentially unusable, so they want to tap the reservoirs further upstream. Oklahoma state lawmakers have declined their request.”<sup>21</sup>

Justice Sonia Sotomayor delivered the opinion of the court:

The Red River Compact, (or Compact), 94 Stat. 3305, allocates water rights among the States within the Red River basin as it winds through Texas, Oklahoma, Arkansas, and Louisiana. Petitioner Tarrant Regional Water District (Tarrant), a Texas agency, claims that it is entitled to acquire water under the Compact from within Oklahoma and that therefore the Compact pre-empts several Oklahoma statutes that restrict out-of-state diversions of water. In the alternative, Tarrant argues that the Oklahoma laws are unconstitutional restrictions on inter-state commerce. We hold that Tarrant’s claims lack merit.<sup>22</sup>

Justice Sotomayor provided case background in the court’s opinion; the gist being that because the population of North Texas was growing faster than Oklahoma’s population, the TRWD determined that it had a right to Oklahoma’s water after negotiations to purchase the water were unsuccessful. Justice Sotomayor refuted that thinking:

In the years since the Red River Compact was ratified by Congress, the region’s population has increased dramatically. In particular, the population of the Dallas-Fort Worth metropolitan area in north Texas has grown from roughly 5.1 million inhabitants in 2000 to almost 6.4 million in 2010, a jump of over 23 percent and among the largest in the United States during this period. See Dept. of Commerce, Census Bureau, P. Mackun & S. Wilson, *Population Distribution and Change: 2000 to 2010* (Mar. 2011). This growth has strained regional water supplies, and north Texas’ need for water has been exacerbated in recent years by a long and costly drought. See generally Galbraith, *A Drought More Than Texas-Size*, *International Herald Tribune*, Oct. 3, 2011, p. 4.

Against this backdrop, petitioner Tarrant, a Texas state agency responsible for providing water to north-central Texas (including the cities of Fort Worth, Arlington, and Mansfield), has endeavored to secure new sources of water for the area it serves. From 2000 to 2002, Tarrant, along with several other Texas water districts, offered to purchase water from Oklahoma and the Choctaw and Chickasaw Nations. See 2 App. 336–382. But these negotiations were unsuccessful and Tarrant eventually abandoned these efforts.

Because Texas' need for water only continued to grow, Tarrant settled on a new course of action. In 2007, Tarrant sought a water resource permit from the Oklahoma Water Resources Board (OWRB), respondents here, to take 310,000 acre feet per year of surface water from the Kiamichi River, a tributary of the Red River located in Oklahoma. Tarrant proposed to divert the Kiamichi River, at a point located in sub-basin 5 of Reach II, before it discharges into the Red River and, according to Tarrant, becomes too saline for potable use.

Tarrant knew, however, that Oklahoma would likely deny its permits because various state laws (collectively, the Oklahoma water statutes) effectively prevent out-of-state applicants from taking or diverting water from within Oklahoma's borders. These statutes include a requirement that the OWRB consider, when evaluating an application to take water out of State, whether that water "could feasibly be transported to alleviate water shortages in the State of Oklahoma." Okla. Stat., Tit. 82, §105.12(A)(5) (West 2013). The statutes also require that no permit issued by the OWRB to use water outside of the State shall "[i]mpair the ability of the State of Oklahoma to meet its obligations under any interstate stream compact." §105.12A(B)(1). A separate provision creates a permitting review process that applies only to out-of-state water users. §105.12(F). Oklahoma also requires legislative approval for out-of-state water-use permits, §105.12A(D), and further provides that "[w]ater use within Oklahoma ...be developed to the maximum extent feasible for the benefit of Oklahoma so that out-of-state downstream users will not acquire vested rights therein to the detriment of the citizens of this state," §1086.1(A)(3). Interpreting these laws, Oklahoma's attorney general has concluded that "we consider the proposition unrealistic that an out-of-state user is a proper permit applicant before the [OWRB]" because "[w]e can find no intention to create the possibility that such a valuable resource as water may become bound, without compensation, to use by an out-of-state user." 1 App.<sup>23</sup>

And so the issue of water needs leads us back to eminent domain and the possible use of it to condemn land North Texas leaders say is needed to build an accessible water source – the new Marvin Nichols Reservoir. From the textbook *We the people: An Introduction to American Politics*, the authors state that private property "...is one of the most fundamental and well-established rights in the United States" and legislatures and courts "have made it a crime for anyone, including the government, to trespass or take away property without compensation."<sup>24</sup>

## Government

Because the North Texas region is estimated to double in size by 2060 and leaders have been lobbying the state to dam the Sulphur River – and create the new reservoir – in northeast Texas for decades. But the 72,000 acres needed for the project are privately owned.

In May 2014, the *Texas Tribune* wrote:

Much of the land that would be flooded has been held for generations by farmers and timber companies, many of whom have no interest in selling. Not that they would have a choice: authorities in Dallas could use eminent domain to force them to accept fair market value for the land. And because construction of a new reservoir would require flooding the river bottom, which includes relatively rare stands of mature hardwood habitat, federal environmental regulations dictate that an enormous amount of extra land be set aside and left undeveloped to compensate for the loss of wetland habitat. This land – as much as 160,000 acres – would also likely be taken through eminent domain.<sup>25</sup>

Two years later, in May 2016, the Texas Water Development Board approved the 2017 State Water Plan and subsequently pushed the construction of the disputed Marvin Nichols Reservoir to 2070. But the Trinity River Water District has interim projects: if “...planned reservoirs are not built, a [sic] expensive pipeline to Toledo Bend reservoir might be an option in 2070.”<sup>26</sup>

For instance, a 150-mile pipeline is proposed to pump 200 million gallons a day from Richland-Chambers and Cedar Creek Lake for TRWD in addition to the Tehuacana Reservoir and and Wright Patman Lake will undoubtedly require some level of eminent domain for the projects to be completed. The two East Texas lakes – Richland Chambers and Cedar Creek Lake – currently account for 80 percent of the water district’s supply.

Although it’s true that our area will need more water as the population grows, conservation should be enforced henceforth to postpone building additional pipelines and reservoirs.

*The Texas Tribune*: “Controversial Marvin Nichols Reservoir Stays in State Plan”  
<https://www.texastribune.org/2015/01/08/twdb-marvin-nichols-decision/>

*Fort Worth Star-Telegram*: “A never-ending thirst: Exploring Tarrant County’s quest for water” <http://www.star-telegram.com/news/local/community/fort-worth/article77997407.html>



## Child Labor p. 89

As the country grew, so did interstate commerce and the national economy. But so did the employment of children, especially in unsafe conditions. In 1916, the Keating Owen Child Labor Act was passed, which "excluded from interstate commerce all goods manufactured by children under age 14."<sup>27</sup> But the Supreme Court found the law to be unconstitutional and overturned it in 1918. It wasn't until the Fair Labor Standards Act in 1938 that child labor became illegal, specifically under the age of 14.

However, global child labor is still rampant. According to the International Labour Organization:

...around 215 million children work, many full-time. They do not go to school and have little or no time to play. Many do not receive proper nutrition or care. They are denied the chance to be children. More than half of them are exposed to the worst forms of child labour such as work in hazardous environments, slavery, or other forms of forced labour, illicit activities including drug trafficking and prostitution, as well as involvement in armed conflict.<sup>28</sup>

In 2014, the Bureau of International Labor Affairs released a report that lists 136 goods from seventy-four countries that the department believes are produced by child or forced labor. Goods on the list include diamonds, cotton, tobacco, footwear, cocoa, Christmas decorations, garments, gold, surgical instruments, electronics, coal, etc. A few of the countries in violation are China, Nigeria, Vietnam, Ecuador, Kazakhstan, Bangladesh and 68 more.<sup>29</sup>

Eastern Illinois University: "Childhood Lost: Child Labor in the Industrial Revolution" <http://www.eiu.edu/eiutps/childhood.php>

EH.net: "Child labor during the British Industrial Revolution" <https://eh.net/encyclopedia/child-labor-during-the-british-industrial-revolution/>

## Child Labor

Discuss with: business management, criminal justice, economics, education, ethics, health, history, sociology



## States' Rights

Discuss with: criminal justice, economics, environmental science, ethics, health, history, sociology

### States' Rights vs Federal Power p. 91

States' rights as a means for achieving policy goals gained traction in the 1950s in opposition to the civil rights movement.

In 1956, ninety-six southern members of Congress issued a 'Southern Manifesto' in which they declared that southern states were not constitutionally bound by Supreme Court decisions outlawing racial segregation. They believed that states' rights should override individual rights to liberty and formal equality. With the eventual triumph of the civil rights movement, the slogan of 'states' rights' became tarnished by its association with racial inequality.<sup>30</sup>

The unwarranted decision of the Supreme Court in the public school cases is now bearing the fruit always produced when men substitute naked power for established law.

The Founding Fathers gave us a Constitution of checks and balances because they realized the inescapable lesson of history that no man or group of men can be safely entrusted with unlimited power. They framed this Constitution with its provisions for change by amendment in order to secure the fundamentals of government against the dangers of temporary popular passion or the personal predilections of public officeholders.

We regard the decision of the Supreme Court in the school cases as clear abuse of judicial power. It climaxes a trend in the Federal judiciary undertaking to legislate, in derogation of the authority of Congress, and to encroach upon the reserved rights of the states and the people.<sup>31</sup>

The Black Lives Matter movement is viewed as a new civil rights call to action. It attempts to highlight the economic and social disparities of African-Americans throughout the nation.

States' rights have also become the siren call for environmental issues. For instance, Texas continually sues the EPA over clean air, clean water and climate change legislation. "Since President Obama took office in 2009, the state of Texas has sued his administration at least 48 times, according to a *Texas Tribune* analysis of state data – a point of pride for the state's Republican leaders."<sup>32</sup> Twenty-seven of those lawsuits involved environmental and climate change issues at a cost to taxpayers of \$1,816,271.74. Texas lost ten of those lawsuits at a cost of \$1,117,546.53.

Seven additional lawsuits fought legislation on immigration and social issues – deportation, women's health, same-sex couple benefits, resettlement of Syrian refugees, contraception coverage, transgender health and

transgender guidelines for school bathrooms.

States have also fought the federal government on Medicaid coverage – a federal program which pays for “medical care for the poor, the disabled, and many nursing home residents.”<sup>33</sup> Texas and eighteen other states have refused federal funds to expand Medicaid coverage.<sup>34</sup>

*The Guardian*: “#Black Lives Matter: the birth of a new civil rights movement.” <https://www.theguardian.com/world/2015/jul/19/blacklivesmatter-birth-civil-rights-movement>

*Texas Tribune*: “Texas vs the Feds– A Look at the Lawsuits” <https://www.texastribune.org/2017/01/17/texas-federal-government-lawsuits/>

*Dallas Morning News*: “Texas AG Ken Paxton suing EPA over air pollution rules intended to protect national parks” <http://www.dallasnews.com/news/news/2016/02/29/texas-ag-ken-paxton-suing-epa-over-air-pollution-rules-intended-to-protect-national-parks>

Scotus Blog: “Court holds that states have choice whether to join Medicaid expansion” <http://www.scotusblog.com/2012/06/court-holds-that-states-have-choice-whether-to-join-medicaid-expansion/>



## The New Deal

Discuss with: business management, economics, ethics, history, sociology

### The New Deal, 1933 p. 92

According to the textbook, President Hoover claimed that there was little the federal government could do to alleviate the suffering inflicted by the Great Depression, but local and state government funding was quickly depleted. Congressional action either failed to pass or was vetoed by President Hoover. But when Franklin D. Roosevelt took office in 1933, he “presided over the creation of several federal programs designed to provide future economic security for Americans” – the New Deal.<sup>35</sup>

Roosevelt’s programs provided a federal grants-in-aid funded social safety net that previously had been provided by states and local government through private charity monies, such as financial assistance to poor children for school lunches and Medicaid to “...provide states with grants to pay for medical care for the poor, the disabled, and many nursing home residents.”<sup>36</sup>

The New Deal programs were known as the three “Rs”; Roosevelt believed that together Relief, Reform, and Recovery could bring economic stability to the nation. Reform programs focused specifically on methods for ensuring that depressions like that in the 1930s would never affect the American public again. These programs, including the Securities and Exchange Commission, Federal Deposit Insurance Corporation, and Social Security Administration tended to focus on the management of money from the stock market and banking sector to the individual citizen.

In addition, the Federal Emergency Relief Act (FERA), the Civil Works Administration (CWA), and the Civilian Conservation Corps (CCC) provided immediate support in the form of cash payments and temporary employment. And, in doing so, helped to develop and repair the American transportation infrastructure, and literally construct the foundations of National Parks across the US.<sup>37</sup>

These programs provided the social and economic lift Americans needed to recover from the Great Depression and we still benefit, as a society, from Roosevelt’s actions. Unfortunately, these programs have become vulnerable under the 115th Congress as they consider legislation to roll back protections of the National Park system and funding of Medicaid under the Senate’s “Better Care Reconciliation Act of 2017” and the House’s “American Health Care Act.” Many economists and the Congressional Budget Office have pointed out that the Republican-led healthcare acts will reduce the federal deficit by \$119 billion over the next ten years, but also make health insurance too expensive for more than 20 million citizens while providing tax cuts to the rich.<sup>38</sup>

PBS American Experience: The Civilian Conservation Corps. Transcript.

<http://www.pbs.org/wgbh/americanexperience/films/ccc/#part01>

Digital Public Library of America: "America's Great Depression and Roosevelt's New Deal" <https://dp.la/exhibitions/exhibits/show/new-deal>

*The Guardian*: "Republican target environmental rules protecting parks and limiting methane" <https://www.theguardian.com/us-news/2017/feb/01/environment-republicans-congress-climate-methane-parks>

*The Atlantic*: "What's in the Senate Republican Health-Care Bill" <https://www.theatlantic.com/politics/archive/2017/06/whats-in-the-senate-republican-health-care-bill/531258/>



## Federalism and Redistributive Programs pp. 101–102

Federalism has evolved over the years as government seeks a balance between the states and federal government, evoking the question, "Who does what?" "One reason is that many decisions about federal-versus-state responsibility have implications for who benefits from government action."<sup>39</sup>

In regards to redistributive programs – designed to benefit the poor – states are often in charge although the funding flows from the federal government. Many economists believe that states should not be in charge of these programs since they compete against each other for businesses to boost their tax revenues and economies; "they do not have the incentive to spend their money on the needy people in their areas. Instead, they want to keep taxes low and spend money on things that promote economic development."<sup>40</sup>

With the major welfare reform passed in 1996, states were given block grants and more responsibility for programs that served their poor populations. The federal government said that "the states could act as 'laboratories of democracy' by experimenting with many different approaches in order to find those that best met the needs of their citizens."<sup>41</sup> Some states offered incentives for welfare recipients to accept low-wage jobs while others imposed strict limits on the length of time a citizen could receive welfare benefits. Welfare rolls declined dramatically, "yet most studies have found that the majority of those leaving welfare remain in poverty."<sup>42</sup>

In 2016, WNYC's radio show *On The Media* published a five-part series on the numerous narratives surrounding being poor in "Busted: America's Poverty Myths."

## Federalism

Discuss with: biology, business management, chemistry, criminal justice, economics, education, environmental science, ethics, health, history, nutrition, sociology

Today, more than 45 million Americans live in poverty. The problem has been addressed countless times since the nation's founding, but it persists, and for the poorest among us, it gets worse. America has not been able to find its way to a sustainable solution, because most of its citizens see the problem of poverty from a distance, through a distorted lens. So we present "Busted: America's Poverty Myths," a series exploring how our understanding of poverty is shaped not by facts, but by private presumptions, media narratives, and the tales of the American Dream.<sup>43</sup>

Listen to all five episodes here:

WNYC: "Busted: America's Poverty Myths" <http://www.wnyc.org/series/busted-americas-poverty-myths/> (No PDF)

In 2015, World Vision, a global Christian humanitarian organization, published a list of myths that fuel stereotypes about those who live in poverty in the United States. Discuss these few examples with students:

**Myth: Even if you're poor in the U.S. you're doing pretty well.**

The Reality: The U.S. ranks near the bottom of the world's wealthiest countries in how well it cares for its children in poverty. Out of 24 nations, the U.S. ranked between 19th and 23rd in critical areas of health, education, and material well-being. (UNICEF, 2010)

**Myth: No one goes hungry in America.**

The Reality: One in six Americans lives in a household that is "food insecure," meaning that in any given month, they will be out of money, out of food, and forced to miss meals or seek assistance to feed themselves. Nationally, more than 50 million Americans were food insecure in 2011 – a 39 percent increase from 2007. Among the hungry are nearly 17 million children. (U.S. Dept. of Agriculture, 2012)

**Myth: Few U.S. children are homeless**

The Reality: More than 1.6 million of the nation's children go to sleep without a home each year. Homeless children experience a lack of safety, comfort, privacy, reassuring routines, adequate health care, uninterrupted schooling, sustaining relationships, and a sense of community. These factors combine to create a life-altering experience that inflicts profound and lasting scars. (National Center on Family Homelessness, 2012)

**Myth: People who are poor are lazy.**

Fact: More than 10.5 million people in poverty formed the "working poor" in the U.S. in 2010, meaning they were in the

labor force for at least 27 weeks. (U.S. Department of Labor, Bureau of Labor Statistics, 2012)

**Myth: Those living in poverty just want to stay there.**

Fact: Millions of Americans move in and out of poverty over a lifetime. More than half the U.S. population will live in poverty at some point before age 65. (Urban Institute, 2010)<sup>44</sup>

Americans who live in poverty are faced with not only economic hardships, but also long-term health problems. According to an article in the *U.S. News & World Report*, "Poverty's harsh effects on health start before babies are born and pile up throughout their adult lives. With stressed-filled homes, shaky nutrition, toxic environments and health-care gaps of every kind, kids in very low-income families may never catch up when it comes to their health."<sup>45</sup>

In Richmond, California, residents are fighting for environmental equity in a town that is "ringed by five refineries, three chemical plants, eight Superfund sites and numerous other pollution sources," the article says. "In North Richmond, next to one of the nation's largest refineries, 97 percent of residents are non-white and nearly one in four live in poverty."<sup>46</sup>

Richmond is emblematic of a movement underway across the nation. Environmental justice is a growing effort to address a dangerous divide: Minority and low-income communities tend to encounter far greater environmental risks and far less protection than more affluent, white communities. Major forces behind this are racial segregation and discrimination, income gaps and social inequality, coupled with a politically powerless and naïve populace unable to advocate for itself.<sup>47</sup>



Families in poor neighborhoods are at a higher risk for a host of health problems that are perpetuated by their environment. (Photo credit: Getty Images)

*U.S. News & World Report*: "The Countless Ways Poverty Affects People's Health" <http://health.usnews.com/health-news/patient-advice/articles/2016-04-20/the-countless-ways-poverty-affects-peoples-health> (No PDF)

*Scientific American*: "Pollution, Poverty and People of Color: Can Multiculturalism Create Environmental Justice?" <https://www.scientificamerican.com/article/can-multiculturalism-create-environmental-justice/#>

Frontline: Dallas – "Poverty, Politics and Profit"

Video: <http://www.pbs.org/wgbh/frontline/film/poverty-politics-and-profit/>

Transcript: <http://www.pbs.org/wgbh/frontline/film/poverty-politics-and-profit/transcript/>

Global Development and Environment Institute, Tufts University: "Envi-

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ronmental Justice: Income, Race, and Health” [http://www.ase.tufts.edu/gdae/education\\_materials/modules/Environmental\\_Justice.pdf](http://www.ase.tufts.edu/gdae/education_materials/modules/Environmental_Justice.pdf)

WNYC: “Busted: America’s Poverty Myths” <http://www.wnyc.org/series/busted-americas-poverty-myths/> (No PDF)



## Second Amendment

Discuss with: criminal justice, economics, education, ethics, health, history, sociology

### Second Amendment and the Right to Bear Arms p. 134

“The point and purpose of the Second Amendment is the provision for militias; they were to be the backing of the government for the maintenance of local public order. ‘Militia’ was understood at the time of the Founding to be a military or police resource for state government, and militias were specifically distinguished from armies and troops, which came within the sole constitutional jurisdiction of Congress.”<sup>48</sup>

This is such a hot issue for discussion, so please consider the effects of guns on increases in violence, communities, well-being of citizens, and peace. Also consider the profiteering by gun manufacturers who are not held responsible for how their products are used. Another aspect for consideration is the fear-mongering by politicians who use the “keep America safe” mantra to drive gun sales and for political gain. Gun violence is a global sustainability issue.

