

GREAT DECISIONS

1918 • FOREIGN POLICY ASSOCIATION

HIGH SCHOOL

NOVEMBER 2020

TEACHERS:
CHECK OUT
THE BACK PAGE

CLIMATE CHANGE

FIRST
IN A
SERIES!

As the ice in the Arctic melts, it's harder for polar bears to hunt for seals.

**The planet is getting hotter.
The polar ice caps are melting.
Ocean levels are rising.**

**Floods and wildfires are more frequent and often more intense.
Plant and animal species are disappearing.
People are suffering.**

**HOW DID WE GET HERE, AND
WHAT'S THE PATH FORWARD?**



Students at a climate change protest in San Francisco in 2019

Fabrice Florin/Flickr

A NEW GENERATION FIGHTS TO SAVE THE PLANET

Could your hometown be uninhabitable in 50 or 100 years? Scientists fear that entire cities that once stood safely on dry ground could be permanently submerged in the decades ahead. Intense heat waves and massive wildfires are also deadly threats as we saw in California, Oregon, Washington, and Colorado this year.

The culprit is [climate change](#), which is a slow change in global or regional climate patterns, such as temperature and precipitation, over a long period of time. (You've probably also heard the term **global warming**, which refers to just one aspect of climate change: the increase in Earth's average temperature over time.)

For millions of years, Earth's climate* has cycled between warmer and cooler periods. Since the end of

the most recent **ice age** 12,000 years ago, Earth's climate has slowly been growing warmer.

But since the Industrial Revolution, the average temperature has risen much faster, by a little more than 2°F, with two-thirds of that increase since 1975. The two warmest years ever were 2016 and 2019, and September 2020 was the hottest on record.

A couple of degrees might not sound like a big deal, but it is: A drop of just 1 or 2 degrees sent the planet into the last ice age, and a couple of degrees of warming could be enough to make Earth largely uninhabitable for humans.

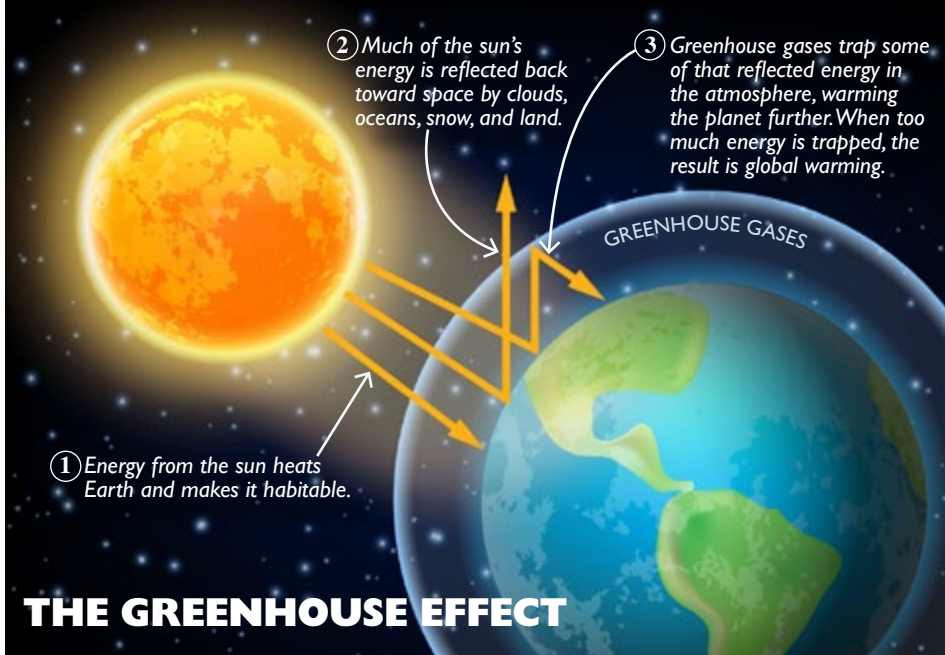
The primary cause of the rising temperatures? People. Many of the things we do every day—from eating and driving to texting and working in factories—contribute directly or indirectly

to climate change. And we don't have to wait 50 years to see climate change's impact: Most scientists believe that climate change is already increasing the intensity and frequency of catastrophic **weather** events like hurricanes and wildfires.

