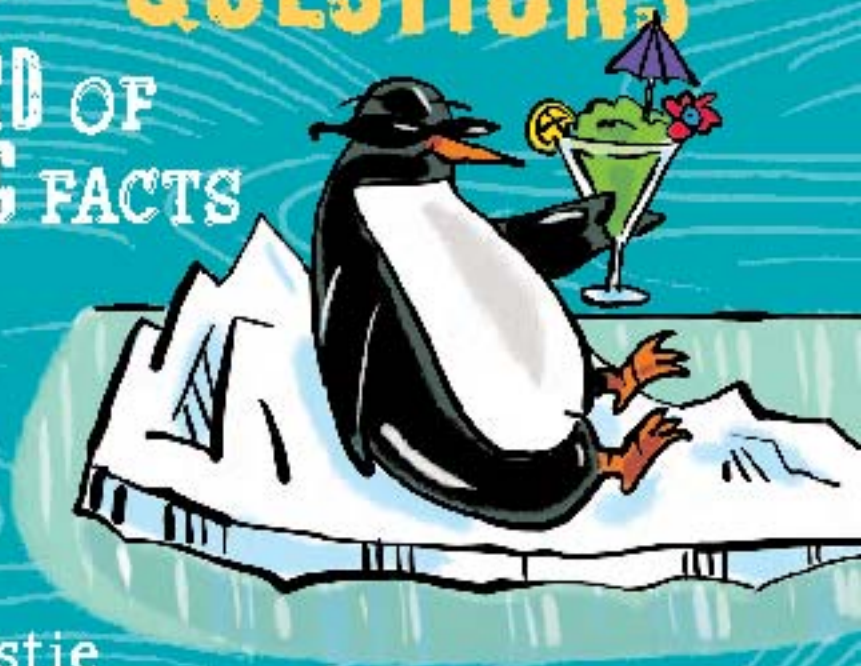


50 CLIMATE QUESTIONS

A BLIZZARD OF
BLISTERING FACTS



Peter Christie

illustrated by Ross Kinnaird



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For Hannah and Laura and every kid with questions —**P.C.**
For Hannah —**R.K.**

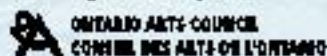
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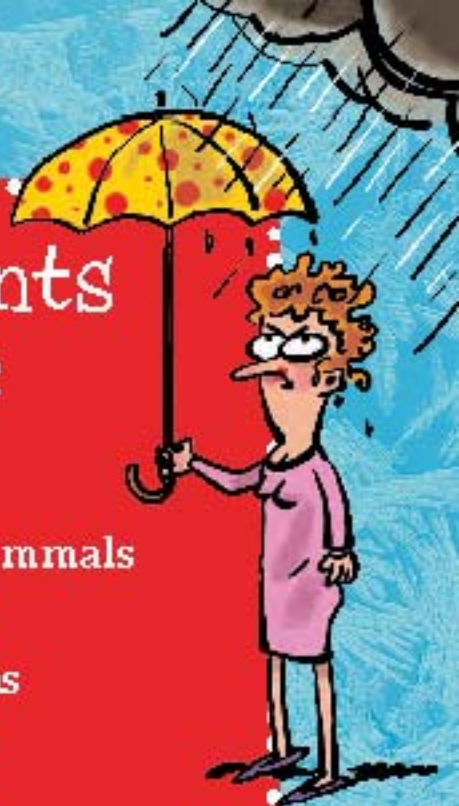
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THIS TOPIC IS HOT



Introduction

NICE DAY, ISN'T IT? Ever notice how often we ask about the weather? Maybe it's because what happens in the sky matters to us all. Weather makes snow for skiers, rains out a baseball game, or delivers a perfect afternoon for a picnic.