The results of a joint study conducted by the University of Groningen and the University of Maryland were published on Thursday [June 8, 2017] in the Personality and Social Psychology Bulletin. For the first time, researchers have developed a psychological process model for defensive gun ownership, which considers both the reasoning and the consequences of owning a gun for protection and self-defense. Researchers found the motivation to own a handgun was about fear of crime but also about a more general sense of threat from *‘the belief that the world is an unpredictable and dangerous place and that society is at the brink of collapse.’*<sup>49</sup> [emphasis added]

Two groups have bore the brunt of the fear-mongering diatribes: illegal immigrants and refugees. Here are three articles that refute that notion:

CNN: “The chances of a refugee killing you and other surprising immigration statistics” <http://www.cnn.com/2017/01/30/politics/immigration->

[stats-by-the-numbers-trnd/index.html](http://stats-by-the-numbers-trnd/index.html)

Pew Research Center: "5 facts about illegal immigration in the U.S." <http://www.pewresearch.org/fact-tank/2017/04/27/5-facts-about-illegal-immigration-in-the-u-s/>

*The Economist*: "Not here to cause trouble" <http://www.economist.com/blogs/democracyinamerica/2015/07/immigration-and-crime>

CNN: "Who commits mass shootings?" <http://www.cnn.com/2015/06/27/us/mass-shootings/index.html>

*Mother Jones*: "A Guide to Mass Shootings in America"  
Article: <http://www.motherjones.com/politics/2012/07/mass-shootings-map/> (No PDF)

Dataset 1982–2017: <http://www.motherjones.com/politics/2012/12/mass-shootings-mother-jones-full-data/>

*Newsweek*: "How gun violence literally infects communities" <http://www.newsweek.com/2017/02/17/gun-violence-disease-gone-viral-553214.html>

NPR: "Does Carrying a Pistol Make You Safer?" <http://www.npr.org/2016/04/12/473391286/does-carrying-a-pistol-make-you-safer>

BusinessTech: "South Africa is the second worst country in the world for gun deaths" <https://businesstech.co.za/news/government/91284/south-africa-is-the-second-worst-country-for-gun-deaths-in-the-world/>

*The Guardian*: "'Africa's arms dump': following the trail of bullets in the Sudans" <https://www.theguardian.com/world/2014/oct/02/-sp-africa-arms-dump-south-sudan>



## Civil Rights: Plessy v Ferguson

Discuss with: criminal justice, economics, education, ethics, history, sociology

### Civil Rights: Plessy v Ferguson 1896 p. 163

In *Plessy v Ferguson*, the Supreme Court upheld Louisiana's "separate but equal" statute that *required* segregation in all public facilities, such as transportation and schools. [emphasis in textbook] This law was the law of the land until *Brown v Board of Education* in 1953 that overturned the "separate but equal" clause. However, the ruling was not well-received. Some states paid the tuition costs for white students to attend hastily created "private" schools. More importantly, the *Brown* decision did not address "discrimination in employment, public accommodations, juries, voting and other areas of social and economic activity."<sup>50</sup>

But the fact is, separation still exists throughout the United States, for both African-Americans and new immigrants to the U.S. One example is an "international" school in Maryland where new immigrants attend a high school within a high school, where they are separated from the general student population; lunches, classes and sports clubs are all separate. Research shows, however, that students in schools with diverse populations have more opportunities to learn from, and develop friendships with, students from other backgrounds. It gives them more of a global perspective.

There is also Civil Rights Project at UCLA that has found "strong connections between poverty and segregation, with blacks and Latinos representing more than half of children in schools with the most poverty, and just 11 percent of students in the least impoverished schools," according to an examination of the UCLA report by PBS' *Frontline*. "In many respects, the schools serving white and Asian students and those serving black and Latino students represent two different worlds," say the researchers.<sup>51</sup>

Most tellingly, the UCLA research shows that integration increases minority students' chances of graduating instead of dropping out, increases their chances of earning higher wages and reduces the instances of experiencing poverty.<sup>52</sup>

But roadblocks remain, mostly formed by misinformation and fear. When the Francis Howell School district was in the process of integrating students from a predominantly black school, the public meeting did not go well. One parent took the microphone in the crowded gymnasium and said, "Is [sic] there going to be metal detectors? I'm no expert, but we aren't talking about the Normandy School district losing accreditation because of their buildings, their structures, or their teachers," Beth Cirami, a Francis Howell parent, said. "We are talking about violent behavior that is (going to be) coming in with my first grader."<sup>53</sup>

Cornell Law School: *Plessy v. Ferguson* <https://www.law.cornell.edu/supremecourt/text/163/537>

Cornell Law School: Brown v. Board of Education <https://www.law.cornell.edu/supremecourt/text/347/483>

PRI: "Separate but equal? A school within a school for immigrant students brings help – and controversy" <https://www.pri.org/stories/2016-05-18/separate-equal-school-within-school-immigrant-students-brings-help-and>

PBS Frontline: "Separate and Unequal"

Film: <http://www.pbs.org/wgbh/frontline/film/separate-and-unequal/>

Transcript: <http://www.pbs.org/wgbh/frontline/film/separate-and-unequal/transcript/>

PBS Frontline: "The Return of School Segregation in Eight Charts" <http://www.pbs.org/wgbh/frontline/article/the-return-of-school-segregation-in-eight-charts/>

This American Life: "The Case for School Desegregation Today" <https://www.thisamericanlife.org/page/the-case-for-school-desegregation-today-2016-peabody-award-winner>

NPR All Things Considered: "Francis Howell Parents Express Outrage Over Incoming Normandy Students" <http://news.stlpublicradio.org/post/francis-howell-parents-express-outrage-over-incoming-normandy-students#stream/0>



## Civil Rights: Women's rights, gender

Discuss with: business management, criminal justice, economics, education, ethics, history, sociology

### Extending Civil Rights

#### Women's rights, gender discrimination p. 180

Women also had to fight for equal rights under the law. The Equal Pay Act of 1963, for instance, "prohibits sex-based wage discrimination between men and women in the same establishment who perform jobs that require substantially equal skill, effort and responsibility under similar working conditions."<sup>54</sup> However, more than fifty years later, the pay gap still exists. According to *Fortune* magazine, "women make an average of 82 cents for every dollar a man earns, according to federal data, compared to 54 cents prior to the Equal Pay Act in 1963."<sup>55</sup> Three of the biggest reasons are 1) the penalty women face for becoming mothers: they are often perceived to have lower competence and commitment, among other things; 2) women's lack of negotiating skills: women are less likely to negotiate their salary; and 3) the bias women face from employers: an undervaluation of the work a woman does.

In 2007, the Supreme Court ruled for Goodyear Tire & Rubber Co. in a pay disparity suit filed by Lilly Ledbetter, a 19-year employee. In 1998, she filed a complaint with the Equal Employment Opportunity Commission (EEOC) that led to a legal battle that made its way to the Supreme Court in 2006. However, in 2007, the Court argued that under Title VII's limitations period of 180 days, her claim was invalid. The White House's website noted that, "Not only did the decision allow pay discrimination to continue, it encouraged employers to benefit from it. With each discriminatorily reduced check, employers continued to earn financial benefits from discrimination."<sup>56</sup> Congress took up the matter and in January 2009, President Obama signed his first law, the Lilly Ledbetter Fair Pay Act, which overturned the Supreme Court's decision and contains a provision to recoup wages retroactively.

It took the *Franklin v Gwinnett County Public Schools* ruling in 1992, that said violators of Title IX of the 1972 Education Act would have to pay monetary damages for disparities in education, to get schools to comply with the twenty-year-old legislation. It took the threat of lawsuits with financial payouts to pay more attention to sexual harassment and disparities in women's athletic programs. However, there are still disparities in the STEM fields and in how sexual harassment claims are handled.

For instance, a *U.S. News & World Report* article notes that "studies have found systemic biases against women in STEM including hiring decisions for lab positions, selection for mathematical tasks, evaluation of research abstracts for conferences, research citations, invitations to speak at symposia, postdoctoral employment and tenure decisions." To make matter worse, the research isn't being taken seriously by those who need to read it the most. "Male STEM faculty are less likely to believe such research" and they make up 71 percent of STEM faculty, on average.<sup>57</sup>

Despite women making strides in the workplace, sexual harassment is still prevalent throughout society. In Waco, Texas, Baylor University has recently been under fire for allegedly looking the other way, and even covering up, when football players were accused of sexual assault and rape. But Baylor students came to the aid of one student, Natasha Nkhama, who reported to administrators that during demonstrations for and against the election of President Trump, another student had pushed her off the sidewalk and called her the n-word. The next day, as word spread through social media about how Nkhama was harassed, more than 300 students, and interim President David Garland, walked her to class in solidarity.

*The New York Times*: "Pay Disparity in U.S. Soccer? It's Complicated." <https://www.nytimes.com/2016/04/22/sports/soccer/usmnt-uswnt-soccer-equal-pay.html>

*The Guardian*: "Walmart shareholders will not get to vote on gender pay gap proposal" <https://www.theguardian.com/business/2015/apr/23/walmart-strikes-shareholders-gender-pay-gap-proposal-proxy-vote>

Cornell University Law School: "Ledbetter v Goodyear Tire & Rubber Co, Inc." <https://www.law.cornell.edu/supct/html/05-1074.ZS.html>

EEOC: Equal Pay Act of 1963 and Lilly Ledbetter Fair Pay Act of 2009 [https://www.eeoc.gov/eeoc/publications/brochure-equal\\_pay\\_and\\_ledbetter\\_act.cfm](https://www.eeoc.gov/eeoc/publications/brochure-equal_pay_and_ledbetter_act.cfm)

*Harvard Business Review*: "The 5 Biases Pushing Women Out of STEM" <https://hbr.org/2015/03/the-5-biases-pushing-women-out-of-stem>

*The New York Times*: "The Rise, Then Shame, of Baylor Nation" <https://www.nytimes.com/2017/03/09/sports/baylor-football-sexual-assault.html>

*Waco Tribune-Herald*: "Hundreds walk Baylor student to class after racial attack reported" [http://www.wacotrib.com/news/higher\\_education/hundreds-walk-baylor-student-to-class-after-racial-attack-reported/article\\_fc-c14f86-2a77-5827-8c1e-d3577bf94ee8.html](http://www.wacotrib.com/news/higher_education/hundreds-walk-baylor-student-to-class-after-racial-attack-reported/article_fc-c14f86-2a77-5827-8c1e-d3577bf94ee8.html)



# Government

## Civil Rights: Other groups

Discuss with: business management, economics, education, ethics, history, nutrition, sociology

### Civil rights for Latinos, Asian-Americans, Undocumented Citizens, Native Americans, Disabled Americans, LGBTQ, Poor pp. 184–195

The civil rights of these groups of Americans have suffered a downturn since the 2016 presidential election and thousands of books will be written about this time in our history. The disparities are numerous and changing every day. It's almost impossible to keep up with the daily changing dynamics in increased ICE deportations, reminders of Asian exclusion legislation and forced internment, oil pipelines across Native American land, decreased funding of Medicaid, increases in discriminatory legislation against LGBTQ citizens thinly disguised as "religious freedom" and decreased funding of school lunch and food stamp programs.

CNN: "Immigration arrests rise in first months of Trump administration" <http://www.cnn.com/2017/04/17/politics/immigration-arrests-rise/index.html>

ABC News: "'A Cloak for Discrimination:' Trump order reminds Asian-Americans of laws against them" <http://abcnews.go.com/Politics/cloak-discrimination-trump-order-reminds-asian-americans-laws/story?id=45243415> (No PDF)

PBS Newshour: "How will Native tribes fight the Dakota Access Pipeline in court?" <http://www.pbs.org/newshour/rundown/will-native-tribes-fight-dakota-access-pipeline-court/>

CNN: "Why the onslaught of religious freedom laws?" <http://www.cnn.com/2016/04/06/us/religious-freedom-laws-why-now/index.html>

NPR: "Medicaid Cuts in Wisconsin Would Undermine Training for Adults with Disabilities" <http://www.npr.org/sections/health-shots/2017/06/14/531928586/medicaid-cuts-in-wisconsin-would-undermine-training-for-adults-with-disabilities>

PBS Newshour: "House bill would scale back number of free school meals" <http://www.pbs.org/newshour/rundown/fewer-kids-could-receive-free-school-meals-under-house-bill/>

Time: "Trump Budget Proposals Will Include Deep Cuts to Food Stamp Programs" <http://time.com/4787733/trump-budget-cuts-food-stamps/>



## Economic Inequality p. 207

“One striking characteristic of contemporary America is economic inequality. Economic inequality in the United States is increasing; by some measures, it is the highest it has been since 1928. Political scientist Larry Bartels has shown that the gap between the super-rich and everyone else has increased since the mid-1980s and continues to grow. Between 1993 and 2012, the income of the top 1 percent of Americans grew 86 percent, while the income of the other 99 percent grew less than 7 percent. The median household income of Americans has remained about the same for nearly a decade. Meanwhile, Americans in the upper fifth of the income distribution now earn nearly 17 times as much as those in the lowest fifth. The United States has some of the highest income inequality in the world.”<sup>58</sup>

According to an Economic Policy Institute study in 2016, “In 24 states, the top 1 percent captured at least half of all income growth between 2009 and 2013, and in 15 of those states, the top 1 percent captured *all* income growth.”<sup>59</sup> [emphasis added]

The International Monetary Fund (IMF) published a report “Causes and Consequence of Income Inequality: A Global Perspective” in which they stated that globally,

Equality, like fairness, is an important value in most societies. Irrespective of ideology, culture, and religion, people care about inequality. Inequality can be a signal of lack of income mobility and opportunity – a reflection of persistent disadvantage for particular segments of the society. Widening inequality also has significant implications for growth and macroeconomic stability, it can concentrate political and decision making power in the hands of a few, lead to a suboptimal use of human resources, cause investment-reducing political and economic instability, and raise crisis risk. The economic and social fallout from the global financial crisis and the resultant headwinds to global growth and employment have heightened the attention to rising income inequality.<sup>60</sup>

Occupy Wall Street – a grassroots movement launched on September 17, 2011 on Wall Street, New York – can claim changing the national conversation as its chief accomplishment by igniting “a national and global movement calling out the ruling class of elites by connecting the dots between corporate and political power.”<sup>61</sup>

Census.gov: “Income Inequality” <https://www.census.gov/topics/income-poverty/income-inequality.html>

## Economic Inequality

Discuss with: business management, economics, education, ethics, history, sociology

# Government

Economic Policy Institute: "Income inequality in the U.S. by state, metropolitan area, and county" <http://www.epi.org/publication/income-inequality-in-the-us/>

International Monetary Fund: "Causes and Consequences of Income Inequality: A Global Perspective" <https://www.imf.org/external/pubs/ft/sdn/2015/sdn1513.pdf>

*Scientific American*: "Poverty Disturbs Children's Brain Development and Academic Performance" <https://www.scientificamerican.com/article/poverty-disturbs-children-s-brain-development-and-academic-performance/>

*The Atlantic*: "The Triumph of Occupy Wall Street" <https://www.theatlantic.com/politics/archive/2015/06/the-triumph-of-occupy-wall-street/395408/>



## Economy & the Environment p. 239

In the Trump administration, business interests have the upper hand over environmental issues. We are currently seeing this play out as the EPA replaces scientists with representatives of the industries the EPA is meant to oversee and reversed the ban on a pesticide after meeting with the CEO of Dow Chemical. Dow manufactures the widely-used pesticide chlorpyrifos and the EPA has pushed to ban it "after health studies showed it can harm children's brains."<sup>62</sup>

It was most visible in the decision to pull the United States out of the Paris Climate Accord on June 1, 2017, to the consternation of global leaders, climate scientists and many U.S. citizens.

However, it is possible to be an environmentally-conscious and sustainable company and still make a profit. Just ask the CEOs of some of the largest corporations in the U.S., like Nike, Apple, Google, Facebook, Target, Microsoft, Nestlé, and hundreds more. You can view their Global Reporting Initiative (GRI) sustainability reports at [database.globalreporting.org](http://database.globalreporting.org) or go to the web articles for Government folder.

In response, more than 1,200 mayors and leaders of companies, colleges and universities have signed on to the "We Are Still In" letter, promising to continue to work toward the targets prescribed in the Paris Accord.