Scientists also say that the longer we wait, the harder it gets to ensure humanity's future. Young people around the globe have heard the message and are taking action. (See p. 7.)

Elizabeth Maruma Mrema, the Tanzanian leader of the United Nations Convention on Biological Diversity, summed it up for *The New York Times*: “We still need this planet to live on,” she said, “and we still need this planet for our children.”

*Weather and climate: Weather is what's outside when you open the door; climate describes the weather conditions that are expected in a particular region at a particular time of year.



THE GREENHOUSE EFFECT

Why are they called greenhouse gases? Because they work like greenhouses: Greenhouse gases let sunlight through while trapping heat in the atmosphere.

GREENHOUSE GASES

What's causing Earth's climate to get warmer? The answer is invisible **greenhouse gases**, such as carbon dioxide, methane, and nitrous oxide, which make up some of the atmosphere.

We actually need these greenhouse gases. They act like the glass panes of a greenhouse, trapping heat from the sun and making Earth warm enough to support life.

But the amount of greenhouse gases in the atmosphere, especially carbon dioxide, has increased significantly in the last 250 years. Most of the increase is a result of humans burning **fossil fuels** like coal, oil, and natural gas, which are used to heat and cool homes and schools, in electricity generation and manufacturing, and to power cars, planes, and internet data centers. (They're called fossil fuels because they come from the remains of fossilized plants and animals, such as dinosaurs, that died millions of years ago.)

Deforestation—harvesting trees for timber and to make room



for homes, farms, and mines—also contributes to climate change.

Trees and other plants naturally absorb carbon dioxide. Fewer trees means less carbon dioxide gets absorbed, with more making its way into the atmosphere.

Of particular concern is deforestation in South America's Amazon rainforest—an area so vast it's known as "Earth's lungs." At the current rate of deforestation, more than a quarter of the Amazon's trees could be gone by 2030.

YOUR BURGER . . .

Fossil fuels and deforestation aren't the only climate-change culprits. In fact, high on the list is . . . your hamburger. After carbon dioxide, the most common greenhouse gas is methane, which is primarily a byproduct of raising livestock. To put it bluntly, the methane comes from cow burps and farts!

Livestock produces 15% of the world's greenhouse gas emissions.

THE DEBATE

SHOULD THERE BE LESS RED MEAT IN SCHOOL LUNCHES?

YES

- Reducing demand for red meat would help cut greenhouse gas emissions from cattle.
- A quarter-pound burger requires 65 square feet of land for grazing and feed crops.
- Eating red meat increases a person's risk of cancer, heart disease, and diabetes.

NO

- Millions of students love having burgers for lunch.
- Red meat is a good source of nutrients like vitamin B12 and iron.
- Modern cattle operations are much more efficient and environmentally friendly than they used to be.

Earth is now home to 1.4 billion cattle, all frequently eating—and constantly digesting. The U.N. says they produce 15% of the world’s greenhouse gas emissions.

What’s the carbon footprint of your quarter-pound burger? According to a 2012 study in the scientific journal *Animals*, it’s about 4 pounds of greenhouse gases.

MELTING ICE CAPS

One of the most serious effects of climate change is the gradual melting of the **polar ice caps** in the Arctic and Antarctica.

The melting ice harms Earth in two major ways. First, it causes ocean levels to rise. From Houston and New York to the South Asian nation of Bangladesh and the Marshall Islands in the Pacific, [many places are feeling the effects](#), including more frequent flooding

In California’s Death Valley in August, it hit 130°F, which may be the highest temperature ever recorded.

that destroys homes, farms, and factories. Climate change could eventually create millions of “[climate refugees](#)” who have been forced to leave their homelands.

The world’s most vulnerable coastal city is Miami, Florida, according to Resources for the Future (RFF), a non-partisan research institute in Washington, D.C. Indeed, RFF says that 300,000 homes, 30 schools, and four hospitals will be at risk in the next 20 years in Florida, which has an 8,500-mile coastline.

The second major way melting polar ice harms the Earth is that the ice stores greenhouse gases. As it melts, carbon dioxide trapped inside is released, adding to the greenhouse gases in the atmosphere.

