



WHAT IS CLIMATE CHANGE?

climate change describes all the changes happening because humans are warming the planet.

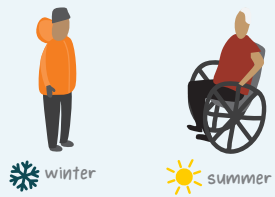
What is climate?

Climate is the average weather a place has over a long period of time. It tells us how much rain or snow or how hot or cold a place usually is.



Average January over 30 years =

Northern Ontario climate means we expect cold in the winter, and warm in the summer.

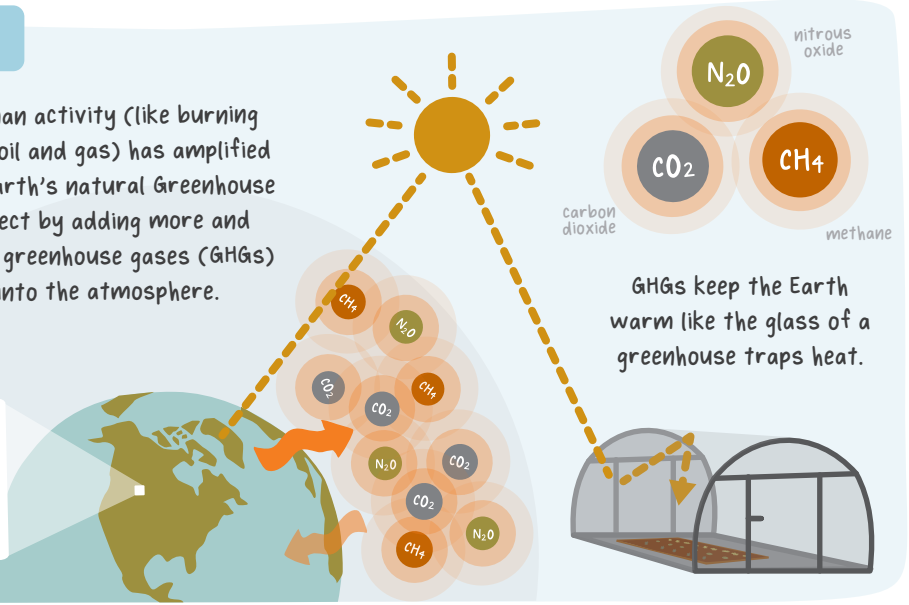


Why is climate changing?

Climate is changing because the Earth is getting warmer.



Human activity (like burning coal, oil and gas) has amplified the Earth's natural Greenhouse Effect by adding more and more greenhouse gases (GHGs) into the atmosphere.



GHGs keep the Earth warm like the glass of a greenhouse traps heat.

How does warming impact climate?

Globally

Climate around the world is driven by large global air patterns and ocean currents.



global warming



changes to air patterns



changes to ocean currents

Locally

In our communities, warmer air can mean:



higher temperatures



changes in wind



fewer cold days

Warmer air can also hold more water vapour, leading to:



changes in rain and snow



stronger storms

How can changes in climate impact our land and communities?

DROUGHT



dry land



low water for travel

ECOSYSTEMS



shifting habitat for plants & animals



permafrost thaw

FLOODING



more heavy rain events



winter flooding from thaw or rain

FOOD SECURITY



changes in fish spawning



changing migration patterns

HEALTH



heat illness



mental stress

INFRASTRUCTURE



damage & power outages



poor drinking water quality

TRANSPORTATION



shorter winter road season



ice conditions less predictable

WILDFIRE



damage to the community



poor air quality

Q&A WHAT IS CLIMATE CHANGE?



What's the difference between global warming and climate change?



Global warming is the rapid rise in global temperature that's happening because human activities are adding greenhouse gases (GHGs) to the atmosphere. The added GHGs are amplifying the Earth's natural greenhouse effect, causing the planet to warm 30x faster than it did before the year 1900.



Climate change is the change in climate happening because of global warming. As the Earth gets warmer, the air patterns and ocean currents that drive climate can change, affecting things like how hot or cold places are, how much rain or snow falls, how severe storms are, or how often and where storms happen.

What does climate change mean for extreme weather?



There is a lot of evidence that climate change is causing extreme weather events, like heat waves, storms, and heavy rain, to happen more often and/or be more severe than in the past. This is because the air patterns and ocean currents that drive our weather can change as the Earth heats up.

Warmer temperatures and more humid air can lead to heat waves that last longer due to slow moving air masses. A warmer atmosphere can hold more water vapour, which can make heavy rain events or big snow storms more likely. Changing air patterns mean storm systems or weather events can be brought to new/different places.

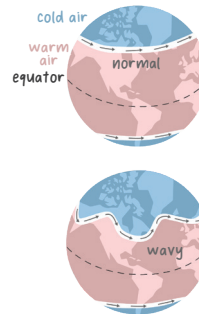
Yesterday was cold. What happened to global warming?



Just because a given day is cold, it doesn't mean that conditions over the long term (the climate) aren't getting warmer. When you ask "How cold is it today?" or "Is it raining out?", you're asking about the weather. Weather changes day to day, or even hour to hour. Climate, on the other hand, is the average weather a place experiences over a long period of time, like decades or a lifetime. Average global temperature is on the rise, with temperatures in the north rising twice as fast as other regions.

How do air patterns and ocean currents impact climate?

When heat energy from the Sun reaches the Earth, it isn't spread evenly around the globe. The middle of the Earth (the equator) faces the sun more directly so it gets warmer than the poles. This creates temperature and pressure differences that result in the movement of air, creating wind as air rises and falls and moves from areas of higher to lower pressure. These global winds are also bent by the spin of the Earth. As they blow over oceans, they drive ocean currents that are also shaped by the coasts of the continents.



Air patterns and ocean currents influence climate by moving warmth from the equator toward the poles. Air also carries and moves water vapour (water in its gas form) that creates clouds and falls as rain or snow. But global warming can change how air and ocean currents move. Research suggests that warming in the Arctic is causing the jet stream, an important air current in the northern hemisphere, to become wavier, allowing warm air to spread north and cold air south. Melting Arctic ice is also sending more freshwater into the North Atlantic, altering the flow of the Gulf Stream, an important ocean current that takes warm water north from the Gulf of Mexico.

Why does climate change matter?



Our land and communities have been shaped by the climate. The plants and animals we find on the land survive and thrive because the climate provides the conditions they need. Buildings, roads, and other community infrastructure have been designed for the climate expected for the region.

But as climate changes, and extreme events happen more often, plants and animals can find themselves struggling to survive in conditions that no longer give them what they need. Climate is also changing so quickly that they have little chance to adapt. Community infrastructure, like roads, water systems, and power lines, can also be challenged. Preparing now for climate change can help lessen the impacts and risks.



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