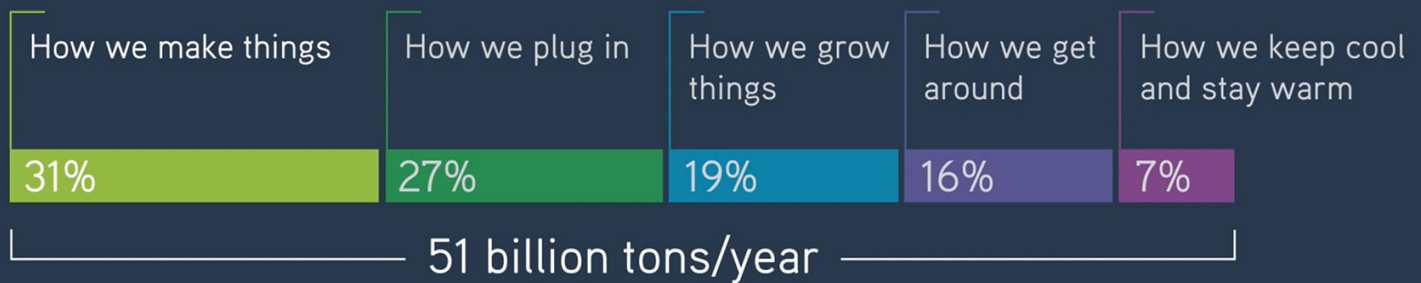


The Grand Challenges



Course Introduction

Climate change is happening now. And now is the best time to do something about it. Whether it be lobbying a local government, choosing a proactive career path for combating climate change, or working within your community, each one of us has a part to play in mitigating the damage of climate change.

0:09

Text: 51 billion; narrator speaking; photos of extreme weather.

Photos of the communities suffering from climate change

Photos of people fighting climate change

Text: 51 billion; greenhouse gas levels graph

51 billion. Remember that number.

Climate change is happening. It's real and it's happening faster than we thought it would. It's causing extreme weather, wildfires, droughts, and flooding. It's unraveling the web of life on this planet.

Stopping climate change benefits everyone. It especially benefits the communities suffering the worst effects of climate change. And that would also benefit the most, from cheaper and more accessible energy and materials.

Climate change is happening, and it's happening because of human action. But you can do something about it.

Let's begin with the basics. Do you remember that number? 51 billion. 51 billion tons, to be exact. Each year, humanity releases 51 billion tons of greenhouse gases into Earth's atmosphere. This huge amount of additional greenhouse gases, mostly carbon dioxide, means that our planet retains more heat.

1:10

Graph depicting rising temperatures; clips and photos of effects of rising temperatures; clips of endangered species

Photo of a flooded town; photo of people living in tents

Photos of some of the causes of greenhouse gasses

This, in turn, means higher global temperatures. Even as small an increase as one to two degrees, can begin a cascade of catastrophic effects: more intense hurricanes, wildfires, and eventual species extinctions and rising sea levels.

It may feel like these events are mostly happening to someone else, but they are already beginning to affect your community. And as they do, they also increase poverty, inequality, and suffering.

Where do these 51 billion tons of greenhouse gases come from? Unfortunately, almost everything we do as humans releases greenhouse gases. From turning on a light switch to flying thousands of miles across a continent, it all adds to that 51 billion tons and makes climate change worse.

At least, the way that we do things now.

2:00

Photos of people working in their communities, schools, and jobs

Text: Getting to zero, Grand Challenges, Solutions

Text: Action opportunities; transition music

But this course isn't about despairing over the situation. It isn't even about adapting to the new climate conditions. Instead, it's about helping you and your classmates find ways to join the effort to stop climate change.

In this brief video, we're going to introduce the framework we'll use in this course to help you develop a plan to help out in your school, in your community, and through your own careers.

To begin with, we'll talk about our big idea: getting to zero. Then we'll cover the five categories of human activities that produce greenhouse gases. We call these five, "Grand Challenges." We'll also highlight some of the social and technological solutions that might develop through the innovations and the obstacles to their development.

Finally, we'll walk you through the steps you'll be taking to develop an effective plan to help fight climate change in your community. We call this, "Action opportunities."