*The Guardian*: "EPA removes half of scientific board, seeking industry-aligned replacements" <https://www.theguardian.com/us-news/2017/may/08/epa-board-scientific-scott-pruitt-climate-change>

ABC News: "Correction: EPA-Dow Chemical story" <http://abcnews.go.com/Politics/wireStory/correction-epa-dow-chemical-story-48383854> (No PDF)

BBC: "Paris climate deal: Trump pulls US out of 2015 accord" <http://www.bbc.com/news/world-us-canada-40127326>

NPR: "Mayors, Companies Vow to Act on Climate, Even as U.S. Leaves Paris Accord" <http://www.npr.org/sections/the-wo-way/2017/06/05/531603731/mayors-companies-vow-to-act-on-climate-even-as-u-s-leaves-paris-accord>

## Economy & the Environment

Discuss with: biology, business management, chemistry, economics, education, environmental science, ethics, health, history, sociology



## Media

Discuss with: economics, education, ethics, history, sociology

### Media p. 261

According to the American Press Institute, "The purpose of journalism is thus to provide citizens with the information they need to make the best possible decisions about their lives, their communities, their societies, and their governments."<sup>63</sup> But this has been upended by the proliferation of online media whose credentials are questionable.

The textbook states that "Television news reaches more Americans than any other single news source."<sup>64</sup> But news programming covers relatively few topics and does not provide in-depth reporting; it's a series of sound bites. Even the 24-hour cable news outlets replay the same sound bites throughout the day. Print and online media (from reputable sources) provide more information and better analysis.

To be truly informed about the issues it's important to avoid the outlets that slant to the extreme political spectrum, on both sides. "A number of conservative radio hosts, such as Rush Limbaugh and Sean Hannity, have huge audiences and have helped to mobilize support for conservative political causes and candidates."<sup>65</sup>

Why is this harmful to political dialogue? A relative newcomer to the ultra-conservative platform, Alex Jones of "Infowars" "repeatedly suggested that presidential candidate Hillary Clinton was involved in a child sex ring and that her campaign chairman, John Podesta, indulged in satanic rituals." In a YouTube video on November 4, 2016, Jones says, "When I think about all the children Hillary Clinton has personally murdered and chopped up and raped, I have zero fear standing up against her. Yeah, you heard me right. Hillary Clinton has personally murdered children. I just can't hold back the truth anymore."<sup>66</sup> He even named a real pizza restaurant in Washington, D.C. as the location of the tunnels where Clinton was carrying out these false atrocities.

What happened next is why this is dangerous. A listener, Edgar Welch, took Jones seriously, grabbed his assault-style rifle and drove from North Carolina to the neighborhood pizza place. He stormed in, weapon drawn and searched the restaurant, terrifying customers and workers.

On December 6, *The Washington Post* wrote, "The story of Pizzagate is about what is fake and what is real. It's a tale of a scandal that never was, and of a fear that has spread through channels that did not even exist until recently.

Pizzagate – the belief that code words and satanic symbols point to a sordid underground along an ordinary retail strip in the nation's capital – is possible only because science has produced the most powerful tools ever invented to find and disseminate information.

What brought Welch to the District on a crisp Sunday afternoon in early December was a choking mix of rumor, political nastiness, technological change and the intoxicating thrill that can come from running down a mystery.<sup>67</sup>

Knowing that your media source is unbiased, objective and truthful is vital to not only having access to the truth, it is vital to the political process. The truth educates the electorate, whereas lies disguised as truth taint journalism and the political process.

Most recently, President Trump calls media outlets that he perceives as giving him unfair coverage or covering news that he prefers to ignore “fake news.” Less than one month after taking the oath of office, the president tweeted that the nation’s news media “is the enemy of the American people” and listed five of the most reliable media outlets in the country. His supporters who take him literally will turn to the very news sources that will reaffirm what they believe instead of providing the unbiased truth. You only have to look as far as counselor to the president, Kellyanne Conway’s pronouncement of “alternative facts” when being interviewed by NBC’s Chuck Todd on “Meet the Press” on January 23, 2017.<sup>68</sup>

This is why the media is a sustainability issue; it provides the information necessary to make informed decisions as a citizen of your city, state and nation. Civic involvement is necessary for selecting school boards, city councils, and state and federal representatives. It’s also necessary for telling your representatives whether you want to pay for a new public library, raise taxes to build a new school, voice concerns about potholes and garbage collection, and elect new representatives when they don’t do what you elected them to do or re-elect those who do.

The people we elect to hold public office make decisions that affect our daily lives. They make sure that the tap water you drink and cook with is safe, raise or lower your taxes, decide if a new supermarket or apartment complex will be built down the street and what it will look like, make laws that monitor air quality and food safety, send food aid to countries in need and send troops to war. It’s important that citizens have accurate and truthful information to decide where to buy a house, send our kids to school, and elect our public officials.

*The Washington Post*: “Pizzagate: From rumor, to hashtag, to gunfire in D.C.” [https://www.washingtonpost.com/local/pizzagate-from-rumor-to-hashtag-to-gunfire-in-dc/2016/12/06/4c7def50-bbd4-11e6-94ac-3d324840106c\\_story.html](https://www.washingtonpost.com/local/pizzagate-from-rumor-to-hashtag-to-gunfire-in-dc/2016/12/06/4c7def50-bbd4-11e6-94ac-3d324840106c_story.html)

Business Insider: “Here’s How Liberal or Conservative Major News Sources Really Are” <http://www.businessinsider.com/what-your-preferred-news-outlet-says-about-your-political-ideology-2014-10>

*The New York Times*: "Trump Calls the News Media the 'Enemy of the American People'" <https://www.nytimes.com/2017/02/17/business/trump-calls-the-news-media-the-enemy-of-the-people.html>



## Mass Media Ownership

Discuss with: business management, economics, ethics, history, marketing, sociology

### Mass Media Ownership p. 264

"In their 'watchdog' role, the channels of the news media can function to promote government transparency, accountability, and public scrutiny of decision-makers in power, by highlighting policy failures, maladministration by public officials, corruption in the judiciary, and scandals in the corporate sector. Since Edmund Burke, the 'fourth estate' has traditionally been regarded as one of the classic checks and balances in the division of powers. Investigative journalism can open the government's record to external scrutiny and critical evaluation, and hold authorities accountable for their actions, whether public sector institutions, non-profit organizations, or private companies."<sup>69</sup>

But mass media ownership can make finding unbiased, objective reporting difficult. Although the U.S. "boasts approximately 1,400 daily newspapers, 2,000 television stations and more than 13,000 radio stations,"<sup>70</sup> they are owned by sixteen strong institutions. For instance, Texas-based Clear Channel Communications owns 850 radio stations. "These developments have prompted questions about whether enough competition exists among the media to produce a truly diverse set of views on political and corporate matters, or even whether the United States has become a prisoner of media monopolies."<sup>71</sup>

On July 2, 2017, John Oliver, host of "Last Week Tonight," aired a segment on "the most influential media company you've never heard of," Sinclair Broadcast Group. Sinclair owns the largest number of local TV stations in the country and they often "inject [right-wing] political views into local news."<sup>72</sup> Watch the episode on YouTube.

Since November 2015, Sinclair has ordered its stations to run a daily segment from a "Terrorism Alert Desk" with updates on terrorism-related news around the world. During the election campaign last year, it sent out a package that suggested in part that voters should not support Hillary Clinton because the Democratic Party was historically pro-slavery. More recently, Sinclair asked stations to run a short segment in which Scott Livingston, the company's vice president for news, accused the national news media of publishing "fake news stories."<sup>73</sup>

Last Week Tonight: "Local News" <https://www.youtube.com/watch?v=Gvt-NyOzGogc>

*The New York Times*: "Sinclair Requires TV Stations to Air Segments that Tilt to the Right" <https://www.nytimes.com/2017/05/12/business/media/sinclair-broadcast-komo-conservative-media.html>

Ohio University: The Institute for Applied & Professional Ethics: "The Ethical Implications of Monopoly Media Ownership" <https://www.ohio.edu/ethics/2001-conferences/the-ethical-implications-of-monopoly-media-ownership/index.html>

NPR: "Big Media Companies and Their Many Brands – In One Chart" <http://www.npr.org/sections/alltechconsidered/2016/10/28/499495517/big-media-companies-and-their-many-brands-in-one-chart> (No PDF)



## Citizen Journalism p. 170

Whereas the traditional media system is dominated by professional journalists, the digital age has democratized the landscape and made everyone with a computer or cell phone a citizen journalist. "Citizen journalism includes news reporting and political commentary by ordinary citizens, and even crisis coverage from eyewitnesses on the scene."<sup>74</sup> From an Occupy Wall Street protest at the University of California-Davis in November 2011, a citizen shared a video of a campus police officer pepper-spraying demonstrators peacefully seated on the ground. In the video, protestors chant, "The whole world is watching." It was. Watch the video at <https://www.youtube.com/watch?v=6AdDLhPwpp4>

An important aspect of digital media is its permanence. Videos, photos, stories posted to the internet are not easily deleted as they are globally shared. Yet the chancellor of UC-Davis paid consultants "at least \$175,000 to remove negative online postings in the wake of the 2011 pepper spray incident."<sup>75</sup> She resigned in 2016 after a lengthy investigation.

On the other side of the world, another story was being told by citizen journalists, the protests that turned into the "Arab Spring." Touched off by videos of protests after a young man in Tunisia who self-immolated in front of a government building in 2010, the uprisings led to the downfalls of leaders in Tunisia, Libya, Egypt, and Yemen.

Yet the defining images of the protests in those countries aren't the ones taken by professional media, it's...

## Citizen Journalism

Discuss with: computer science, criminal justice, ethics, history, sociology

...a young woman or a young man with a smartphone. She's in the Medina in Tunis with a BlackBerry held aloft, taking a picture of a demonstration outside the prime minister's house. He is an angry Egyptian doctor in an aid station stooping to capture the image of a man with a head injury from missiles thrown by Mubarak's supporters. Or it is a Libyan in Benghazi running with his phone switched to a jerky video mode, surprised when the youth in front of him is shot through the head.<sup>76</sup>

According to a study by the United States Institute of Peace, social media was not "a causal mechanism in the uprising. Instead, the study suggests that the importance of social media was in communicating to the rest of the world what was happening on the ground during the uprisings. 'New [or social] media outlets that use bit.ly links are more likely to spread information outside of the region than inside it, acting like a megaphone more than a rallying cry.'"<sup>77</sup>

Currently, photos, videos and social media are playing a major role in the nationwide conversation on police violence. "It's something about video that transforms an event," says NPR reporter David Folkenflik.<sup>78</sup> The conversation, and use of social media, are ongoing. Another ongoing issue is the Syrian civil war, where a citizen journalist initiative Raqqa Is Being Slaughtered Silently, or RBSS, "secretly records the atrocities committed by ISIS in Raqqa"<sup>79</sup> and works to get images and information about the war out to the world. A documentary about their work, *City of Ghosts*, was released on July 7, 2017. Watch the trailer here: <http://www.cityofghosts.com/>

*Washington Post*: "'Occupy Wall Street' UC Davis protests escalate after pepper spray use sparks anger" [https://www.washingtonpost.com/national/occupy-wall-street-uc-davis-protests-escalate-after-pepper-spray-use-sparks-anger/2011/11/21/gI0AN0r2iN\\_story.html](https://www.washingtonpost.com/national/occupy-wall-street-uc-davis-protests-escalate-after-pepper-spray-use-sparks-anger/2011/11/21/gI0AN0r2iN_story.html)

CBS News: "UC Davis' pepper-spray PR appears to backfire badly" <http://www.cbsnews.com/news/student-group-wants-uc-davis-chancellor-to-quit-over-pepper-spray-pr/>

*The New York Times*: "U.C. Davis Chancellor Resigns Under Fire" <https://www.nytimes.com/2016/08/10/us/embattled-university-of-california-davis-chancellor-resigns.html>

NPR: "The Arab Spring: A Year of Revolution" <http://www.npr.org/2011/12/17/143897126/the-arab-spring-a-year-of-revolution>

*The Guardian*: "The truth about Twitter, Facebook and the uprisings in the Arab world" <https://www.theguardian.com/world/2011/feb/25/twitter-facebook-uprisings-arab-libya>

Pew Research Center: "The Role of Social Media in the Arab Uprisings"  
<http://www.journalism.org/2012/11/28/role-social-media-arab-uprisings/>

United States Institute of Peace: Arab American Media Report [http://www.journalism.org/files/legacy/Arab American Media Report.pdf](http://www.journalism.org/files/legacy/Arab%20American%20Media%20Report.pdf)

UW Today: "New study quantifies use of social media in Arab Spring"  
<http://www.washington.edu/news/2011/09/12/new-study-quantifies-use-of-social-media-in-arab-spring/>

PBS Newshour: "Social media plays major role in national debate on police violence"  
<http://www.pbs.org/newshour/bb/social-media-plays-major-role-national-debate-police-brutality/>

CBS News: "How the Dallas protest shooting unfolded on social media"  
<http://www.cbsnews.com/news/how-the-dallas-protest-shooting-unfolded-on-social-media/>

Wired: "Citizen journalism is playing a crucial role in Aleppo – but it comes at a cost"  
<http://www.wired.co.uk/article/syrian-citizen-journalists>

Documentary trailer: *City of Ghosts* <http://www.cityofghosts.com/>

CBS Face the Nation: "Documentary looks at citizen journalists' efforts to cover war in Syria"  
<http://www.cbsnews.com/news/city-of-ghosts-documentary-citizen-journalists-document-war-in-syria/>



## Political Participation

Discuss with: economics, education, ethics, history, sociology

### Political Participation and Voting p. 310

(See also Digital Divide and Media discussions)

The textbook states that, "A barrier to participation in politics online then is the digital divide – defined as those without high-speed home or mobile access. Those on the wrong side of the divide tend to be poorer, lower educated, African American and Latino, and older. This creates new inequalities as the world of politics moves online."<sup>80</sup> This disenfranchises an estimated 20 percent of the population, according to numbers from 2014, from participating in the political process. And that's voter suppression as more politicians move their campaigns to the digital domain.

Surveys have found that people who participate in the political process tend to have a higher socioeconomic status. The single most important factor: education. It's a factor in both whether someone votes and if they participate in other matters. The second most important factor is income, since it affects the ability to financially contribute to a campaign. And since the Supreme Court's Citizens United ruling in 2010, money plays a dark role in political campaigns.

An analysis of the ruling, by *U.S. News and World Report*, and its effects on politics five years later are telling:

The result has been a deluge of cash poured into so-called super PACs – particularly single-candidate PACs, or political action committees – which are only nominally independent from the candidates they support. What's more, the legal protections for corporations mean much of this spending, known as 'dark money,' never has to be publicly disclosed.<sup>81</sup>

The analysis also shows how those with the financial means to contribute could sway an election:

Of the \$1 billion spent in federal elections by super PACs since 2010, nearly 60 percent of the money came from just 195 individuals and their spouses, according to the Brennan Center report. Thanks to Citizens United, supporters can make the maximum \$5,200 donation directly to a candidate, then make unlimited contributions to single-candidate super PACs.

Campaign reform advocates say the amount of money spent is not inherently a problem; rather, it's the fact that a tiny number of extraordinarily wealthy individuals are bankrolling the majority of that spending.

'We have folks that are essentially using million-dollar megaphones to drown out the voices of ordinary citizens,' says Adam Lioz, a senior adviser at the liberal policy group Demos. 'These

millionaires are kingmakers in our democracy.<sup>182</sup>

The latest salvo in reducing the voices of poor and minority voters is the use of Voter ID laws. (See discussion on Voting Rights.)

*U.S. News & World Report*: “How Citizens United Has Changed Politics in 5 Years” <https://www.usnews.com/news/articles/2015/01/21/5-years-later-citizens-united-has-remade-us-politics>

*The Atlantic*: “Why Are the Poor and Minorities Less Likely to Vote?” <https://www.theatlantic.com/politics/archive/2014/01/why-are-the-poor-and-minorities-less-likely-to-vote/282896/>

*The Guardian*: “Poor Americans are less likely to vote and more likely to distrust government, study shows” <https://www.theguardian.com/money/us-money-blog/2015/jan/09/poor-americans-are-less-likely-to-vote-and-more-likely-to-distrust-government-study-shows>

*The New York Times*: “How States Moved Toward Stricter Voter ID Laws” <https://www.nytimes.com/interactive/2016/11/03/us/elections/how-states-moved-toward-stricter-voter-id-laws.html> (No PDF)

*The Atlantic*: “How Voter ID Laws Discriminate” <https://www.theatlantic.com/politics/archive/2017/02/how-voter-id-laws-discriminate-study/517218/>

*The Washington Post*: “Do voter identification laws suppress minority voting? Yes. We did the research” <https://www.washingtonpost.com/news/monkey-cage/wp/2017/02/15/do-voter-identification-laws-suppress-minority-voting-yes-we-did-the-research>



## Groups & Interests

Discuss with: business management, economics, ethics, history, marketing, sociology

### Groups and Interests p. 433

"The number of interest groups in the United States is enormous, and millions of Americans are members of one or more groups...[but] not all interests are represented equally, interest group politics works to the advantage of some and the disadvantage of others, and not all organized interests are successful."<sup>83</sup>

However, the homeless and the poor are two groups that are neither organized nor able to successfully make demands of their representatives. (See Political Participation and Voting Rights discussions.) Again, we are faced with the reality of money in the political process through both group membership and the influence of special interests. "The flaw in the pluralist heaven is that the heavenly chorus sings with a strong upper-class accent,"<sup>84</sup> said E. E. Schattschneider, government professor and author of the controversial book, *Party Government* (1942).

"But the fact remains that many widely shared interests are not represented by organized groups. Two such 'potential' groups are the homeless and the poor. Both groups have shared interests in policy outcomes, such as job programs and affordable housing. But the groups lack organization through which to press these concerns."<sup>85</sup>

Interest groups are represented by lobbyists who try to influence policy in the government to their group's line of thinking. The fossil fuel industry, for instance, spends millions of dollars annually "to convince people that burning fossil fuels is completely safe and has no impact on the global climate."<sup>86</sup> According to the UK nonprofit [InfluenceMap.org](http://InfluenceMap.org), fossil fuel companies and interest groups spend \$114 million each year on lobbying, advertising, supporting oil sector trade associations and direct political contributions.

The non-profit, nonpartisan research group Center for Responsive Politics maintains a public online database that tracks special interest influence by following the money. In 2016, the average contributions to Members of Congress from the oil and gas industry are: House of Representatives = \$60,000; Senate = \$155,000. In 2015-2016, Ted Cruz received the most contributions, totaling \$1,457,628; Donald Trump came in second at \$916,123. The total contributions in the 2016 election cycle, to both Republicans and Democrats, was \$103,106,494.<sup>87</sup> The poor and the homeless populations of the United States simply cannot compete with that kind of money, and influence.

