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Climate change

What is climate change? What could happen? Get all the facts you need to know.

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A polar bear walks along a rocky shore, looking for food. The bear would usually be on the sea ice hunting for seals, pouncing when the seal comes up to breathe. But the ice has started to melt earlier and re-form later than it has in the past. Without the sea ice, the polar bear must scavenge for other, less nutritious food.

These changes in polar sea ice are a result of climate change. But this isn't just affecting polar bears—climate change affects everyone.

What is climate change?

Weather changes day to day—sometimes it rains, other days it's hot. *Climate* is the pattern of the weather conditions over a long period of time for a large area. And climate can be affected by Earth's atmosphere.

Our Earth is surrounded by an atmosphere made up of gases. When sunlight enters our atmosphere, some of the sun's heat is trapped by the gas, and some bounces back out into space. By trapping that heat, our atmosphere keeps Earth warm enough to live on. Without it, our planet would be very cold, like Mars.

Earth's climate has always naturally cycled through change, caused by how much of the sun's energy was absorbed by the atmosphere. In fact over the past 650,000 years, the Earth has gone through seven ice ages and warming periods.

What's different now?

But during the past few hundred years, oil, gas, and coal have powered homes, cars, and factories. These energy sources release a gas called carbon dioxide (CO₂) into the atmosphere. This gas traps heat that would otherwise escape Earth's atmosphere. That increases Earth's temperature, which contributes to the planet's warming.

That's why many scientists agree that the Earth is now warming because of human activity. How do they know? Through careful study, they know that the climate is warming about 10 times faster than the average previous warming times. They've also ruled out the natural factors that caused warming in the past.

The Earth's average temperature has increased about 1.5°F in the past hundred years. It doesn't sound like much, but scientists think that the temperature increase has caused melting glaciers, drought, and coral reef die-off. (Coral can't survive in water that's too warm.) They expect the climate will warm another .5°F to 8.6°F by the year 2100.

What could happen?

Climate change affects more than temperature. Warmer water changes the patterns of ocean currents, affecting global weather patterns.

Some places will receive more rainfall, which could lead to flooding, while other places will get less, which might mean drought. Tropical storms could be stronger, and a continuing rise in sea level due to melting polar ice might push people out of their homes.

Hundreds of plant and animal species have already experienced changes because of climate change. The American pika, for example, is a small mammal that lives in cool mountainous areas in western North America—in fact, it can die when exposed to temperatures warmer than 78 ° F. So as the mountain climate heats up, the pika climbs the

slopes in search of cooler habitat. But what happens when temperatures at the top become too warm for the pika?

Other species will benefit from a warmer world—but in some cases that would be bad news for humans. Because disease-carrying mosquitoes thrive in warm, wet weather, more people could contract illnesses such as malaria as the Earth warms.

What can we do about it?

You can do a lot! It's simple to make a difference to keep the Earth healthy. Try some of these tips to reduce the amount of carbon dioxide you add to the atmosphere.

Instead of traveling in a car, use public transportation, walk, or ride your bike when you can. Biking or walking 10 miles each day instead of riding in a car can save up to 1.9 tons of carbon dioxide from entering the atmosphere every year.

Reduce and reuse things as much as possible. Factories emit lots of carbon dioxide when making new products. (Buying products that are made with recycled glass and plastic also emits carbon dioxide, though less so.) Fix your appliances and clothes instead of buying new products. Good thing holey jeans are back in style!

Wash your clothes in cold water, and hang them to dry.

Electronics use energy even when they're turned off, so unplug them when you're not using them. It could save your family about \$200 a year on its energy bill.

Eat less meat and dairy. Farm animals, er, *emit* another heat-trapping gas, methane. And some studies have found that livestock account for about half of the world's heat-trapping gas emissions.

Buy locally grown and in-season foods and products to reduce emissions from transporting products.

Wear a warm sweater at home in the winter instead of turning up the heat, and open your windows instead of blasting the air conditioning in the summer.

Talk to your parents and the other adults that you know about climate change. Send a letter or drawing to your mayor, Senate or House representative, or even to the president. These leaders can vote to regulate and reduce carbon dioxide emissions.

Your everyday actions affect people, plants, and animals all over the world—including polar bears! So be cool by doing your best to keep Earth well ... cool!

GLOSSARY

- **CLIMATE:** The average pattern of weather conditions over a long period of time. Climate isn't weather—weather changes daily.
- **GLOBAL WARMING:** The increase in Earth's average temperature over a long period of time
- **CARBON DIOXIDE:** A gas released by the burning of coal, natural gas, oil, and wood that traps heat in the atmosphere
- **CARBON FOOTPRINT:** The amount of carbon dioxide one human releases into the environment in a year
- **FOSSIL FUELS:** Coal, oil, and natural gas, which come from the breakdown of ancient plants and animals over millions of years

Transcript: Greta Thunberg's Speech At The U.N. Climate Action Summit

Climate activist Greta Thunberg, 16, addressed the U.N.'s Climate Action Summit in New York City on Monday. Here's the full transcript of Thunberg's speech, beginning with her response to a question about the message she has for world leaders.

"My message is that we'll be watching you.

"This is all wrong. I shouldn't be up here. I should be back in school on the other side of the ocean. Yet you all come to us young people for hope. How dare you!

"You have stolen my dreams and my childhood with your empty words. And yet I'm one of the lucky ones. People are suffering. People are dying. Entire ecosystems are collapsing. We are in the beginning of a mass extinction, and all you can talk about is money and fairy tales of eternal economic growth. How dare you!

"For more than 30 years, the science has been crystal clear. How dare you continue to look away and come here saying that you're doing enough, when the politics and solutions needed are still nowhere in sight.

"You say you hear us and that you understand the urgency. But no matter how sad and angry I am, I do not want to believe that. Because if you really understood the situation and still kept on failing to act, then you would be evil. And that I refuse to believe.

"The popular idea of cutting our emissions in half in 10 years only gives us a 50% chance of staying below 1.5 degrees [Celsius], and the risk of setting off irreversible chain reactions beyond human control.

"Fifty percent may be acceptable to you. But those numbers do not include tipping points, most feedback loops, additional warming hidden by toxic air pollution or the aspects of equity and climate justice. They also rely on my generation sucking hundreds of billions of tons of your CO₂ out of the air with technologies that barely exist.

"So a 50% risk is simply not acceptable to us — we who have to live with the consequences.

"To have a 67% chance of staying below a 1.5 degrees global temperature rise – the best odds given by the [Intergovernmental Panel on Climate Change] – the world had 420 gigatons of CO₂ left to emit back on Jan. 1st, 2018. Today that figure is already down to less than 350 gigatons.

"How dare you pretend that this can be solved with just 'business as usual' and some technical solutions? With today's emissions levels, that remaining CO₂ budget will be entirely gone within less than 8 1/2 years.

"There will not be any solutions or plans presented in line with these figures here today, because these numbers are too uncomfortable. And you are still not mature enough to tell it like it is.

"You are failing us. But the young people are starting to understand your betrayal. The eyes of all future generations are upon you. And if you choose to fail us, I say: We will never forgive you.

"We will not let you get away with this. Right here, right now is where we draw the line. The world is waking up. And change is coming, whether you like it or not.

"Thank you."

Source:

<https://www.npr.org/2019/09/23/763452863/transcript-greta-thunbergs-speech-at-the-u-n-climate-action-summit>