WILD WEATHER

Heat waves, hurricanes, floods, droughts, and wildfires have all increased in frequency and strength in recent years. Summer 2019 saw record temperatures around the world and in August 2020, it was 130°F in California’s Death Valley, which may be the highest temperature ever recorded on Earth.

An intense summer heat wave in 2020, combined with an equally intense drought, left the forests on America’s West Coast primed to erupt in flames. In California, by



September 11, 2020: Desiree Pierce at what’s left of her home in Talent, Oregon, after massive West Coast wildfires in California, Oregon, Washington, and Colorado. “I just needed to see it,” she said, “to get some closure.”



Shrinking sea ice in the Arctic causes ocean levels to rise, releases carbon dioxide stored in the ice, and threatens polar bears and other wildlife.

mid-September, an area the size of Connecticut had burned.

Higher global temperatures heat not only the air but also the oceans. Hurricanes get their power from the evaporation of hot, moist ocean air, so warmer oceans may mean more frequent storms. And since warmer air can hold more moisture, storms may dump significantly more rain, which can result in more severe and more frequent flooding.

ENDANGERED SPECIES

Climate change is also a threat to countless species whose habitats and food sources are shrinking. Close to 7,000 of the more than 120,000 species currently tracked by the International Union for Conservation of Nature are critically endangered.

The most poignant symbol of species threatened by climate change may be the Arctic's polar bears (see the cover). As sea ice recedes earlier in spring and forms later in the fall due to warmer

temperatures, changes in bear habitats and food sources are endangering their existence.

WHAT'S BEING DONE

[Most responses to climate change](#) involve decreasing the use of fossil fuels, especially coal and oil, and increasing the use of alternative energy sources. There's already been real progress. For example, about 20% of the power generated in the U.S. in 2020 comes from coal, down from 31% in 2017.

Alternative energy sources such as wind, solar, hydropower,

and nuclear (which has its own environmental and safety issues) don't produce greenhouse gases. They're playing a growing role in the U.S. and world economies, accounting for 20% of U.S. energy consumption in 2018.

Advances in technology and government incentives are encouraging that growth. Some governments offer tax breaks for using green energy. Electric- and hybrid-car buyers often get tax breaks and can use high-occupancy vehicle (HOV) lanes. Governments have also raised taxes on fossil fuels, including gas at the pump (see Debate below), to make them more expensive and discourage their use.

In 2015, representatives of many of the world's nations met in Paris to sign a landmark agreement to combat climate change and move toward a sustainable, low-carbon future. The goal is to limit the global rise in temperature in this century to between 1.5°C and 2°C.

The U.S. is one of 189 nations that have signed the **Paris Agreement**, although President Donald Trump has said the U.S. will withdraw from the agreement in November 2020.

THE DEBATE

SHOULD WE RAISE GAS TAXES?

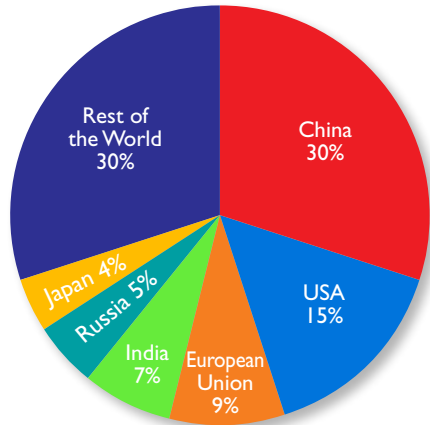
YES

- If driving were more expensive, people would drive less.
- Higher gas taxes would encourage the purchase of fuel-efficient vehicles.
- Higher gas taxes would encourage carpooling.

NO

- People will still need to drive, even if gas costs more.
- It would be a hardship for people who already struggle to pay to fill up their tanks.
- Climate-change costs should be borne by fossil-fuel companies.

Global CO² Emissions by Country



Source: FPA; T.A. Boden, G. Marland, R.J. Andres (2017). National CO₂ Emissions from Fossil-Fuel Burning, Cement Manufacture, and Gas Flaring: 1751–2014, Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, U.S. Department of Energy. Data is from 2014, the latest available.