2:58

Text box: 51 billion, 0

Text: Getting to Zero

Photo: solar panels, electric cars, low carbon cement; heat pumps, nuclear fusion, hydrogen fuel cell planes

3:47

Clip: scientists developing new technologies

Text: Innovation, Social change, Economic change, Political change, Listening to diverse communities, Legislation; clip of people conversing

4:35

Photos of innovations and people taking action

Text: The Five Grand Challenges; transition music

Text: The Climate Project

Grand challenges infographic

5:29

Zooms in on infographic

The first step in our journey is getting a handle on our main idea. If we want to save our species and all that we've built from the ravages of climate change, we need to turn 51 billion into zero.

Sounds simple, right? Unfortunately, it's not. Getting the world to zero greenhouse gas emissions is an incredibly complex challenge. It's gonna be very hard, but we can do it. And innovation will play a big part in that effort.

Some helpful innovations are already out there. Some you probably know about, like solar panels and electric cars. Others you may have never heard of, like low carbon cement and heat pumps. These innovations need help getting to market and getting widely adopted. Other innovations will require more research and funding, like nuclear fusion and hydrogen fuel cell planes.

A last set of innovations consists of those that have yet to be invented, and they need people like you to become the experts who will invent them. There's no easy fix, no simple solution. But there is hope. If we can just develop the technologies we need, and then find ways to make them usable and useful in our communities.

Of course, technology alone can't fix climate change. In fact, adapting to and reversing climate change will take social, political, and economic shifts that are at least as important as new technology. And those shifts will require participation from everyone. Making the laws and creating the consensus necessary to get us to zero will require listening to diverse communities and developing policies and practices they can use.

So, while this course on the surface seems to be about technological innovation, it will also focus on how you can help your community take actions to support innovations that work for you. That's how we avoid a climate disaster.

We get to zero by identifying and creating the innovations we need, and working with people and communities to adopt and support them.

To understand how you can go from global challenges to local action in your community, let's learn a little bit about how The Climate Project works.

The Climate Project frees you to design a project based on your own research about climate change. You'll begin that research by first grappling with the ways in which we produce greenhouse gases.

The 51 billion tons of emissions we produce each year come from five major categories that we call "Grand Challenges."

The five grand challenges are: How we make things, how we plug in, how we grow things, how we get around, and how we keep cool and stay warm. In this course, you'll research these grand challenges through videos, articles, data explorations, digital simulations, biographies of innovators, and group activities.

*Clip of students
conversing; text: Solutions;
transition music*

*Photos of different
obstacles*

6:28

*Text: Action Opportunities;
transition music; text:
Action opportunities;
photos of the different
ways to take action; Text:
Your plan to get to zero;
transition music*

*Photos: students
conversing and
collaborating*

7:19

*Photos of the impact of
climate change*

*Photos of people working
together*

This research will give you the evidence you need to design a project. You'll identify one part of the 51 billion ton puzzle that can be addressed through innovation. And you'll design an action to address it.

Each innovation pathway offers us a variety of potential solutions. These are valuable pieces of the puzzle we need to avoid a climate disaster.

But each potential solution also faces some obstacles. Issues from cost to technology to political pressure to public opinion that need to be overcome.

Fortunately, by utilizing your knowledge of your community, you can design plans to overcome these obstacles. We call these plans "Actions." You might select an action like talking to your friends, lobbying your local government, or even choosing a career path that will train you to be a climate change innovator.

Whatever plan you come up with, you'll want to share it with others. So toward the end of this course, you'll have the opportunity to participate in a climate summit.

That's where you and your classmates will share with each other what you learned and suggest specific actions you can take to help get emissions to zero.

Some of you will just keep these plans for the future, but you might also carry them out throughout your class. That's a big deal.

Climate change is not some phenomenon of the far future. We're already feeling its effects today, and actions taken today will be the most meaningful.

Climate change is a factor in the hurricanes hitting the east and gulf coasts, it's a factor in the heat waves and fires damaging the Pacific Northwest, and both at home and around the world, the most vulnerable people are often the ones who suffer the worst effects.

In fact, we're facing a future in which refugees from climate change will be increasingly common, as whole populations are forced to abandon their homes in the face of drought, flooding, and other climate disasters.

We can't leave it up to someone else or some other generation to face this challenge. Now is our time to get serious about climate change and discover each of our individual roles in getting from 51 billion to zero. Thank you for your contribution.



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