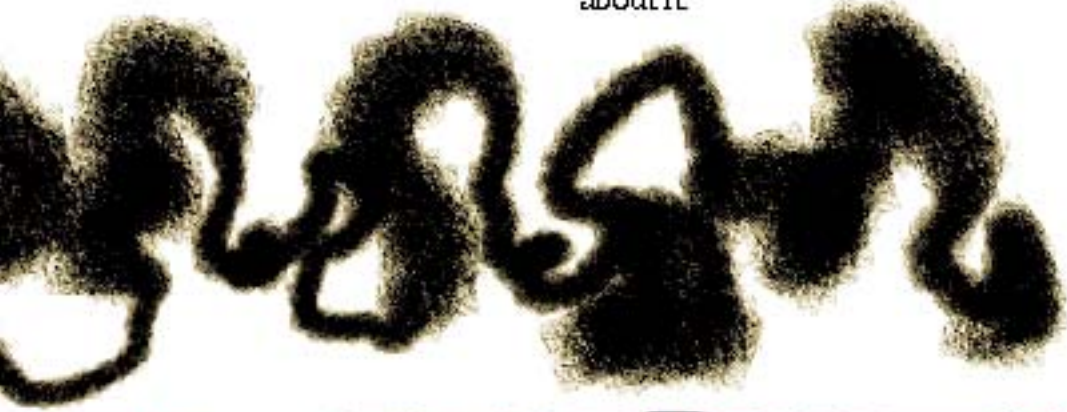
Many people are asking about climate now too. While weather is the daily brew of temperature, wind, rain, or snow, climate is the weather pattern of a place over a long time, usually years. The climate of the Arctic is cooler than that of tropical Brazil, for instance. Weather constantly changes, but climate is something most of us count on.





But should we? Climate has become a hot topic because it changes too. While past climate shifts often took thousands of years, today our climate is warming fast—and people are the reason.

Change always raises questions, and that can be good. Asking what happened before might reveal what will happen next. A little curiosity—beginning with the 50 questions in this book—can help you understand why climate matters and what we can do about it.



CHAPTER 1

SNOWBALL EARTH and MEGA MAMMALS

Hic!



DID YOU KNOW OUR PLANET IS WONKY?

It changes its path around the sun; it wobbles as it spins; and, under a gas-bubble sky, its cracked surface sloshes with liquid. And all of these weird activities have been shaking up our climate since the beginning of the world.

Climate shifts change other things too. The sky—its rain, its heat, its cold, its storms—can help or harm life on the ground beneath. New conditions mean that creatures and plants must adapt to survive. From bacteria to *Brachiosaurus*, this need to evolve has helped to create Earth's remarkable diversity.

QUESTION 1

Have you ever had gas this bad?

I'm exhausted!



IN THE BEGINNING, there was a bad case of gas.

It's true: the world's first skies—and the first climate and weather—were created because our young Earth had a severe bout of planetary flatulence. About 4 billion years ago, most of our new planet's thin surrounding layer of gases—the atmosphere—came hissing out of its bubbling hot middle. Volcanoes filled the air with gases and steam. The climate became toasty because the gases, especially carbon dioxide, created a kind of air blanket around the world to keep it warm. Soon, it was downright tropical.

When life appeared, things cooled down a little. Bacteria and, later, plants evolved until they were sucking carbon dioxide out of the air and putting it right back underground. How did the early organisms perform this nifty trick? Using photosynthesis, a process plants today still rely on to turn air, water, and sunlight into food energy. The early organisms absorbed carbon dioxide from the atmosphere into their cells, then broke it down into oxygen that was released back into the air and carbon that was stored in their bodies. After the organisms died, the carbon was buried with them. Over a few billion years, this green team managed to stuff most of the airborne carbon back into the planet, leaving only traces still floating around—just enough to make the place comfy.

Only a few billion years to go.



QUESTION 2

When is a snowball
no fun at all?



THE NEXT TIME you get ready to throw a well-packed snowball, you might want to stop for a minute and think about what it would be like to be trapped inside one.

Many scientists believe that's what life on our planet was like at least three times in the distant past. During "snowball Earth" conditions, our usually blue planet was all-over white, completely encrusted with ice thicker than the height of many mountains on Earth today. Beginning about 2.2 billion, 710 million, and 640 million years ago, each extreme cold spell lasted for millions of years. The ice and snow might have made for spectacular long-distance sledding, but early bacteria and plants struggled to survive, locked away from sunlight.

The big chills, say researchers, were caused by climate change. They were likely triggered mainly by changes in the gassy makeup of the air, as well as the shifting position of the world's continents.