CleanTechnica: "Nonprofit maps corporate fossil fuel lobbying efforts." <https://cleantechnica.com/2016/05/10/nonprofit-maps-corporate-fossil-fuel-lobbying-efforts/>

OpenSecrets.org: Oil & Gas <https://www.opensecrets.org/industries/industry.php?ind=E01>

W: "Critics say Abbott catering to donors with special session priorities" <https://www.texastribune.org/2017/07/14/gov-abbott-received-107-million-construction-and-developers-report-sho/>

Palgrave Journals, Published Research: "Interest group influence on US policy change: An assessment based on policy history" <https://link.springer.com/content/pdf/10.1057%2Figa.2012.9.pdf>

American Political Science Association, Published Research: "Testing theories of American Politics: Elites, Interest Groups, and Average Citizens" [https://scholar.princeton.edu/sites/default/files/mgilens/files/gilens\\_and\\_page\\_2014\\_testing\\_theories\\_of\\_american\\_politics.doc.pdf](https://scholar.princeton.edu/sites/default/files/mgilens/files/gilens_and_page_2014_testing_theories_of_american_politics.doc.pdf)



## Promoting Public Welfare

Discuss with: business management, economics, education, environmental science, ethics, geology, health, history, marketing, nutrition, sociology

### Promoting the Public Welfare p. 570

Federal agencies that promote public welfare include the Departments of Housing and Urban Development (HUD), Veterans Affairs, Interior, Education, Labor, Agriculture, Health and Human Services, the National Park Service, the Food and Drug Administration, the Environmental Protection Agency (EPA) and many others. Unfortunately, the current administration under President Trump is either diminishing or dismantling many of these agencies.

HUD, for instance, is facing a \$6 billion budget cut and Secretary Ben Carson said in May 2017 that poverty was “a state of mind.” In an NPR interview on June 1, 2017, he clarified his statement by saying, “It is a factor. A part of poverty can be the state of mind – poor in spirit.”<sup>88</sup>

The EPA is now being led by Secretary Scott Pruitt, the former attorney general for Oklahoma who reveled in the number of lawsuits he filed against the EPA over the Clean Water Act and regulations on coal-fired power plants. In the first 100 days of the Trump presidency, twenty-three environmental rules have been rolled back.<sup>89</sup> The EPA has also removed half the members of “a key scientific review board and is seeking to replace them with industry-aligned figures...from industries that the EPA regulates.”<sup>90</sup> Additionally, Pruitt has pledged to cut 20 percent of the agency’s staff.

Pruitt led the charge to pull the United States from the Paris Climate Accord on June 1, 2017. “It was absolutely a decision of courage and fortitude and truly represented an America First strategy with respect to how we are leading on the issue,” he said in a Reuters interview on July 11, 2017. Also in that interview, Pruitt promoted the idea of a televised debate between climate scientists and climate deniers. “There are lots of questions that have not been asked and answered (about climate change),” he said.<sup>91</sup> No, there aren’t.

Department of the Interior Secretary Ryan Zinke has announced that he will reduce staff by 8 percent, or 4,000 employees, as twenty-five national monuments are listed as “under review” by executive order.

Referring to the 1906 law that empowers a president to take unilateral action to protect cultural, historic or natural resources on federal land that is under threat, Trump declared, ‘The Antiquities Act does not give the federal government unlimited power to lock up millions of acres of land and water, and it’s time that we ended this abusive practice.’<sup>92</sup>

But why remove the national monument designations? To “open more federal land to drilling, mining and other development.”<sup>93</sup> Remember “Drill baby, drill?”

Also research the health care plans being drafted in Congress with the support of the Department of Health and Human Services, the cuts to the school lunch program proposed by the Department of Agriculture and 13.5 percent funding cut to the Department of Education.

*The New York Times*: “23 Environmental Rules Rolled Back in Trump’s First 100 Days” <https://www.nytimes.com/interactive/2017/05/02/climate/environmental-rules-reversed-trump-100-days.html> (No PDF)

*The Guardian*: “EPA removes half of scientific board, seeking industry-aligned replacements” <https://www.theguardian.com/us-news/2017/may/08/epa-board-scientific-scott-pruitt-climate-change>

Reuters: “EPA chief wants scientists to debate climate on TV” <https://www.reuters.com/article/us-usa-epa-pruitt-idUSKBN19W2D0>

*The New York Times*: “Rolling Back Rules: A Dozen Examples” <https://www.nytimes.com/interactive/2017/03/05/us/politics/document-10-Examples-Industries-Push-Followed-by-Trump.html> (No PDF)

*The Washington Post*: “Trump orders review of national monuments, vows to ‘end these abuses and return control to the people’” <https://www.washingtonpost.com/news/energy-environment/wp/2017/04/25/zinke-to-review-large-national-monuments-created-since-1996-to-make-sure-the-people-have-a-voice/>

*National Geographic*: “What you need to know about Trump’s national monument rethink” <http://news.nationalgeographic.com/2017/04/trump-review-national-monuments-bears-ears-utah/>

Reuters: “Trump orders review of national monuments to allow development” <http://www.reuters.com/article/us-usa-interior-monuments-idUSKBN17S1MH>

NPR: “President Trump’s Budget Proposal Calls for Deep Cuts to Education” <http://www.npr.org/sections/ed/2017/05/22/529534031/president-trumps-budget-proposal-calls-for-deep-cuts-to-education>



# Government

## Government and the Economy

Discuss with: business management, economics, ethics, history, sociology

### Government and the Economy p. 641

American economic policy has historically reflected the belief that individual liberty is the key to a thriving economy. In this view, the government's role is to set the basic rules that govern economic transactions and then stand back and let individuals engage in the market. However, periodically Americans have demanded restrictions on market freedoms to protect the public. *An array of laws governing competition and protecting consumers and the environment is the consequence of these democratic demands. Although Americans are often uneasy with the idea of government intervention into the market, they show little support for unravelling existing regulations.*<sup>94</sup> [emphasis added] (See discussion on Promoting the Public Welfare)

After the financial collapse of 2008, the Consumer Financial Protection Bureau (CFPB) was created as part of the Dodd-Frank Wall Street Reform and Consumer Protection Act. After the "widespread failures in consumer protection and rapid growth in irresponsible lending practices" the CFPB focuses on "watching out for American consumers in the market for consumer financial products and services."<sup>95</sup> However, in June 2017, the House of Representatives passed legislation, ironically called the Financial CHOICE [Creating Hope and Opportunity for Investors, Consumers and Entrepreneurs] Act, to remove those financial protections and give the president the ability to fire the director of the CFPB for any reason; currently the director can only be fired for cause. The legislation would also undo the banking regulations created by Dodd-Frank. Although many believe that the CHOICE Act will fail to be passed in the Senate, it shines a light on the direction the Republican-led House is heading toward rolling back regulations.

*Forbes*: "GOP takes aim at a consumer protection agency and post-collapse bank regulations" <https://www.forbes.com/sites/eriksherman/2017/06/08/gop-takes-aim-at-a-consumer-protection-agency-and-post-collapse-bank-regulations/>

CNBC: "House passes Choice Act that would gut Dodd-Frank banking reforms" <http://www.cnbc.com/2017/06/08/house-has-votes-to-pass-choice-act-that-would-gut-dodd-frank-banking-reforms.html> (No PDF)



## The Goals of Economic Policy p. 643

According to the textbook, “government intervention in the economy has, for nearly a century, sought to achieve four fundamental goals: (1) to promote economic stability, (2) to stimulate economic growth, (3) to promote business development, and (4) to protect employees and consumers.”<sup>96</sup>

According to the EPA’s website, The Energy Policy Act of 2005, signed by President George W. Bush, “provides loan guarantees for entities that develop or use innovative technologies that avoid the by-production of greenhouse gases.”<sup>97</sup> Under this Act, the Department of Energy is required to study and report on renewable energy sources such as wind, solar, waves and tides. In my research, I had found a great resource on the Department of Energy’s website. However, since the inauguration of President Trump, that link is now unavailable and leads to a “404 Not Found” page. The page for the Energy Policy Act of 2005 now simply states, “Public Law of the 109th Congress: To ensure jobs for our future with secure, affordable, and reliable energy.”<sup>98</sup>

The Act also “increases the amount of biofuel that must be mixed with gasoline sold in the United States.” When this law was enacted, and because ethanol is made primarily from corn, there were discussions about the global ethics of using food for fuel. In addition, because of the diversion of corn to make biofuel, costs of corn imports increased around the globe. The Global Development and Environment Institute at Tufts University has been researching the impacts of ethanol production in the United States and found that in 2015, sixty-four countries had biofuel mandates and targets. In his 2012 research, GDAE’s Timothy A. Wise documented that from 2006–2011, “Mexico paid an extra \$1.5 billion for corn imports from the United States due to ethanol-related price increases that reached 21% in recent years. This contributed to a 69% increase in prices for tortillas, Mexico’s most important staple food.”<sup>99</sup>

In the report, “Fueling the Food Crisis,” Wise found that,

“Developing countries that import the majority of their food are particularly vulnerable to the impact of US ethanol expansion.

These Net Food Importing Developing Countries (NFIDCs) saw ethanol-related costs of \$2.1 billion over six years, led by Egypt (\$727 million), Morocco (\$238 million), and Peru (\$230 million). Aggregate totals, of course, can be misleading as the large totals correspond to large countries. Scaled to population, it becomes clear that the impacts of US ethanol policy are felt across a broad range of countries. In fact, thirteen developing countries had per capita costs higher than Mexico’s. They come from every region and include larger countries such as Malaysia and smaller countries such as Botswana and Swaziland. Costs were particularly

## Goals of Economic Policy

Discuss with: biology, business management, chemistry, economics, engineering, environmental science, ethics, health, history, nutrition, sociology

high in North Africa, Central America, and the Caribbean.<sup>100</sup>

In late 2006, the price of tortillas in Mexico increased nearly 50 percent due to the legally-mandated demand for ethanol. Also at issue were the subsidies paid to American corn producers, which put Mexican corn producers at a disadvantage.<sup>101</sup>

In a report produced by professors in the University of California's Department of Agricultural and Resource Economics, the authors...

"...estimate that corn prices were about 30 percent greater between 2006 and 2011 than they would have been without the [ethanol] mandate. We isolate the channels that generate this price increase, including an increase in corn storage in anticipation of ethanol-production increases. We also estimate the extent to which ethanol production exacerbated the effects of the 2012 drought. We find that corn prices would have been about 40 percent lower in 2012 were it not for the mandate. As a result, the impact of US energy policy on global corn prices is considerable, particularly for the world's poor."<sup>102</sup>

US Department of Energy: "Energy Policy Act of 2005" <https://energy.gov/lpo/downloads/energy-policy-act-2005>

ActionAid International USA: "Fueling the Food Crisis: The Cost to Developing Countries of US Corn Ethanol Expansion" [http://www.ase.tufts.edu/gdae/Pubs/rp/ActionAid\\_Fueling\\_Food\\_Crisis.pdf](http://www.ase.tufts.edu/gdae/Pubs/rp/ActionAid_Fueling_Food_Crisis.pdf)

NPR: "Mexico grumbles over rise in tortilla prices" <http://www.npr.org/templates/story/story.php?storyId=6898817>

NPR: "In drought, should corn be food or fuel?" <http://www.npr.org/2012/08/30/160250546/in-drought-should-corn-be-food-or-fuel>



## Consumer Safety p. 650

(See Government and the Economy discussion)

The public's concern about food processing in the early 1900s after publication of Upton Sinclair's *The Jungle* led to the USDA inspecting meat packing plants and the meat they produce. More recently, Americans are alerted to food warnings numerous times a month, whether it's a listeria outbreak in salads and granola bars in 2017 or an e.coli outbreak at Chipotle restaurants in eleven states in 2016. Even pet foods are recalled for salmonella and listeria contamination (five recalls in June 2017).

The 2010 documentary *Food, Inc.* featured a segment about the Kowalczyk family, whose 2-1/2-year-old son, Kevin, died 12 days after eating a hamburger tainted by E. coli in 2001. The segment shows Barbara Kowalczyk visiting Congressional offices, trying to get stronger food safety legislation passed.<sup>103</sup> After getting stuck in committee year after year, President Barack Obama signed the FDA Food Safety Modernization Act in 2011, ten years later.

According to a 2015 report by the Interagency Food Safety Analytics Collaboration, one out of six Americans suffers from food poisoning each year. "...an estimated 9 million people get sick, 55,000 people are hospitalized, and 1,000 die of foodborne disease caused by known pathogens."<sup>104</sup>

The FDA has published a website to help consumers prevent foodborne illness: "Start at the Store: 7 Ways to Prevent Foodborne Illness."<sup>105</sup> Videos on the site are in both English and Spanish. But shouldn't food be inspected and deemed safe before it is placed on supermarket shelves?

According to Congressional testimony to the Committee on Energy and Commerce by the FDA's Deputy Commissioner for Food and Veterinary Medicine in February 2014, the Food Safety Modernization Act:

...gave FDA its first inspection frequency mandate for food facilities, as well as enhanced access to the records documenting a firm's implementation of its food safety plan. In addition, before the passage of FSMA, FDA was able to detain a food product only when it had credible evidence that a food product presented a threat of serious adverse health consequences or death to humans or animals. FSMA amended the criteria, so that FDA can prevent unsafe food from reaching consumers by detaining food it has reason to believe is adulterated or misbranded.

Just two paragraphs later, the Deputy Commissioner notes that although the law mandates the FDA to expand its inspections, it does not provide enough resources to carry out the expanded law.

The determination that we have all made to improve the safety

## Consumer Safety

Discuss with: biology, business management, chemistry, criminal justice, economics, education, environmental science, ethics, health, history, nutrition, sociology

of our food supply requires two fundamental steps. The first was to give FDA the mandate and tools to modernize the food safety system, and I applaud you for doing that via the enactment of FSMA. The second is to give FDA the capacity to carry out the numerous changes embodied in the law. It is that challenge that we must continue to address. Simply put, we cannot achieve our objective of a safer food supply without a significant increase in resources.

At the time of passage of FSMA, the Congressional Budget Office estimated that FDA would need an increase in its base funding for food safety of over \$580 million.[11] Last year, in a report to the Congress on food safety program and resource needs required by FSMA, the Secretary of HHS (based on different assumptions and a commitment to efficiency) reported a need for an increase over FDA's Fiscal Year (FY) 2012 food safety funding base in the range of \$400 to \$450 million.[12] We will continue our efforts to make the best use of the resources we have, but I can say with absolute certainty that we cannot do all that is asked of us without additional resources.<sup>106</sup>

In a *New York Times* interview in April 2015, the Deputy Commissioner was more candid, "We have good plans for moving forward. The problem is we don't have the money."<sup>107</sup>

FDA: "Current Recalls and Alerts" <https://www.fsis.usda.gov/wps/portal/fsis/topics/recalls-and-public-health-alerts/current-recalls-and-alerts>

FDA: "Animal & Veterinary Recalls & Withdrawals" <https://www.fda.gov/animalveterinary/safetyhealth/recallswithdrawals/>

PBS: "Food, Inc.: Film Update" <http://www.pbs.org/pov/foodinc/film-update/2> (Partial PDF)

FDA: "Start at the Store: 7 Ways to Prevent Foodborne Illness" <https://www.fda.gov/ForConsumers/ConsumerUpdates/ucm094535.htm>

FDA: "Implementing the FDA Food Safety Modernization Act" Testimony to the Committee on Energy and Commerce <https://www.fda.gov/newsevents/testimony/ucm384687.htm>

*The New York Times*: "Funding Gap Hinders Law for Ensuring Food Safety" <https://www.nytimes.com/2015/04/08/us/food-safety-laws-funding-is-far-below-estimated-requirement.html>



## Minimum Wage p. 656

The federal minimum wage was increased from \$6.55 to \$7.25 in 2009. Yet those who work full-time, earning minimum wages, cannot make ends meet. The costs of housing, food, transportation, clothes, childcare and medical care leave nothing extra at the end of the month. These are America's working poor. Beginning on July 16, 2017, the *Dallas Morning News* printed a week-long investigation into Dallas' working poor residents: "American Dream denied." Although the national poverty rate is down to 13.5 percent, in Dallas the rate is 22.5 percent; 35 percent of Dallas children live in poverty.<sup>108</sup>

A recent report by the National Low Income Housing Coalition showed a widening gap between wages and housing costs. According to the report,

There is nowhere in this country where someone working a full-time minimum wage job could afford to rent a two-bedroom apartment. [...] You would have to earn \$17.14 an hour, on average, to be able to afford a modest one-bedroom apartment without having to spend more than 30 percent of your income on housing, a common budgeting standard. Make that \$21.21 for a two-bedroom home -- nearly three times the federal minimum wage of \$7.25.<sup>109</sup>

In Texas, a renter would have to earn \$18.38/hour (40 hours per week, 52 weeks a year) to afford a two-bedroom rental home, without paying more than 30 percent of their income, which is a common budgeting standard.<sup>110</sup>

In January 2017, the Pew Research Center published "5 facts about the minimum wage" and noted that "about 20.6 million people (or 30 percent of all hourly, non-self-employed workers 18 and older) are "near-minimum-wage workers" and that "the restaurant/food service industry is the single biggest employer of near-minimum-wage workers."<sup>111</sup>

So why not raise the minimum wage? McDonald's employees are pushing for across-the-board wage hike to \$15/hour. How much would that increase the price of a Big Mac? Seventeen cents, according to a study by researchers at Purdue University's School of Hospitality and Tourism Management.<sup>112</sup>

Yet many of the arguments against an increase in the minimum wage focus on small businesses, saying that it would put them out of business if wages doubled. Yet twenty mega-companies employ the most low-wage workers. "Walmart alone employs 1.4 million minimum-wage workers; Yum Brands (Taco Bell, Pizza Hut, KFC) is in second place; and McDonald's takes third. Overall, 60 percent of minimum-wage workers are employed by businesses not officially considered "small" by government standards,"<sup>113</sup> says author Peter Van Buren.