In Congress, a resolution known as the **Green New Deal** was introduced in 2019. It calls on the federal government to dramatically reduce greenhouse gas emissions as part of a “10-year national mobilization.”

There are, however, questions about the economic impact of the Green New Deal and efforts to combat climate change in general. Millions of jobs in the U.S. are connected to traditional energy sources—both their extraction (e.g., oil and gas drilling and coal mining) and their use (e.g., powering cars, homes, schools, and factories).

Concern is especially high in the top states for the production of coal (Wyoming, West Virginia, and Pennsylvania) and oil (Texas, North Dakota, and New Mexico). Green New Deal proponents say it will create millions of jobs in green technologies and rebuilding the nation’s infrastructure—such as roads, public transit, and buildings—to run on green energy.

WHAT YOU CAN DO

Doing something about climate change doesn’t need to be left to governments, corporations, or even adults. Here are some simple ways you can help on a daily basis:

- Don’t waste electricity. Turn off lights and unplug devices when you aren’t using them.
- Eat less red meat and waste less food. Americans throw out 25% of their groceries, and food decomposing in landfills emits methane (just like cows!).
- Bike, walk, take public transit, or carpool instead of driving alone.

- If you’re buying a car, try to find one that gets good mileage. If you can afford it, buy an electric or hybrid car.
- Calculate your **carbon footprint** (how much carbon dioxide is released into the atmosphere from your daily activities) and try to reduce it.
- Let your elected officials know how important this issue is.
- And as soon as you’re old enough, VOTE! With few exceptions, you can’t vote until you’re 18, but in many states you can register at 16 or 17, and you’ll be all set when 18 rolls around.



THE DEBATE

SHOULD THERE BE A NATIONWIDE BAN ON PLASTIC BAGS?

YES

- Plastic bags are made using oil and are difficult to recycle.
- Americans use a billion plastic bags a year, with only 1% recycled.
- Plastic can take decades, even centuries, to break down.

NO

- Plastic bags are more sanitary than paper or cloth bags.
- Many people feel single-use plastic bags offer protection against COVID-19.
- Plastic bags are inexpensive, even when used only once.

TEENS ON THE FRONT LINES

Greta Thunberg at a climate protest outside the White House in 2019



Streetsblog/Denver/Flickr

“I want you to act as if the house is on fire,” says 17-year-old Swedish climate activist Greta Thunberg, “because it is.”

Thunberg’s 15-day Atlantic voyage to address the U.N. Climate Action Summit in New York in 2019 helped make her the world’s most famous young climate activist, but she has plenty of company. Here are three examples:

Felix Finkbeiner

In 2007, when he was in fourth grade in Munich, Germany, Felix Finkbeiner learned about climate change and deforestation. He tried to help by planting a tree at his school and encouraging other students to do the same. He then took his effort online with plant-for-the-planet.org, which has encouraged the planting of 12 billion trees around the world.

Liza Goldberg

As a middle-school student in Maryland, Liza Goldberg did a science fair project on the effects of climate change on red-maple saplings that caught the attention of a judge from the National Aeronautics and Space Administration (NASA). She then began interning on a NASA research project that uses satellites to monitor the health of mangrove forests and helped create a system that alerts scientists when specific forests are

Jerome Foster II at a 2019 climate march in Washington, D.C.



Graeme Slean/SIPA/AP Images

threatened. Goldberg is continuing her work with NASA as a freshman at Stanford University in California. She’s also helping develop a program that lets K–12 classes use satellite imagery to study climate change.