## Minimum Wage

Discuss with: business management, economics, education, ethics, history, sociology

Those minimum wage workers who can't make enough and need to go on food assistance? Well, Walmart isn't paying for those food stamps (now called SNAP), you are. The annual bill that states and the federal government foot for working families making poverty-level wages is \$153 billion. A single Walmart Supercenter costs taxpayers between \$904,542 and \$1.75 million per year in public assistance money. According to Florida Congressman Alan Grayson, in many states Walmart employees are the largest group of Medicaid recipients. They are also the single-biggest group of food stamp recipients. In other words, those everyday low prices at the chain are, in part, subsidized by your tax money. Meanwhile, an estimated 18 percent of food stamps (SNAP) are spent at Walmart.<sup>114</sup>

(Also see discussion on Federalism and Redistributive Programs)

In recent years, state and local legislatures have voted to increase the minimum wage with differing results. As of January 2017, 31 states have increased their minimum wages currently ranging from \$7.50/hr. in New Mexico to \$11/hr. in Massachusetts and Washington state. (Although it is not a state, Washington D.C. raised its minimum wage to \$12.50/hr.)

But some cities and counties are taking matters into their own hands and increasing wages in their jurisdictions. On July 1, 2017 San Francisco increased its minimum wage to \$14/hr.; Chicago \$11; Flagstaff, Arizona \$10.50; Montgomery County, Maryland \$11.50; and 8 others.<sup>115</sup> However, not all states legislatures are happy and have pre-empted local efforts by passing rollback legislation that requires cities and counties to abide by statewide minimums.

The latest example of this is in Missouri, where a state law will take effect next month, rolling back St. Louis' \$10-an-hour minimum wage ordinance passed earlier this year. That means thousands of minimum-wage earners in the city could go back to earning the state rate of \$7.70 an hour.<sup>116</sup>

Twenty-five states have local minimum wage preemption laws on the books, according to the National League of Cities.<sup>117</sup>

*Dallas Morning News*: "American Dream, denied" <https://interactives.dallasnews.com/2017/working-poor/>

*Washington Post*: "Here's how much you would need to afford rent in your state" [https://www.washingtonpost.com/news/wonk/wp/2017/06/08/heres-how-much-you-would-need-to-make-to-afford-housing-in-your-state/?utm\\_term=.76ca01510503](https://www.washingtonpost.com/news/wonk/wp/2017/06/08/heres-how-much-you-would-need-to-make-to-afford-housing-in-your-state/?utm_term=.76ca01510503)

Purdue University: "Study: Raising wages to \$15 an hour for limited-service restaurant employees would raise prices 4.3 percent" <https://www.purdue.edu/newsroom/releases/2015/Q3/study-raising-wages-to-15-an-hour-for-limited-service-restaurant-employees-would-raise-prices-4.3-percent.html>

Mother Jones: "This is Why a \$15 Wage is Not the Answer: I know. I was paid less than that." <http://www.motherjones.com/politics/2016/03/15-dollar-minimum-wage-is-not-the-answer/> (No PDF)

BusinessInsider: "The 20 Companies With the Most Low-Wage Workers" <http://www.businessinsider.com/the-20-companies-with-the-most-low-wage-workers-2013-2>

PBS: "Poverty, Politics and Profit" Video. <http://www.pbs.org/wgbh/frontline/film/poverty-politics-and-profit/>

PBS: "Poverty, Politics and Profit" Transcript. <http://www.pbs.org/wgbh/frontline/film/poverty-politics-and-profit/transcript/>

ABC News: A Brief History of the U.S. Minimum Wage (video): <http://abc-news.go.com/Politics/19-states-increase-minimum-wage-start-2017/story?id=44501349>

NPR: "As Cities Raise Minimum Wages, Many States Are Rolling Them Back" <http://www.npr.org/2017/07/18/537901833/as-cities-raise-minimum-wages-many-states-are-rolling-them-back>

National League of Cities: "City Rights in an Era of Preemption: A State-by-State Analysis" <http://nlc.org/preemption>

SDGs: 1, 8, 9, 10, 11



## Subsidies

Discuss with: biology, business management, chemistry, economics, education, engineering, environmental science, ethics, geology, health, history, physics, sociology

### Subsidies p. 672

The textbook's definition of subsidies reads: "Government grants of cash or other valuable commodities, such as land, to an individual or an organization; used to promote activities desired by the government, reward political support, or buy off political opposition."<sup>118</sup>

Let's look at some subsidies provided by the US government for food, fuel and renewable energy.

### Food

Farming is risky business. Drought, floods, pests, disease...all out of farmers' control. The 2014 Farm Bill changed how farmers are subsidized, but ultimately, they receive government payments if the commodity price or their revenue drops below a benchmark. It's guaranteed money even if your crops fail or the price falls.

The problem is that,

*Taxpayers heavily subsidize corn and soy, two crops that facilitate the meat and processed food we're supposed to eat less of, and do almost nothing for the fruits and vegetables we're supposed to eat more of. If there's any obligation to spend the public's money in a way that's consistent with that same public's health, shouldn't it be the other way around? [emphasis added]*

That's one of the reasons that, of the 300-million-plus acres planted with food (other than grass, hay and forage for animals) in this country, half are corn and soy. Another 50 million are wheat. Only 14 million are devoted to fruits and vegetables, from peas (1.2 million acres) to mangosteens....<sup>119</sup>

An August 2016 report in the Journal of the American Medical Association concluded that, "Among US adults, higher consumption of calories from subsidized food commodities was associated with a greater probability of some cardiometabolic risks. Better alignment of agricultural and nutritional policies may potentially improve population health."<sup>120</sup>

### Fuels

**Biofuel** (See discussion on The Goals of Economic Policy)

### Fossil Fuels

A report issued in July 2017 accuses the G20 nations of "talking out of both sides of their mouth" regarding climate change and fossil fuel subsidies. Report authors found that "the G20 countries provided an average of \$71.8bn of public finance for fossil-fuel projects per year between 2013–2015, compared with just \$18.7bn for renewable energy. Japan provided the most at \$16.5bn per year, which was six times more than it allotted for renewables."<sup>121</sup>

This uneven playing field benefits fossil fuel industries over renewables. As an emerging technology that is improving almost on a weekly basis, renewables should have access to the same subsidy dollars as coal, petro-

leum and natural gas, all well-established products. An article in *Forbes*, published May 30, 2017, makes the case that renewables should not receive subsidies because it drives up the cost per kWh produced. But one must remember that renewables make up only 10 percent of energy consumption in the U.S.<sup>122</sup> Renewable energy must have a larger share of the market before it will be truly competitive.

One must also consider that whereas renewable energy is clean and pollution-free, the fossil fuel industries receive tax dollar subsidies to pollute the air, land and water, either through extraction or burning for energy. Tax dollars are also used to remediate the pollution created by fossil fuels.

*The Washington Post*: "Farm bill: Why don't taxpayers subsidize the foods that are better for us?" [https://www.washingtonpost.com/lifestyle/food/farm-bill-why-dont-taxpayers-subsidize-the-foods-that-are-better-for-us/2014/02/14/d7642a3c-9434-11e3-84e1-27626c5ef5fb\\_story.html](https://www.washingtonpost.com/lifestyle/food/farm-bill-why-dont-taxpayers-subsidize-the-foods-that-are-better-for-us/2014/02/14/d7642a3c-9434-11e3-84e1-27626c5ef5fb_story.html)

JAMA Internal Medicine: "Association of Higher Consumption of Foods Derived from Subsidized Commodities with Adverse Cardiometabolic Risk Among US Adults" (Abstract) <http://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2530901>

*The New York Times*: "How the Government Supports Your Junk Food Habit" <https://well.blogs.nytimes.com/2016/07/19/how-the-government-supports-your-junk-food-habit/>

Oil Change International, et. al.: "Talk is Cheap: How G20 Governments are Financing Climate Disaster" [http://priceofoil.org/content/uploads/2017/07/talk\\_is\\_cheap\\_G20\\_report\\_July2017.pdf](http://priceofoil.org/content/uploads/2017/07/talk_is_cheap_G20_report_July2017.pdf)

*Forbes*: "The Surprising Reason that Oil Subsidies Exist: Even Liberals Love Them" <https://www.forbes.com/sites/energysource/2012/04/25/the-surprising-reason-that-oil-subsidies-persist-even-liberals-love-them/#4dc3b2ad3279>

*Forbes*: "Why Do Federal Subsidies Make Renewable Energy So Costly?" <https://www.forbes.com/sites/jamesconca/2017/05/30/why-do-federal-subsidies-make-renewable-energy-so-costly/#1e574123128c>

U.S. Energy Information Administration: "U.S. Energy Facts Explained" [https://www.eia.gov/energyexplained/?page=us\\_energy\\_home](https://www.eia.gov/energyexplained/?page=us_energy_home)



## Environment & Economy

Discuss with: biology, business management, chemistry, computer science, criminal justice, economics, education, engineering, environmental science, ethics, geology, health, history, marketing, physics, sociology

### The Environment and the Economy p. 673

"One of the most important reasons that the government intervenes in the economy is to protect the environment."<sup>123</sup> The modern environmental movement began in the 1970s with the First Earth Day on April 22, 1970. Twenty million people celebrated across the United States at the very first national environmental teach-in organized by Senator Gaylord Nelson (D-WI) and his staff.<sup>124</sup>

In 2017, things are changing in the Environmental Protection Agency. A *Washington Post* article posted on July 30 quotes administrator Scott Pruitt: "The future ain't what it used to be at the EPA." That's beginning to look like an understatement.

The article notes changes to the agency's museum that was just opened on January 17.

There is no question that parts of the museum reflect an Obama administration-centric narrative. It includes a panel dedicated to the 2009 "endangerment finding," in which then-EPA Administrator Lisa Jackson concluded that the agency was legally obligated to control greenhouse gas emissions linked to climate change because they threatened public health. A separate panel features a Dr. Seuss cartoon-themed poster with the message "Join the Lorax and Help Protect the Earth From Global Warming."<sup>125</sup>

On Thursday, an EPA official said that the climate change displays will be removed, "adding that the agency may add a display of coal to the museum." Nancy Grantham, a career public affairs employee at EPA, "acknowledged that the climate panels probably will be altered and possibly shelved."<sup>126</sup>

Although the final changes are still undetermined,

In the meantime, to make sure the current administration is represented, EPA officials have installed a large poster board in the museum, highlighting the agency's new "back to basics" agenda. It features a picture of Pruitt shaking hands with coal miners at a Pennsylvania mine and promises "sensible regulations for economic growth."<sup>127</sup>

"Nowhere have these conflicts been more acute than in the debate over climate change,"<sup>128</sup> the textbook states in an understatement of epic proportions. Even prior to the Trump administration, the battles of business interests over the insurmountable evidence of climate change were raging in legislatures throughout the country. As the U.S. moved toward supporting more renewable energy sources and curbing greenhouse gases, state legislatures fought back.

In 2012, after the North Carolina's Coastal Resources Commission estimated that the sea level would rise by 39 inches over the next 100 years. The report prompted "fears of costlier home insurance and accusations of anti-development alarmism among residents and developers in the state's coastal Outer Banks region."<sup>129</sup> To calm fears, the legislature simply outlawed climate change. House Bill 810 began as legislation to regulate development permitting, but included a provision that "restricts all sea-level predictions used to guide state policies for the next four years to those based on 'historical data.'"<sup>130</sup>

Their logic?

Republican State Rep. Pat McElraft, who drafted the law, called the law a "breather" that allows the state to "step back" and continue studying sea-level rise for the next several years with the goal of achieving a more accurate prediction model.

"Most of the environmental side say we're ignoring science, but the bill actually asks for more science," she said. "We're not ignoring science, we're asking for the best science possible, the best extrapolation possible, looking at the historical data also. We just need to make sure that we're getting the proper answers."<sup>131</sup>

This tactic of using doubt to increase skepticism was explained in the PBS Frontline investigation, "Climate of Doubt" in October 2012. (You can watch it online at <http://www.pbs.org/wgbh/frontline/film/climate-of-doubt/>.)

It's a very successful strategy that was utilized by the tobacco industry for decades. There is also a great book and documentary called the "Merchants of Doubt" that illustrate how climate change deniers utilized the tobacco industry's tactics with alarming success. It's "the troubling story of how a cadre of influential scientists have clouded public understanding of scientific facts to advance a political and economic agenda."<sup>132</sup>

They also use "it's us against them" rhetoric like Christopher Monckton of the Science and Public Policy Institute who says, "The scientists who are pushing this scam have a political agenda. It's a Marxist agenda. Of course, they wouldn't call themselves that. They call themselves environmentalists. Green is the new red, if you like."<sup>133</sup>

What other legislatures have eliminated climate change from their state vocabularies?

In 2011, Florida's Department of Environmental Protection (DEP) was "ordered not to use the term "climate change" or "global warming" in any official communications, emails, or reports, according to former DEP em-

ployees, consultants, volunteers and records obtained by the Florida Center for Investigative Reporting<sup>134</sup> immediately following the election of Rick Scott as governor.

Just one year earlier, in December 2010, the Florida Oceans and Coastal Council published "Climate Change and Sea-Level Rise in Florida: An Update on the Effects of Climate Change on Florida's Ocean and Coastal Resources." The report outlines the effects of climate change and sea-level rise on barrier islands, beaches, inlets, estuaries, tidal rivers, coastal forests, infrastructure, water supply, wastewater treatment, beach erosion, beach renourishment, coastal planning, and flooding risks.

"Three-fourths of Florida's population resides in coastal counties that generate 79% of the state's total annual economy. These counties represent a built-environment and infrastructure whose replacement value in 2010 is \$2.0 trillion and which by 2030 is estimated to be \$3.0 trillion."<sup>135</sup> That's a huge hit to the state's economy if sea-level rise isn't mitigated and plans for resilience put in place. The report's executive summary states: "Sea-level rise is as clear a signal of climate change as increasing carbon dioxide concentrations and global temperature trends."<sup>136</sup>

Fortunately, Miami Beach, situated on a barrier island, is taking the lead by raising its roads by two feet and installing new storm sewers and pumps and raising the height of its seawall by four to five feet. In a city where the sea is rising 9mm annually, versus 3mm globally, they need to be forward-looking. "I'm quite optimistic that there'll be a Miami Beach 50 years, 100 years from now. But we need to set aside sort of the political nonsense about the debate about whether climate change is happening and embrace our problem and start developing comprehensive strategies,"<sup>137</sup> says Ben Kirtman, a climate modeling expert at the University of Miami.

In 2015, Wisconsin joined the fray by banning employees of an agency that oversees Wisconsin's public land trust from discussing climate change, "conducting any work on the topic, or even responding to an email about the warming climate," says Bloomberg News. "'It's not a part of our sole mission, which is to make money for our beneficiaries,' State Treasurer Matt Adamczyk, who sits on the board [Wisconsin's Board of Commissions of Public Lands], told Bloomberg. 'That's what I want our employees working on. That's it. Managing our trust funds.'"<sup>138</sup>

Along the same vein, in 2012, the Arizona legislature's measure to abolish sustainability efforts in the state died in the House of Representatives.

The bills in Arizona and other states mirror language used in model legislation by the John Birch Society, a 50-year-old conservative group based in Wisconsin. The society is dedicated to fighting what it calls an international plot by global forces "to

abolish U.S. independence, build a world government or otherwise undermine our personal liberties." It has long attacked both the UN and environmentalism.<sup>139</sup>

In Alabama, they've actually hired a climate change skeptic as their state climatologist, John Christy. Alabama experienced a severe drought in 2016 and breaking heat records in October. Just in one month, October 2016, more than 1,000 wildfires scorched more than 12,000 acres of forest. Christy however blamed "human pressure and demand for water" for the drought, rather than a lack of rainfall.<sup>140</sup>

Christy's job is to disseminate weather and climate information to the public, advise state policy makers on weather-related issues, and develop plans to mitigate the economic impacts of adverse weather. During testimony before Congress in 2012, he claimed that reducing greenhouse gas emissions was futile, as rising temperatures were due not to fossil fuel emissions but to increased development around thermometer stations that measure temperatures.

"Science is not really a factor here, sadly," said Nelson Brooke of Birmingham-based Black Warrior Riverkeeper. "It's his job to get the word out on the patterns and future predictions on our climate, but as long as he's in that position, that's two steps backward in the scientific process."

Christy, who is an atmospheric scientist at the University of Alabama in Huntsville, said the state is dealing with normal drought levels.<sup>141</sup>

At the federal level, things are even worse as President Trump has officially announced America's plan to back out of the Paris Climate Accord on June 1, 2017. On August 4, 2017, the administration officially informed the United Nations that the US would not participate in the 2015 climate pact.

At the EPA, references to climate change have been removed from the homepage and several pages now state "This page is being updated," such as Climate Change Science, Reducing Greenhouse Gas Emissions, Future of Climate Change, Climate Impacts, and Overview of Climate Science.

Although I was able to access the Climate Change Indicators reports and the corresponding technical documentation, the "Student's Guide to Global Climate Change" has been archived and is no longer maintained by the EPA. Thankfully, the cities of Chicago, San Francisco, Atlanta, Boston, St. Louis, Seattle and Portland have posted the deleted pages on

their servers for the public to access. “Deleting federal web pages does not reset the scientific consensus that climate change is real,” said San Francisco Mayor Ed Lee.<sup>142</sup>

Keep America Beautiful PSA 1971 (Video): <https://www.youtube.com/watch?v=j7OHG7tHrNM>

EPA’s Documerica Project (1971-77). In the early ‘70s, just after the birth of EPA and the environmental movement, the agency initiated Project Documerica to record the state of the environment and efforts to improve it. By 1974, Documerica had produced more than 81,000 photographs by more than 100 photographers. The strongest 22,000-plus images were catalogued by the National Archives and Records Administration (NARA) and made available to publications nationwide. About 15,000 of these images are now online. [https://catalog.archives.gov/search?q=\\*&f.parent-Nald=542493&f.level=item&sort=naldSort%20asc](https://catalog.archives.gov/search?q=*&f.parent-Nald=542493&f.level=item&sort=naldSort%20asc)

*The Washington Post*: “At EPA Museum, history might be in for a change” [https://www.washingtonpost.com/politics/at-epa-museum-history-might-be-in-for-a-change/2017/07/30/9d83692c-6bd1-11e7-96ab-5f38140b38cc\\_story.html](https://www.washingtonpost.com/politics/at-epa-museum-history-might-be-in-for-a-change/2017/07/30/9d83692c-6bd1-11e7-96ab-5f38140b38cc_story.html)

PBS Frontline: “Climate of Doubt” (Video) <http://www.pbs.org/wgbh/frontline/film/climate-of-doubt/>

PBS Frontline: “Climate of Doubt” (Transcript) <http://www.pbs.org/wgbh/frontline/film/climate-of-doubt/transcript/>

Merchants of Doubt: “Key Documents” <http://www.merchantsofdoubt.org/keydocs.html>

Florida Oceans and Coastal Council: “Climate Change and Sea-Level Rise in Florida: An Update on the Effects of Climate Change on Florida’s Ocean and Coastal Resources” [http://www.dep.state.fl.us/oceanscouncil/reports/climate\\_change\\_and\\_sea\\_level\\_rise.pdf](http://www.dep.state.fl.us/oceanscouncil/reports/climate_change_and_sea_level_rise.pdf)

NPR: “As Waters Rise, Miami Beach Builds Higher Streets and Political Willpower” <http://www.npr.org/2016/05/10/476071206/as-waters-rise-miami-beach-builds-higher-streets-and-political-willpower>

BBC Future: “Miami’s fight against rising seas” <http://www.bbc.com/future/story/20170403-miamis-fight-against-sea-level-rise>

Newsweek: “Wisconsin Bans State Workers from Discussing Climate Change, and a Trend is Born” <http://www.newsweek.com/wisconsin-bans-state-workers-discussing-climate-change-and-trend-born-321008> (No PDF)

*The New York Times*: "Flooding in the South Looks a Lot Like Climate Change" <https://www.nytimes.com/2016/08/17/us/climate-change-louisiana.html>

CNN: "As the seas around them rise, fishermen deny climate change" <http://www.cnn.com/2017/04/20/us/louisiana-climate-change-skeptics/index.html> (No PDF)

Inside Climate News: "Bill to Ban Sustainability and Climate Change Action Fails in Arizona" <https://insideclimatenews.org/news/20120511/bill-ban-united-nations-agenda-21-sustainability-climate-change-global-warming-iclei-john-birch-society-kansas>

Takepart.com: "Climate change wallops Alabama, but the state climatologist is a climate skeptic" <http://www.takepart.com/article/2016/11/01/alabama-drought-shows-state-mind-climate-change/>

John Christy: "Memo to Bennett Bearden on Water Policy report" <http://www.adeca.alabama.gov/Divisions/owr/awawg/Comments/Alabama%20State%20Climatologist,%20John%20Christy.pdf>

Archive.EPA.gov: "A Student's Guide to Global Climate Change" <https://archive.epa.gov/climatechange/kids/>

CBS News: "Cities publish climate change data deleted from EPA website" <http://www.cbsnews.com/news/san-francisco-climate-change-research-deleted-epa-website/> (Partial PDF)

ABC 7: "City of Chicago posts deleted EPA climate change information on website" <http://abc7chicago.com/science/city-of-chicago-posts-deleted-epa-climate-change-information-on-website/1969616/>

*The Washington Post*: "The EPA just buried its climate change website for kids" <https://www.washingtonpost.com/news/energy-environment/wp/2017/05/06/epa-buries-climate-change-site-for-kids/>

EPA: "This page is being updated" <https://www.epa.gov/sites/production/files/signpost/cc.html>

EPA: "This is not the current EPA website" Archived snapshot of homepage on January 19, 2017. <https://19january2017snapshot.epa.gov/> "The Web Snapshot consists of static content, such as webpages and reports in Portable Document Format (PDF), as that content appeared on EPA's website as of January 19, 2017."

# Government

*The New York Times*: "Trump Will Withdraw U.S. From Paris Climate Agreement" <https://www.nytimes.com/2017/06/01/climate/trump-paris-climate-agreement.html>

*The Washington Post*: "US officially tells UN it wants out of Paris climate deal" [https://www.washingtonpost.com/world/national-security/us-officially-tells-un-it-wants-out-of-paris-climate-deal/2017/08/04/513d7dc2-7979-11e7-8c17-533c52b2f014\\_story.html](https://www.washingtonpost.com/world/national-security/us-officially-tells-un-it-wants-out-of-paris-climate-deal/2017/08/04/513d7dc2-7979-11e7-8c17-533c52b2f014_story.html)



## Social Policy p. 685

"Social policies promote a range of public goals. The first is to protect against the risks and insecurities that most people face over the course of their lives. These include illness, disability, temporary unemployment and the reduced earning capability that comes with old age." The textbook states that although Social Security and Medicare are popular, "comprehensive health care reform is more controversial."<sup>143</sup>

This truth was on display throughout the summer of 2017 as Congress tried and failed to "repeal and replace" the Affordable Care Act and reduce access to Medicaid. The United States is the only industrialized country in the world that does not provide comprehensive health care for all citizens. It is an enormous social issue as hospitals accept all patients, whether they have the ability to pay or not. Should basic and preventive care be available only to those who can afford it? Or should all taxpayers share the responsibility to provide healthcare to all?

The current administration is striving to reduce welfare program spending by limiting benefits such as food stamps (the Supplemental Nutrition Assistance Program (SNAP)) and housing assistance. The budget submitted by the White House in March of 2017 proposed cutting 25 percent – \$193 billion – from the nutrition program over the next decade in what they described as "reforms that tighten eligibility and encourage work."<sup>144</sup> But as was discussed in the Minimum Wage section, most people who rely on SNAP already work, they just don't earn enough to rise out of poverty.

In October 2013, the Dallas ISD announced that because 89 percent of its students qualified for free or reduced price lunch, they had received permission from the US Department of Agriculture to provide free breakfast and lunch to every student. They estimated \$300,000 in savings annually by eliminating thirty temporary workers who handled the paperwork required for reimbursement from the USDA. They can reapply to continue the program in 2017.<sup>145</sup>

Nationally, millions of students, "one out of six children who receive free or reduced-price meals during the school year continues to receive free meals during the summer months."<sup>146</sup> On an average day in July 2014, the program served 3.2 million children across the country.

The Department of Housing and Urban Development is facing \$6 billion in budget reductions, or 14 percent, for building maintenance and community development projects. Again, the administration proposes cutting assistance through "policies that encourage work and self-sufficiency, including increases to tenant rent contributions."<sup>147</sup>

'If there are ways that we can constructively help people increase their earnings, we should certainly do so,' [Diane] Yentel [pres-

## Social Policy

Discuss with: business management, economics, education, ethics, health, history, nutrition, sociology

ident of the National Low Income Housing Coalition] said. 'Focusing on work requirements in a punitive manner is not helpful and doesn't get at the crux of the problem, which is that people don't earn enough to afford housing costs throughout the country.'

She said no U.S. community exists where someone earning minimum wage could afford to rent a two-bedroom apartment. 'So framing this in a way where people just aren't working hard enough and that's why they're poor is unfair, unhelpful, and inaccurate.'<sup>148</sup>

Public education is also facing cuts in the 2018 budget. The textbook states that "most of the education of the American people is provided by the public policies of state and local governments. What may be less obvious is that *these education policies – especially the policy of universal compulsory public education – are the most important single force in the distribution and redistribution of opportunity in America.*"<sup>149</sup> [emphasis added]

On the Education Department's website, the first bullet on the Mission page states: "Strengthen the Federal commitment to assuring access to equal educational opportunity for every individual."<sup>150</sup> However, the Trump administration's budget proposes redistributing funds from poorer schools to richer ones by allowing "poor students to leave neighborhood schools for other public schools, and take that extra money with them. This is a concept known as 'portability.'"<sup>151</sup> The result is that poor schools become poorer and the remaining students suffer from lack of resources, funding and ultimately, opportunity.

Another controversial element of the proposed budget is the creation of a voucher program: \$250 million for private schools and \$167 million for charter schools. This is an additional redistribution of funding away from public schools and a reduction in opportunities for those left behind.

According to the Michael A. Resnick, associate executive director for advocacy and issues management at the National School Boards Association:

In 21st-century America, education is the key to success. Only the public schools are legally required to accept and retain all students, no matter their race, no matter their religion, no matter their educational attainment, social class, family income, special needs, or personal characteristics. ...the mission is to serve all children.<sup>152</sup>

In the end, it will be up to Congress to deliberate and finalize the federal budget.

PBS Newshour: "If SNAP benefits are cut, who hurts the most?" <http://www.pbs.org/newshour/updates/snap-benefits-cut-hurts/>

*The Texas Tribune*: "Texas has more kids eligible for free summer meals. Why is the state feeding fewer?" <https://www.texastribune.org/2017/08/02/despite-rise-demand-texas-feeds-fewer-hungry-kids-during-summer/n> (No PDF)

Food Research and Action Center (FRAC): "FACTS: The Summer Food Service Program" [http://frac.org/wp-content/uploads/sfsp\\_fact\\_sheet.pdf](http://frac.org/wp-content/uploads/sfsp_fact_sheet.pdf)

*The Washington Post*: "Trump wants more people who receive housing subsidies to work" <https://www.washingtonpost.com/news/wonk/wp/2017/05/23/for-the-first-time-poor-people-receiving-housing-subsidies-may-be-required-to-work/>

NPR: "President Trump's Budget Proposal Calls for Deep Cuts to Education" <http://www.npr.org/sections/ed/2017/05/22/529534031/president-trumps-budget-proposal-calls-for-deep-cuts-to-education>



## Foreign Policy

**Discuss with:** business management, economics, education, engineering, environmental science, ethics, health, history, marketing, nutrition, physics, sociology

### Foreign Policy and Democracy p. 725

Just as we live in a global economy, “environmental concerns are global, not national.”<sup>153</sup> But as we’ve seen in these discussions on sustainability, the three-legged stool cannot stand without the economic responsibility and social justice legs, too. And as we expand our knowledge and grasp of sustainability issues, we begin to grapple with the seventeen Sustainable Development Goals and how they intertwine with discussions on foreign policy and democracy around the globe.

This section discusses Economic Prosperity, Human Rights and the UN Framework Convention on Climate Change. These issues are not diametrically opposed. The global population will thrive when all have access to prosperity, health care, education, peace, food, housing, clean water, decent work, livable wages and a safe and clean environment. We can have all of these and still have profitable businesses and sustainable communities if we address and mitigate climate change. Climate change and its consequences make achieving and maintaining a sustainable community nearly impossible.

In the IPCC (International Panel on Climate Change) Fourth Assessment Report in 2007, the Working Group illustrated the correlation between climate change and sustainable development:

There is a dual relationship between sustainable development and climate change. On the one hand, climate change influences key natural and human living conditions and thereby also the basis for social and economic development, while on the other hand, society’s priorities on sustainable development influence both the GHG emissions that are causing climate change and the vulnerability.

Climate policies can be more effective when consistently embedded within broader strategies designed to make national and regional development paths more sustainable. This occurs because the impact of climate variability and change, climate policy responses, and associated socio-economic development will affect the ability of countries to achieve sustainable development goals. Conversely, the pursuit of those goals will in turn affect the opportunities for, and success of, climate policies.<sup>154</sup>

The Paris Agreement – adopted in Paris on December 12, 2015 and entered into force on November 4, 2016 – is the latest step in the evolution of the Framework Convention.

The Paris Agreement seeks to accelerate and intensify the actions and investment needed for a sustainable low carbon future. Its central aim is to strengthen the global response to the

threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. The Agreement also aims to strengthen the ability of countries to deal with the impacts of climate change.<sup>155</sup>

Yet President Trump announced America's plan to back out of the Paris Climate Accord on June 1, 2017. On August 4, 2017, the administration officially informed the United Nations that the US would not participate in the 2015 climate pact. The State Department, however, said that "the U.S. will continue to participate in international meetings and negotiations on current and future climate deals" since the process for withdrawal cannot officially start until November 2019.<sup>156</sup>

Climate change is a global crisis and it's happening right now. If we can't mitigate its causes, we will have to adapt to a hotter, less hospitable world of water and food scarcity, unpredictable and violent weather and its impacts on infrastructure and vulnerable populations, lethal heat waves and frigid winters and their impacts on global health. Global climate change action and adoption of the Sustainable Development Goals can avert a global catastrophe.

This should be at the forefront of our global foreign policy. But since it's not, businesses, state and local leaders, colleges and universities have pledged that #WeAreStillIn

WhiteHouse.gov: "America First Foreign Policy" <https://www.whitehouse.gov/america-first-foreign-policy>

United Nations: "United Nations Framework Convention on Climate Change" <https://unfccc.int/resource/docs/convkp/conveng.pdf>

IPCC: "2.1.3 The dual relationship between climate change and Sustainable Development" [https://www.ipcc.ch/publications\\_and\\_data/ar4/wg3/en/ch2s2-1-3.html](https://www.ipcc.ch/publications_and_data/ar4/wg3/en/ch2s2-1-3.html)

United Nations: "Background on the UNFCCC: The international response to climate change" [http://unfccc.int/essential\\_background/items/6031.php](http://unfccc.int/essential_background/items/6031.php)

United Nations: "Paris Agreement" [http://unfccc.int/files/essential\\_background/convention/application/pdf/english\\_paris\\_agreement.pdf](http://unfccc.int/files/essential_background/convention/application/pdf/english_paris_agreement.pdf)

*The New York Times*: "Trump Will Withdraw U.S. From Paris Climate Agreement" <https://www.nytimes.com/2017/06/01/climate/trump-paris-climate-agreement.html>

# Government

*The Washington Post*: "US officially tells UN it wants out of Paris climate deal" [https://www.washingtonpost.com/world/national-security/us-officially-tells-un-it-wants-out-of-paris-climate-deal/2017/08/04/513d7dc2-7979-11e7-8c17-533c52b2f014\\_story.html](https://www.washingtonpost.com/world/national-security/us-officially-tells-un-it-wants-out-of-paris-climate-deal/2017/08/04/513d7dc2-7979-11e7-8c17-533c52b2f014_story.html)

U.S. Global Change Research Program: "Climate Science Special Report" <https://assets.documentcloud.org/documents/3920195/Final-Draft-of-the-Climate-Science-Special-Report.pdf>

United Nations: "Transforming our world: the 2030 Agenda for Sustainable Development" <https://sustainabledevelopment.un.org/post2015/transformingourworld>

*National Geographic*: "Climate Change Now Impacting U.S., Government Report Warns" <http://news.nationalgeographic.com/2017/08/climate-change-government-draft-review-usa-environment-spd/>

*The New York Times*: "Scientists Fear Trump Will Dismiss Blunt Climate Report" <https://www.nytimes.com/2017/08/07/climate/climate-change-drastic-warming-trump.html>





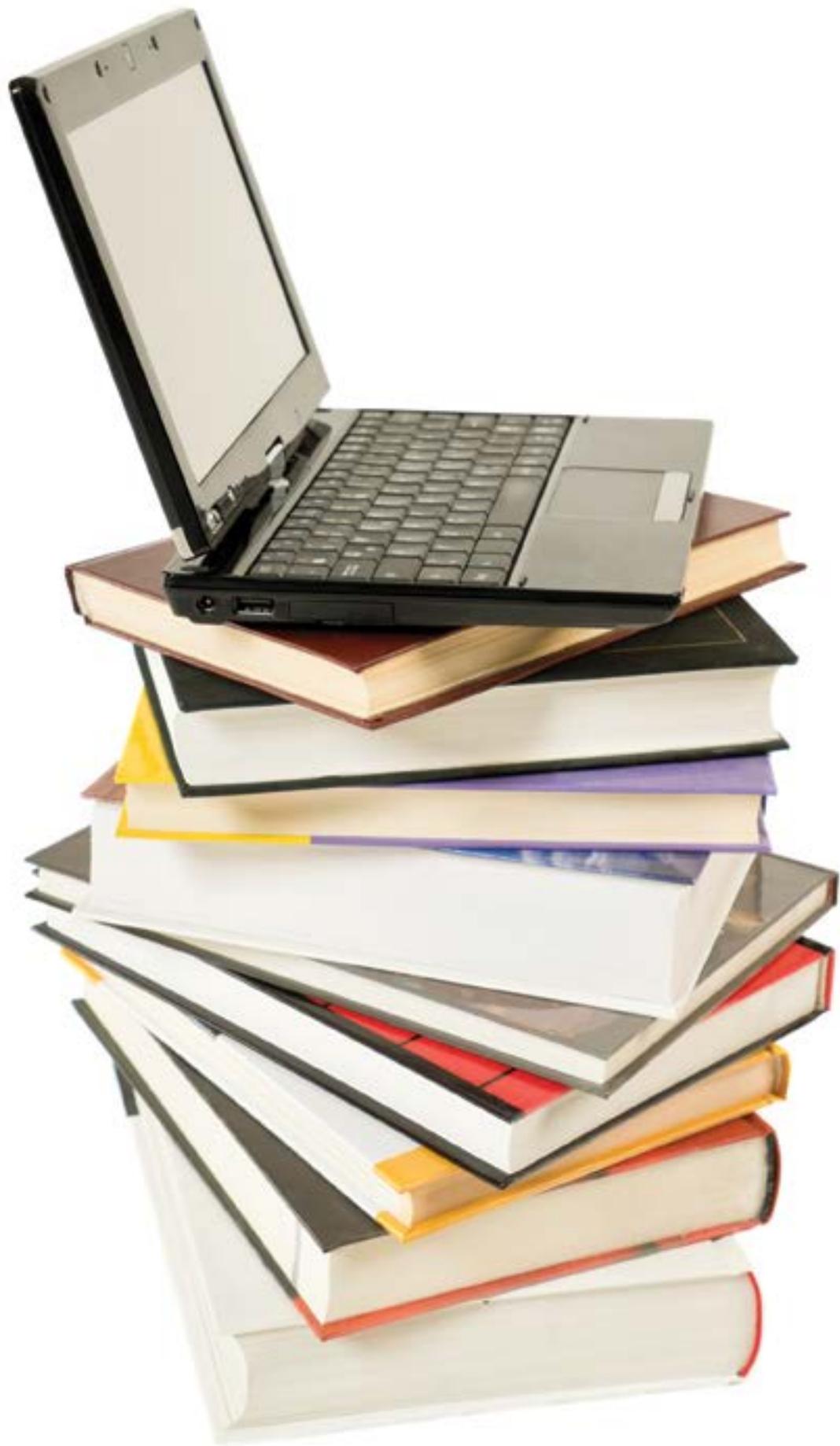


Photo Credit: artenex/iStock/Thinkstock

## Endnotes > Overview

- 1 Wynsberghe, Robert, and Janet Moore. "UN Decade on Education for Sustainable Development (UNDESD): Enabling Sustainability in Higher Education." *Environment, Development & Sustainability* 17.2 (2015): 315-30. GreenFILE. Web. 19 July 2016.
- 2 Moore, Janet. "Barriers and Pathways to Creating Sustainability Education Programs: Policy, Rhetoric and Reality." *Environmental Education Research* 11.5 (2005): 537-55. ERIC. Web. 19 July 2016.
- 3 Meadows, Donella H., and Diana Wright. *Thinking in Systems: A Primer*. White River Junction, VT: Chelsea Green Pub., 2008. Print. p. 2
- 4 Meadows. p. XI
- 5 Cassell, John A., and Thomas Nelson. "Visions Lost and Dreams Forgotten: Environmental Education, Systems Thinking, and Possible Futures in American Public Schools." *Teacher Education Quarterly* 37.4 (2010): 179-97. ERIC. Web. 20 July 2016. p. 185.
- 6 Cassell. p. 187.
- 7 Kuh, George D. "A Brief Overview." *High Impact Educational Practices: What They Are, Who Has Access to Them, and Why They Matter*. Washington: AAC&U, 2008. N. pag. Print.
- 8 Kuh.
- 9 Bonini, Sheila, and Anne-Titia Bové. "Sustainability's Strategic Worth: McKinsey Global Survey Results." *McKinsey & Company*. McKinsey & Company, July 2014. Web. 20 July 2016.
- 10 Bonini.
- 11 Reynolds, Martin. "Critical Thinking and Systems Thinking: Toward a Critical Literacy for Systems Thinking in Practice." *Critical Thinking*. Nova Science, 2011. 37-68. Print.