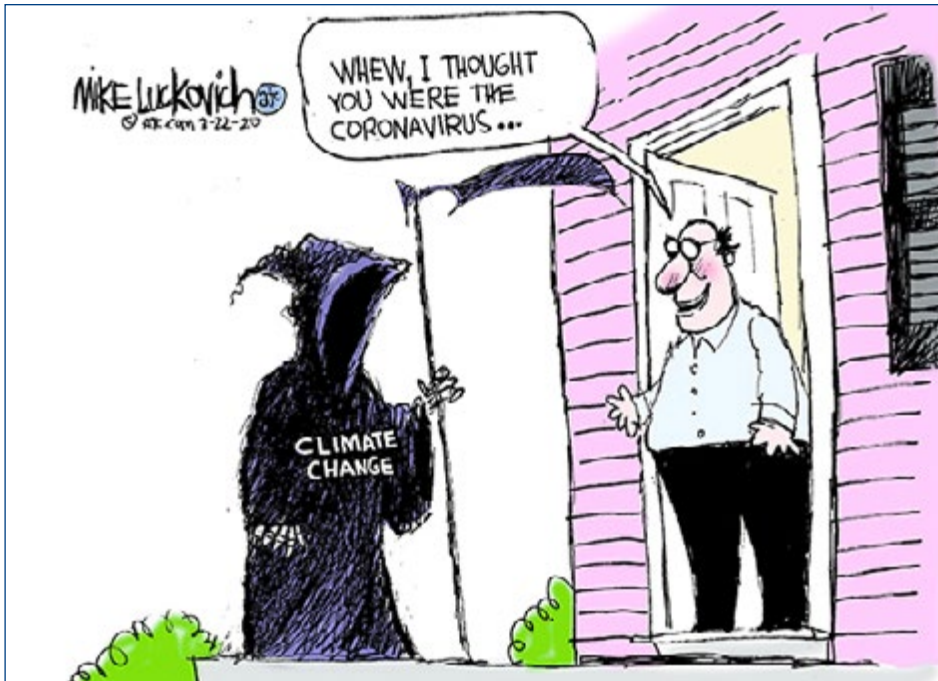
Jerome Foster II

While he was a high school student in Washington, D.C., Jerome Foster II founded *The Climate Reporter*, an online magazine focused on the youth climate and environmental movement, and led weekly protests as the local youth organizer for Global Climate Strike. He also founded and serves as executive director of One Million of Us, a nonprofit that’s trying to get 1 million young people to vote in 2020 and works for several causes, including climate change. Foster is now a freshman at Columbia University in New York.

Liza Goldberg at NASA’s Goddard Space Flight Center in Maryland in 2017



Tony L. Sandy/The Washington Post/Getty Images



Mike Ludkovich

THE GRIM REAPER AT YOUR DOORSTEP?

1. Which does the man in the cartoon see as a bigger threat: climate change or the coronavirus? Do you think most people would agree with him? Do you agree? Why or why not?
2. Do immediate threats like the global pandemic overshadow the need to address other critical issues like climate change? Is it possible to address both short- and long-term issues at the same time?
3. With so many people staying at or close to home because of the pandemic, there was a sudden decrease in greenhouse emissions. Do you think that offers any lessons for the fight against climate change?

NOW IT'S YOUR TURN TO MAKE GREAT DECISIONS

1. Has climate change impacted your life in any way? If yes, how so?
2. If you could make just one change in how we live or in government policy to address climate change, what would it be? Why did you choose this particular change?
3. Do you think addressing climate change should be society's top priority right now? If yes, why? If not, which issue or issues seem more important to you, and why?

KEY WORDS & TERMS

alternative energy	greenhouse gases
carbon footprint	Green New Deal
climate	ice age
deforestation	Paris Agreement
fossil fuels	polar ice caps
global warming	weather

GREAT DECISIONS CLIMATE CHANGE

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Dear Students & Teachers,

Welcome to the first issue of Great Decisions High School! We are so glad to share this with you.

For more than 100 years, the nonpartisan and nonprofit [Foreign Policy Association \(FPA\)](#) has helped Americans better understand U.S. foreign policy and why it matters to them and their communities.

Every year, our [Great Decisions briefing book and Public Television series](#) focus on eight challenges facing the nation. With teens today intent on making their voices heard on a range of critical issues, we decided to adapt *Great Decisions* for a high school audience.

We'll feature student responses to the discussion questions at left on our [blog](#), and we'd like to hear what you think of this Climate Change issue. Please send teacher comments and questions to teachers@fpa.org, and student comments and questions, along with student work for the blog, to students@fpa.org.

Please feel free to share this first issue with other teachers and students. You can also watch our free Public Television Great Decisions series on [climate change](#) and other topics.

We hope Great Decisions High School both informs and spurs conversation in your class. Upcoming topics include Human Trafficking and Artificial Intelligence. [Click here](#) for alerts about upcoming high school briefings.

Thank you for bringing us into your classroom this year, whether you're in school or working remotely.

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