## Endnotes > Introduction to Sustainability

- 1 Atiyeh, Clifford. "Everything You Need to Know about the VW Diesel-Emissions Scandal." *Everything You Need to Know About the VW Diesel Emissions Scandal – News – Car and Driver*. Car and Driver, 28 June 2016. Web. 23 July 2016.
- 2 Atiyeh.
- 3 Atiyeh.
- 4 "Overview of Greenhouse Gases." *Nitrous Oxide Emissions*. Environmental Protection Agency, n.d. Web. 23 July 2016.
- 5 "Dallas-Fort Worth: Ozone History." *TCEQ Homepage*. Texas Commission on Environmental Quality, n.d. Web. 23 July 2016.
- 6 "Texas Whole or Part County Nonattainment Status by Year Since 1992 for All Criteria Pollutants." *US Environmental Protection Agency*. Environmental Protection Agency, n.d. Web. 23 July 2016.
- 7 "Ozone." *Healthy Air*. American Lung Association, n.d. Web. 23 July 2016.
- 8 "Climate Change and Health." *World Health Organization*. World Health Organization, June 2016. Web. 23 July 2016.
- 9 Cattan, Nacha. "Why Trouble for Volkswagen Made in Germany Means Mexico Headache." *Bloomberg.com*. Bloomberg, 7 Oct. 2015. Web. 23 July 2016.
- 10 Associated Press. "Volkswagen Diesel Emissions Scandal Timeline." *SFGate*. San Francisco Chronicle, 28 June 2016. Web. 23 July 2016.
- 11 "Sustainable Development Goals (SDGs)." *UNDP*. UN Development Programme, n.d. Web. 23 July 2016.
- 12 "UNDP Support to the Implementation of the 2030 Agenda." *UNDP*. UN Development Programme, 26 Jan. 2016. Web. 23 July 2016.
- 13 "SDGs ∴ Sustainable Development Knowledge Platform." *SDGs ∴ Sustainable Development Knowledge Platform*. UN Development Programme, n.d. Web. 23 July 2016.

## Endnotes &gt; Geology

- 1 Monroe, James S., and Reed Wicander. *The Changing Earth: Exploring Geology and Evolution*. 6th ed. Belmont: Brooks/Cole, 2012. Print.
- 2 Meadows, Donella H., and Diana Wright. *Thinking in Systems: A Primer*. White River Junction, VT: Chelsea Green Pub., 2008. Print. p. 2.
- 3 Monroe. p. 4.
- 4 Monroe. p. 4.
- 5 Monroe. p. 4.
- 6 Monroe. p. 7.
- 7 "Current World Population." *World Population Clock: 7.4 Billion People (2016)*. N.p., n.d. Web. 23 July 2016.
- 8 Monroe. p. 9.
- 9 Hart, Maureen. "Key Term: Carrying Capacity." *Sustainable Measures*. N.p., n.d. Web. 23 July 2016.
- 10 Monroe. p. 9.
- 11 Salaheddin, Sinan. "Iraq Records Hottest Day so Far This Year in Basra City." *Washington Post*. Associated Press, 23 July 2016. Web. 23 July 2016.
- 12 Fox, Maggie. "Florida May Have a Second Non-Travel-Related Case of Zika." *NBC News*. N.p., 21 July 2016. Web. 23 July 2016.
- 13 Monroe. p. 53.
- 14 Nuñez, Kiersten. "Kennecott Still Cleaning up Debris 2 Years after Massive Landslide at Bingham Canyon Mine." *Fox13now.com*. N.p., 16 Apr. 2015. Web. 24 July 2016.
- 15 Monroe. p. 60.
- 16 Monroe. p. 73.
- 17 "What Is Ocean Acidification?" PMEL Carbon Program. NOAA, n.d. Web. 24 July 2016.

## Endnotes

- 18 Mooney, Chris. "The Antarctic Ozone Hole Has Finally Started to 'heal,' Scientists Report." *Washington Post*. The Washington Post, 30 June 2016. Web. 24 July 2016.
- 19 Monroe. p. 142.
- 20 Monroe. p. 149.
- 21 "Dust Bowl During the Great Depression - American Memory Timeline- Classroom Presentation | Teacher Resources - Library of Congress." *Dust Bowl During the Great Depression - American Memory Timeline- Classroom Presentation | Teacher Resources - Library of Congress*. Library of Congress, n.d. Web. 24 July 2016.
- 22 "U.S. Mine Disasters Fast Facts." *CNN*. Cable News Network, 24 Feb. 2016. Web. 24 July 2016.
- 23 Sapire, Rachel. "Engulfed in a Toxic Cloud: The Effects of Coal Mining On Human Health." *Harvard College Global Health Review*. Harvard College Global Health Review, 1 Feb. 2012. Web. 24 July 2016.
- 24 Monroe. p. 176.
- 25 Monroe. p. 260.
- 26 Monroe. p. 299.
- 27 Monroe. p. 327.
- 28 Monroe. p. 349.
- 29 Monroe. p. 366.
- 30 Monroe. p. 366.
- 31 Monroe. p. 388-389.
- 32 Lewis, Simon L., and Mark A. Maslin. "Defining the Anthropocene." *Nature* 519.7542 (2015): 171-80. Web. 12 Mar. 2017.

## Endnotes > Business Management

- 1 Bateman. p. 7.
- 2 Bateman. p. 7.
- 3 Safian, Robert. "How PepsiCo CEO Indra Nooyi Is Steering the Company Toward A Purpose-Driven Future | Fast Company | The Future Of Business." *Fast Company*. Fast Company, 09 Jan. 2017. Web. 12 Mar. 2017.
- 4 Bateman. p. 13.
- 5 Bateman. p. 18.
- 6 Bateman. p. 37.
- 7 Meadows, Donella H., and Diana Wright. *Thinking in Systems: A Primer*. White River Junction, VT: Chelsea Green Pub., 2008. Print. p. 2
- 8 Xuemei Bai, Heinz Schandl. 17 Dec 2010 ,Urban ecology and industrial ecology from: *The Routledge Handbook of Urban Ecology* Routledge. Accessed on: 13 Mar 2017
- 9 Bateman. p. 40.
- 10 Morris, Mike. "City Council OKs 20-year solar energy contract." *Houston Chronicle*. Houston Chronicle, 10 Nov. 2015. Web. 13 Mar. 2017.
- 11 Marquis, Christopher, and Andrew Park. "Inside the Buy-one Give-one Model." *Stanford Social Innovation Review* Winter 2014: 27-33. Print.
- 12 Bateman, Thomas S., Scott Snell, and Robert Konopaske. *Management*. 4th ed. New York: McGraw-Hill Education, 2016. Print. p. 48
- 13 Levine, Linda. "Unemployment Through Layoffs and Offshore Outsourcing." *Key Workplace Documents* (2010): n. pag. Print.
- 14 Greenstone, Michael, and Adam Looney. "What Immigration Means for U.S. Employment and Wages." *The Hamilton Project*. Brookings, 4 May 2012. Web. 27 July 2016.

## Endnotes

- 15 Jenkin, Matthew. "Millennials want to work for employers committed to values and ethics." *Leadership*. Guardian News and Media, 05 May 2015. Web. 13 Mar. 2017.
- 16 Bateman. p. 48.
- 17 Collector, Sole. "How Nike's Considered Line Changed the Company for Good." *Sole Collector*. Sole Collector, 22 Apr. 2015. Web. 30 July 2016.
- 18 "The Nike Materials Sustainability Index." *Brown and Wilmanns Environmental*. Brown and Wilmanns Environmental, n.d. Web. 13 Mar. 2017.
- 19 Bateman. p. 52.
- 20 "About Us." *Supply Chain Mapping*. SourceMap, n.d. Web. 30 July 2016.
- 21 Taylor, Alan. "Bhopal: The World's Worst Industrial Disaster, 30 Years Later." *The Atlantic*. Atlantic Media Company, 02 Dec. 2014. Web. 14 Mar. 2017.
- 22 Taylor, Alan. "The Exxon Valdez Oil Spill: 25 Years Ago Today." *The Atlantic*. Atlantic Media Company, 24 Mar. 2014. Web. 14 Mar. 2017.
- 23 Poulton, Lindsay, Francesca Panetta, Jason Burke, and David Levene. "The shirt on your back: the human cost of the Bangladeshi garment industry." *The Guardian*. Guardian News and Media, 16 Apr. 2014. Web. 14 Mar. 2017.
- 24 Bateman. p. 87.
- 25 Bateman. p. 87.
- 26 "Circular Economy - UK, Europe, Asia, South America & USA | Ellen MacArthur Foundation." *Circular Economy - UK, Europe, Asia, South America & USA | Ellen MacArthur Foundation*. Ellen MacArthur Foundation, n.d. Web. 30 July 2016.
- 27 Bateman. p. 98.
- 28 "What Is Backcasting." *The Natural Step*. The Natural Step, n.d. Web. 30 July 2016.

- 29 "The Road Ahead." *Zero S Electric Motorcycle II ZERO MOTORCYCLES*. Zero Motorcycles, n.d. Web. 30 July 2016.
- 30 Bateman. p. 112.
- 31 Bateman, p. 120.
- 32 "Introduction to Integrated Pest Management." *EPA*. Environmental Protection Agency, n.d. Web. 02 Aug. 2016.
- 33 Pierce, Lisa McTigue. "Walmart unveils new sustainable packaging priorities." *Packaging Digest*. Packaging Digest, 01 Nov. 2016. Web. 14 Mar. 2017.
- 34 Gustafsson-Wright, Emily, and Tamar Manuelyan Atinc. "Tomorrow's Skilled Workforce Requires Investing in Young Children Today: The Importance of Early Childhood Development." *Brookings*. The Brookings Institution, 22 Sept. 2014. Web. 07 Aug. 2016.
- 35 "Release: ESI Declining Amid Rising Costs." *RWJF*. Robert Wood Johnson Foundation, 11 Apr. 2013. Web. 02 Aug. 2016.
- 36 Mohan, Anne Marie. "Stonyfield Farm Makes Studied Switch to PLA for Yogurt Multipacks." *Packaging World*. Packaging World, 27 Nov. 2010. Web. 02 Aug. 2016.
- 37 "Biomimicry Global Design Challenge." *Biomimicry Global Design Challenge*. Biomimicry Institute, n.d. Web. 06 Aug. 2016.
- 38 Bateman. p. 293
- 39 Barratt, Mark, Theresa Millar, and Rob Bristow. "Using Videoconferencing and Collaboration Technology to Reduce Travel and Carbon Emissions." *Jisc*. Jisc, 13 Dec. 2013. Web. 06 Aug. 2016.
- 40 Morgan, Jacob. "Five Things You Need To Know About Telecommuting." *Forbes*. Forbes Magazine, 4 May 2015. Web. 06 Aug. 2016.
- 41 Clancy, Heather. "Supply Chain Tool for Gap, H&M, Levi's Gets a Makeover." *GreenBiz*. GreenBiz, 12 Dec. 2013. Web. 06 Aug. 2016.

## Endnotes > Computer Science

- 1 "ASARCO » Mission Mine." *ASARCO » Mission Mine*. ASARCO, n.d. Web. 27 Aug. 2016.
- 2 ASARCO.
- 3 Folger, Tim. "Rare Earth Elements." - *Pictures, More From National Geographic Magazine*. National Geographic Society, June 2011. Web. 27 Aug. 2016.
- 4 Kaiman, Jonathan. "Rare Earth Mining in China: The Bleak Social and Environmental Costs." *The Guardian*. Guardian News and Media, 20 Mar. 2014. Web. 27 Aug. 2016.
- 5 Kaiman.
- 6 Maughan, Tim. "The Dystopian Lake Filled by the World's Tech Lust." *BBC*. BBC, 2 Apr. 2015. Web. 27 Aug. 2016.
- 7 Bleasedale, Marcus. "Conflict Minerals." *The Price of Precious*. National Geographic Society, Oct. 2013. Web. 27 Aug. 2016.
- 8 "FACT SHEET." SEC.gov. U.S. Securities and Exchange Commission, n.d. Web. 27 Aug. 2016.
- 9 Rutherford, Allie, and Steve Starbuck. "Conflict Minerals Reports Are Filed, but What Do They Say?" *GreenBiz*. GreenBiz, 19 Aug. 2014. Web. 27 Aug. 2016.
- 10 Christensen, Ken, and Kate Campbell. "The US Is Still Dumping Some of Its Toxic E-waste Overseas." *Public Radio International*. Public Radio International, 2 June 2016. Web. 18 Sept. 2016.
- 11 Convention, Basel. "Overview." *Overview*. Basel Convention, 2011. Web. 18 Sept. 2016.
- 12 Convention, Basel. "Parties to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal." *Parties to the Basel Convention*. The Basel Convention, n.d. Web. 18 Sept. 2016.
- 13 Risen, Tom. "America's Toxic Electronic Waste Trade." *U.S. News*. U.S. News, 22 Apr. 2016. Web. 18 Sept. 2016.

- 14 Campbell, Katie, and Ken Christensen. "On the Trail of America's Dangerous, Dead Electronics." *Oregon Public Broadcasting (OPB)*. Oregon Public Broadcasting (OPB), 9 May 2016. Web. 18 Sept. 2016.
- 15 Campbell.
- 16 Bradley, Laura. "E-Waste in Developing Countries Endangers Environment, Locals." *US News. U.S. News & World Report*, 1 Aug. 2014. Web. 18 Sept. 2016.

## Endnotes > Government

- 1 McLaughlin, Claire. "The Homework Gap: The 'Cruellest Part of the Digital Divide'" NEA Today. National Education Association, 20 Apr. 2016. Web. 03 Jan. 2017.
- 2 McLaughlin.
- 3 "Twenty-First Century Communications and Video Accessibility Act." Federal Communications Commission. Federal Communications Commission, 8 Oct. 2015. Web. 03 Jan. 2017.
- 4 Ginsberg, Benjamin, Theodore J. Lowi, Margaret Weir, Caroline J. Tolbert, and Robert J. Spitzer. *We the people: an introduction to American politics*. 10th ed. New York: W.W. Norton & Company, 2015. Print. p. 22.
- 5 Ginsberg. p. 29–30.
- 6 Franke, Leigh. "How do so many people get stuck in poverty?" Urban Institute. Urban Institute, 28 Feb. 2016. Web. 17 Jan. 2017.
- 7 Kogan, Richard, and Isaac Shapiro. "House GOP Budget Gets 62 Percent of Budget Cuts From Low- and Moderate-Income Programs." House GOP Budget Gets 62 Percent of Budget Cuts From Low- and Moderate-Income Programs | Center on Budget and Policy Priorities. Center on Budget and Policy Priorities, 28 Mar. 2016. Web. 17 Jan. 2017.
- 8 Elliott, Larry. "World's eight richest people have same wealth as poorest 50%." The Guardian. Guardian News and Media, 15 Jan. 2017. Web. 17 Jan. 2017.
- 9 Ginsberg. p. 26.
- 10 Ginsberg. p. 27.
- 11 Naylor, Brian. "Trump Acts To Roll Back Regulations On Businesses." NPR. NPR, 30 Jan. 2017. Web. 08 Feb. 2017.
- 12 Natter, Ari, and Catherine Traywick. "Senate Votes to Reverse Obama-Era Coal Rule, Sends to Trump." Bloomberg.com. Bloomberg, 02 Feb. 2017. Web. 08 Feb. 2017.
- 13 Naylor.

- 14 Ginsberg. p. 31.
- 15 Lee, Jasmine C. "How States Moved Toward Stricter Voter ID Laws." *New York Times*. The New York Times Company, 3 Nov. 2016.
- 16 Blinder, Alan. "Questions and Answers on Voter Fraud." *New York Times*. The New York Times Company, 4 Aug. 2016.
- 17 Ginsberg. p. 55.
- 18 Somin, Ilya. "Opinion | The story behind *Kelo v. City of New London* – how an obscure takings case got to the Supreme Court and shocked the nation." *The Washington Post*. WP Company, 29 May 2015. Web. 09 Feb. 2017.
- 19 Somin.
- 20 "10 Residents Under Siege By Proposal For Big Mall." *The New York Times*. The New York Times, 18 May 1997. Web. 09 Feb. 2017.
- 21 Galbraith, Kate. "Supreme Court Rules in Favor of Oklahoma in Water War with Texas." *Governing magazine: State and local government news for America's leaders*. E.Republic, 13 June 2013. Web. 12 Feb. 2017.
- 22 *Tarrant Regional Water District v Herrmann et al.* Supreme Court of the United States. 13 June 2013. SupremeCourt.gov. Supreme Court of the United States, 13 June 2013. Print. 12 Feb. 2017. Opinion p. 1.
- 23 Tarrant. p. 6–9.
- 24 Ginsberg. p. 66.
- 25 Blakeslee, Nate. "This Land Is Your Land, Until Dallas Needs It." *Texas Monthly*. Texas Monthly, 27 May 2014. Web. 12 Feb. 2017.
- 26 Hanna, Bill. "A never-ending thirst: Exploring Tarrant County's quest for water." *Star-telegram*. Fort Worth Star-Telegram, 16 May 2016. Web. 12 Feb. 2017.
- 27 Ginsberg. p. 89.
- 28 "Child labour, labor, children, adolescents, slave, unpaid work, debt bondage, serfdom, forced labour, trafficking." United Nations. United Nations, n.d. Web. 12 Feb. 2017.

## Endnotes

- 29 United States. U.S. Department of Labor. Bureau of International Labor Affairs. List of Goods Produced by Child Labor or Forced Labor. 6th ed. Washington, D.C.: U.S. Department of Labor, 2014. Print.
- 30 Ginsberg. p. 91.
- 31 "Supreme Court History: Expanding Civil Rights." PBS. Public Broadcasting Service, Dec. 2006. Web. 01 Apr. 2017.
- 32 Satija, Neena, Lindsay Carbonell, and Ryan McCrimmon. "Texas vs. the Feds - A Look at the Lawsuits." The Texas Tribune. The Texas Tribune, 17 Jan. 2017. Web. 01 Apr. 2017.
- 33 Ginsberg. p. 94.
- 34 "Where the states stand on Medicaid expansion." The Advisory Board Daily Briefing. The Advisory Board Company, 30 Mar. 2017. Web. 01 Apr. 2017.
- 35 Ginsberg. p. 92.
- 36 Ginsberg, p. 93.
- 37 "America's Great Depression and Roosevelt's New Deal." America's Great Depression and Roosevelt's New Deal. Digital Public Library of America, n.d. Web. 18 June 2017.
- 38 "H.R. 1628, American Health Care Act of 2017." H.R. 1628, American Health Care Act of 2017. Congressional Budget Office, 24 May 2017. Web. 25 June 2017.
- 39 Ginsberg, p. 101.
- 40 Ginsberg, p. 102.
- 41 Ginsberg, p. 102.
- 42 Ginsberg, p. 102.
- 43 Foster, Lionel. "Busted: America's Poverty Myths." The US Partnership on Mobility from Poverty. U.S. Partnership on Mobility from Poverty, 11 Oct. 2016. Web. 01 July 2017.
- 44 "U.S. Poverty Myths." U.S. Poverty Myths | World Vision U.S. Programs. World Vision, 2015. Web. 01 July 2017.
- 45 Esposito, Lisa. "The Countless Ways Poverty Affects People's

- Health." U.S. News & World Report. U.S. News & World Report, 20 Apr. 2016. Web. 01 July 2017.
- 46 Kay, Cheryl Katz Jane. "Pollution, Poverty and People of Color: Can Multiculturalism Create Environmental Justice?" *Scientific American*. *Scientific American*, 5 June 2012. Web. 01 July 2017.
- 47 Kay.
- 48 Ginsberg, pp. 134–135.
- 49 "What Drives Gun Ownership?" *USA Today*. Gannett Satellite Information Network, 08 June 2017. Web. 01 July 2017.
- 50 Ginsberg, p. 167.
- 51 Breslow, Jason M., Evan Wexler, and Robert Collins. "The Return of School Segregation in Eight Charts." PBS. Public Broadcasting Service, 15 July 2014. Web. 02 July 2017.
- 52 Breslow, et al.
- 53 McDaniel, Chris. "Francis Howell Parents Express Outrage Over Incoming Normandy Students." *St. Louis Public Radio*. *St. Louis Public Radio*, 12 July 2013. Web. 02 July 2017.
- 54 "The Equal Pay Act of 1963." *The Equal Pay Act of 1963 (EPA)*. U.S. Equal Employment Opportunity Commission, n.d. Web. 02 July 2017.
- 55 Farber, Madeline. "3 Reasons Why the Gender Pay Gap Still Exists." *Wage Gap: 3 Big Reasons It Still Exists on Equal Pay Day | Fortune.com*. *Fortune*, 03 Apr. 2017. Web. 02 July 2017.
- 56 Houchins, Miranda. "This Day in History: Equal Pay Trailblazer Lilly Ledbetter Turns 77." *National Archives and Records Administration*. *National Archives and Records Administration*, 14 Apr. 2015. Web. 02 July 2017.
- 57 Cook, Linda. "More Depressing News for Women in STEM." *U.S. News & World Report*. *U.S. News & World Report*, 6 Jan. 2016. Web. 3 July 2017.
- 58 Ginsberg, p. 207.
- 59 Sommeiller, Estelle, Mark Price, and Ellis Wazeter. "Income inequality in the U.S. by state, metropolitan area, and county." *Income*

## Endnotes

- inequality in the U.S. by state, metropolitan area and county. Economic Policy Institute, 16 June 2016. Web. 03 July 2017.
- 60 Kochhar, Kalpana, Frantisek Ricka, Nujin Suphaphiphat, and Evridiki Tsounta. *Causes and Consequences of Income Inequality: A Global Perspective*. Rep. no. JEL D63, D31, 015, H23,. Ed. Era Dabla-Norris. Washington, DC: International Monetary Fund, 2015. Print.
- 61 Levitin, Michael. "The Triumph of Occupy Wall Street." *The Atlantic*. Atlantic Media Company, 10 June 2015. Web. 03 July 2017.
- 62 The Associated Press. "Correction: EPA-Dow Chemical story." *ABC News*. ABC News Network, 30 June 2017. Web. 03 July 2017.
- 63 "What is the purpose of journalism?" *American Press Institute*. American Press Institute, 09 Oct. 2013. Web. 04 July 2017.
- 64 Ginsberg, p. 262.
- 65 Ginsberg, p. 263.
- 66 Fisher, Marc, John Woodrow Cox, and Peter Hermann. "Pizzagate: From rumor, to hashtag, to gunfire in D.C." *The Washington Post*. WP Company, 06 Dec. 2016. Web. 04 July 2017.
- 67 Fisher, et. al.
- 68 Bradner, Eric. "Conway: Trump White House offered 'alternative facts' on crowd size." *CNN*. Cable News Network, 23 Jan. 2017. Web. 04 July 2017.
- 69 Norris, Pippa. *Driving democracy: do power-sharing institutions work?* Cambridge: Cambridge U Press, 2008. Print. Chapter 8, p. 4.
- 70 Ginsberg, p. 264.
- 71 Ginsberg, p. 265.
- 72 Last Week Tonight. "Sinclair Broadcast Group: Last Week Tonight with John Oliver (HBO)." *YouTube*. YouTube, 02 July 2017. Web. 04 July 2017.
- 73 Ember, Sydney. "Sinclair Requires TV Stations to Air Segments That Tilt to the Right." *The New York Times*. The New York Times, 12 May 2017. Web. 04 July 2017.
- 74 Ginsberg, p. 270.

- 75 Chokshi, Niraj. "U.C. Davis Chancellor Resigns Under Fire." *The New York Times*. The New York Times, 09 Aug. 2016. Web. 09 July 2017.
- 76 Beaumont, Peter. "The truth about Twitter, Facebook and the uprisings in the Arab world." *The Guardian*. Guardian News and Media, 25 Feb. 2011. Web. 09 July 2017.
- 77 Brown, Heather, Emily Guskin, and Amy Mitchell. "The Role of Social Media in the Arab Uprisings." Pew Research Center's Journalism Project. Pew Research Center, 27 Nov. 2012. Web. 09 July 2017.
- 78 "Social media plays major role in national debate on police violence." PBS. Public Broadcasting Service, 15 July 2016. Web. 09 July 2017.
- 79 Dargis, Manohla. "Review: In 'City of Ghosts,' Fighting ISIS With Journalism." *The New York Times*. The New York Times, 06 July 2017. Web. 09 July 2017.
- 80 Ginsberg, p. 310.
- 81 Levy, Gabrielle. "How Citizens United Has Changed Politics in 5 Years." *U.S. News & World Report*. U.S. News & World Report, 21 Jan. 2015. Web. 9 July 2017.
- 82 Levy.
- 83 Ginsberg, p. 436.
- 84 Ginsberg, p. 441.
- 85 Ginsberg, p. 449.
- 86 Hanley, Steve. "Nonprofit Maps Corporate Fossil Fuel Lobbying Efforts." *CleanTechnica*. Sustainable Enterprises Media, Inc., 09 May 2016. Web. 16 July 2017.
- 87 "Oil & Gas." *OpenSecrets.org*. The Center for Responsive Politics, n.d. Web. 16 July 2017.
- 88 Fessler, Pam. "HUD Secretary Ben Carson Clarifies Remarks About Poverty." *NPR*. NPR, 01 June 2017. Web. 16 July 2017.
- 89 Popovich, Nadja, and Tatiana Schlossberg. "23 Environmental Rules Rolled Back in Trump's First 100 Days." *The New York Times*. The New York Times, 02 May 2017. Web. 16 July 2017.

## Endnotes

- 90 *Milman, Oliver.* "EPA removes half of scientific board, seeking industry-aligned replacements." *The Guardian.* Guardian News and Media, 08 May 2017. Web. 16 July 2017.
- 91 "EPA chief wants scientists to debate climate on TV." *Reuters.* Thomson Reuters, 11 July 2017. Web. 16 July 2017.
- 92 *Eilperin, Juliet.* "Trump orders review of national monuments, vows to 'end these abuses and return control to the people'." *The Washington Post.* WP Company, 26 Apr. 2017. Web. 16 July 2017.
- 93 *Volcovici, Valerie.* "Trump orders review of national monuments to allow development." *Reuters.* Thomson Reuters, 26 Apr. 2017. Web. 16 July 2017.
- 94 *Ginsberg,* p. 642.
- 95 "Creating the Bureau." *Consumer Financial Protection Bureau.* Consumer Financial Protection Bureau, n.d. Web. 16 July 2017.
- 96 *Ginsberg,* p. 643.
- 97 "Summary of the Energy Policy Act." *EPA.* Environmental Protection Agency, 07 Feb. 2017. Web. 22 July 2017.
- 98 "Energy Policy Act of 2005." *Department of Energy.* Department of Energy, n.d. Web. 22 July 2017.
- 99 "Food vs. Fuel: U.S. Biofuels and the Global Food Crisis." *Food vs. Fuel.* Global Development and Environment Institute at Tufts University, n.d. Web. 22 July 2017.
- 100 *Wise, Timothy A.* *Fueling the Food Crisis: The Cost to Developing Countries of US Corn Ethanol Expansion.* Rep. Washington, DC: ActionAid International USA, 2012. Print.
- 101 *Garcia-Navarro, Lulu.* "Mexico Grumbles over Rise in Tortilla Prices." *NPR.* NPR, 18 Jan. 2007. Web. 22 July 2017.
- 102 *Carter, Colin, Gordon Rausser, and Aaron Smith.* *The Effect of the US Ethanol Mandate on Corn Prices.* Tech. UC Davis Department of Agriculture and Resource Economics, Sept. 2012. Web. 22 July 2017.
- 103 "Film Update." *PBS.* Public Broadcasting Service, 20 Jan. 2010. Web. 23 July 2017.

- 104 Foodborne Illness Source Attribution Estimates for Salmonella, Escherichia coli (E. coli O157), Listeria monocytogenes (Lm), and Campylobacter using Outbreak Surveillance Data. Rep. Washington, DC: Interagency Food Safety Analytics Collaboration (IFSAC) Project, 2015. Print.
- 105 Commissioner, Office Of the. "Consumer Updates - Start at the Store: 7 Ways to Prevent Foodborne Illness." U S Food and Drug Administration Home Page. Office of the Commissioner, n.d. Web. 23 July 2017.
- 106 United States. Cong. House. Committee on Energy and Commerce. Hearing on Implementing the FDA Food Safety Modernization Act. February 5, 2014. 113th Cong. Washington: GPO, 2014. (statement of Michael R. Taylor, J.D., Deputy Commissioner for Food and Veterinary Medicine, Food and Drug Administration, Department of Health and Human Services).
- 107 Nixon, Ron. "Funding Gap Hinders Law for Ensuring Food Safety." The New York Times. The New York Times, 07 Apr. 2015. Web. 23 July 2017.
- 108 The Dallas Morning News Editorial Board. "American Dream, denied." American Dream denied. The Dallas Morning News, 11 July 2017. Web. 23 July 2017.
- 109 Jan, Tracy. "Here's how much you would need to afford rent in your state." The Washington Post. WP Company, 08 June 2017. Web. 23 July 2017.
- 110 Jan.
- 111 DeSilver, Drew. "5 facts about the minimum wage." Pew Research Center. Pew Research Center, 04 Jan. 2017. Web. 23 July 2017.
- 112 Ferdman, Roberto A. "What paying fast food workers a living wage would do to the price of a Big Mac." The Washington Post. WP Company, 30 July 2015. Web. 23 July 2017.
- 113 Buren, Peter Van. "This is why a \$15 minimum wage is not the answer." Mother Jones. Mother Jones, 10 Mar. 2016. Web. 23 July 2017.
- 114 Van Buren.
- 115 Horowitz, Julia. "Minimum wage: Here's where Americans are getting a raise this weekend." CNNMoney. Cable News Network, 30

## Endnotes

June 2017. Web. 29 July 2017.

- 116 Noguchi, Yuki. "As Cities Raise Minimum Wages, Many States Are Rolling Them Back." NPR. NPR, 18 July 2017. Web. 29 July 2017.
- 117 "City Rights in an Era of Preemption: A State-by-State Analysis." NLC National League of Cities. NLC National League of Cities, 22 Feb. 2017. Web. 29 July 2017.
- 118 Ginsberg, p. 671.
- 119 Haspel, Tamar. "Farm bill: Why don't taxpayers subsidize the foods that are better for us?" The Washington Post. WP Company, 18 Feb. 2014. Web. 29 July 2017.
- 120 Siegel KR, McKeever Bullard K, Imperatore G, Kahn HS, Stein AD, Ali MK, Narayan KM. Association of Higher Consumption of Foods Derived From Subsidized Commodities With Adverse Cardiometabolic Risk Among US Adults. *JAMA Intern Med.* 2016;176(8):1124-1132. doi:10.1001/jamainternmed.2016.2410
- 121 Carrington, Damian. "G20 public finance for fossil fuels 'is four times more than renewables'." The Guardian. Guardian News and Media, 05 July 2017. Web. 29 July 2017.
- 122 "U.S. Energy Facts Explained." U.S. Energy Facts - Energy Explained, Your Guide To Understanding Energy - Energy Information Administration. U.S. Energy Information Administration, 19 May 2017. Web. 30 July 2017.
- 123 Ginsberg, p. 673.
- 124 "Gaylord Nelson Promotes the First Earth Day." U.S. Senate: Gaylord Nelson Promotes the First Earth Day. Senate Historical Office, 17 Apr. 2017. Web. 30 July 2017.
- 125 Eilperin, Juliet, and Brady Dennis. "At EPA museum, history might be in for a change." The Washington Post. WP Company, 30 July 2017. Web. 31 July 2017.
- 126 Eilperin.
- 127 Eilperin.
- 128 Ginsberg. p. 673.
- 129 Harish, Alon. "New Law in North Carolina Bans Latest Scientific

Predictions of Sea-Level Rise." ABC News. ABC News Network, 02 Aug. 2012. Web. 12 Aug. 2017.

130 Harish.

131 Harish.

132 Oreskes, Naomi. "Merchants of Doubt - Home." Merchants of Doubt - Home. Merchants of Doubt, n.d. Web. 12 Aug. 2017.

133 "Climate of Doubt." PBS. Ed. John Hockenberry. Public Broadcasting Service, 2012. Web. 12 Aug. 2017.

134 Korten, Tristram . "In Florida, officials ban term 'climate change'." Miami Herald. Miami Herald, 8 Mar. 2015. Web. 12 Aug. 2017.

135 Florida Oceans and Coastal Council. Climate Change and Sea-Level Rise in Florida: An Update of "The Effects of Climate Change on Florida's Ocean and Coastal Resources. Publication. Florida: Tallahassee, 2010. Print.

136 Florida Oceans and Coastal Council.

137 Allen, Greg. "As Waters Rise, Miami Beach Builds Higher Streets And Political Willpower." NPR. NPR, 10 May 2016. Web. 12 Aug. 2017.

138 Schlanger, Zoë. "Wisconsin Bans Officials from Discussing Climate Change." Newsweek. Newsweek, 25 Mar. 2016. Web. 12 Aug. 2017.

139 Gallucci, Maria. "Bill to Ban Sustainability and Climate Change Action Fails in Arizona." Inside Climate News. Inside Climate News, 11 May 2012. Web. 12 Aug. 2017.

140 Hill, Taylor. "Climate Change Wallops Alabama, but the State Climatologist Is a Climate Skeptic." TakePart. TakePart, 01 Nov. 2016. Web. 12 Aug. 2017.

141 Hill.

142 News, CBS. "Cities publish climate change data deleted from EPA website." CBS News. CBS Interactive, 12 June 2017. Web. 12 Aug. 2017.

143 Ginsberg, p. 143.

## Endnotes

- 144 Santhanam, Laura. "If SNAP benefits are cut, who hurts the most?" PBS. Public Broadcasting Service, 19 July 2017. Web. 13 Aug. 2017.
- 145 Haag, Matthew. "All Dallas ISD students will now get free breakfast and lunch." Dallas News. The Dallas Morning News, 01 Oct. 2013. Web. 13 Aug. 2017.
- 146 FRAC FACTS. N.d. Summer Food Service Program flyer. Washington, D.C.
- 147 Jan, Tracy. "Trump wants more people who receive housing subsidies to work." The Washington Post. WP Company, 23 May 2017. Web. 13 Aug. 2017.
- 148 Jan.
- 149 Ginsberg. p. 698–699.
- 150 "About ED / Overview / Mission." Mission. Department of Education, 20 Oct. 2011. Web. 13 Aug. 2017.
- 151 Kamenetz, Anya. "President Trump's Budget Proposal Calls For Deep Cuts To Education." NPR. NPR, 22 May 2017. Web. 13 Aug. 2017.
- 152 Resnick, Michael A. "An American imperative: Public education." Center for Public Education. Center for Public Education, 27 Apr. 2006. Web. 13 Aug. 2017.
- 153 Ginsberg. p. 726.
- 154 "2.1.3 The dual relationship between climate change and Sustainable Development." 2.1.3 The dual relationship between climate change and Sustainable Development - AR4 WGIII Chapter 2: Framing Issues. International Panel on Climate Change, n.d. Web. 13 Aug. 2017.
- 155 United Nations Framework Convention on Climate Change. "Background on the UNFCCC: The international response to climate change." Essential Background. United Nations, 04 Oct. 2016. Web. 13 Aug. 2017.
- 156 Borenstein IAP, Seth. "US officially tells UN it wants out of Paris climate deal." The Washington Post. WP Company, 04 Aug. 2017. Web. 13 Aug. 2017.