FROZEN in Time



MESSAGES from the ice age

John Parsons

Nelson Literacy Directions

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If we learn about past climate changes, we can think of new ways to adapt to future climate change.

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1 Why is Our Climate Changing?

TEXT TYPE
Discussion

Is Earth **Slowly** Warming Up?

Many people around the world are concerned about the effects of climate change on our environment.

Most scientists agree that the climate of Earth is changing. But they may not agree about the cause.

GLOBAL WARMING

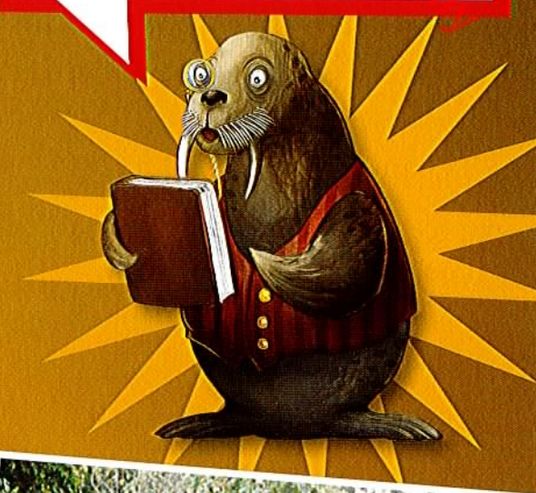
This term is used to describe the increase in the temperature of Earth's atmosphere.



Scientific Viewpoint 1: Humans Cause Global Warming

Many scientists agree that global warming is caused by human activities, such as burning oil and coal, pollution and cutting down trees for farming. These activities increase greenhouse gases, like carbon dioxide and methane. Greenhouse gases act like a blanket around Earth. They stop heat escaping into space. Slowly, Earth warms up.

Scientists have two main viewpoints about the cause of climate change.





global warming makes forests drier, which can lead to bushfires



a logging truck carries away felled trees



an oil refinery pollutes the air



cars release pollutants, such as carbon dioxide, into the air

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Scientific Viewpoint 2: Earth's Natural Climate Change Causes Global Warming

Some scientists argue that climate change is natural, and that Earth has been through several dramatic climate changes throughout its history.

Ice ages are one kind of natural climate change on Earth.



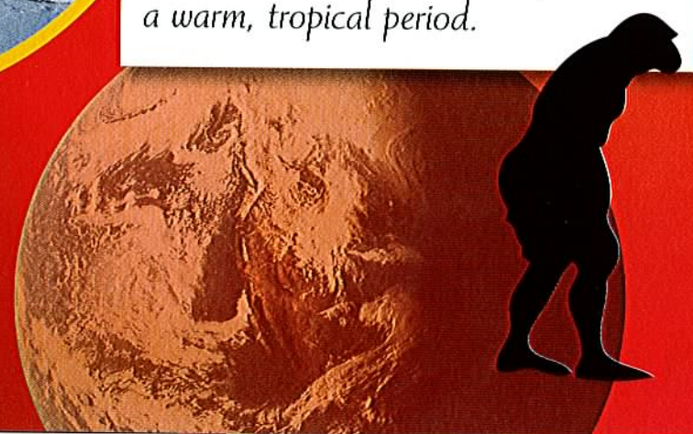
Earth Science

What Is an Ice Age?

An ice age is a period of time in which thick sheets of ice (or glaciers) cover large amounts of land. An ice age can last for millions of years.

By studying ice drilled from polar caps, scientists discovered that Earth has gone through several ice ages. They also found that each ice age had been followed by a warm, tropical period.





Life Science

Tree Growth Rings

Studying growth rings in very old trees is a technique that scientists use to study changes in Earth's climate. Trees grow faster in warm, wet conditions.



tree rings show different growth rates

The Climate Change Debate Continues

What do you think?

There is a lot of debate about what causes climate change, and whether or not we can slow it down. But there is little debate that the climate is changing.

Humans like us have been around for about 200 000 years. This is not the first time our species has had to adapt to dramatic changes in our environment.

Perhaps it would be wise for humans to look to the past for answers about how to prepare for a different climate in the future.





2 Are We Still in an Ice Age?

Climate Change Explained

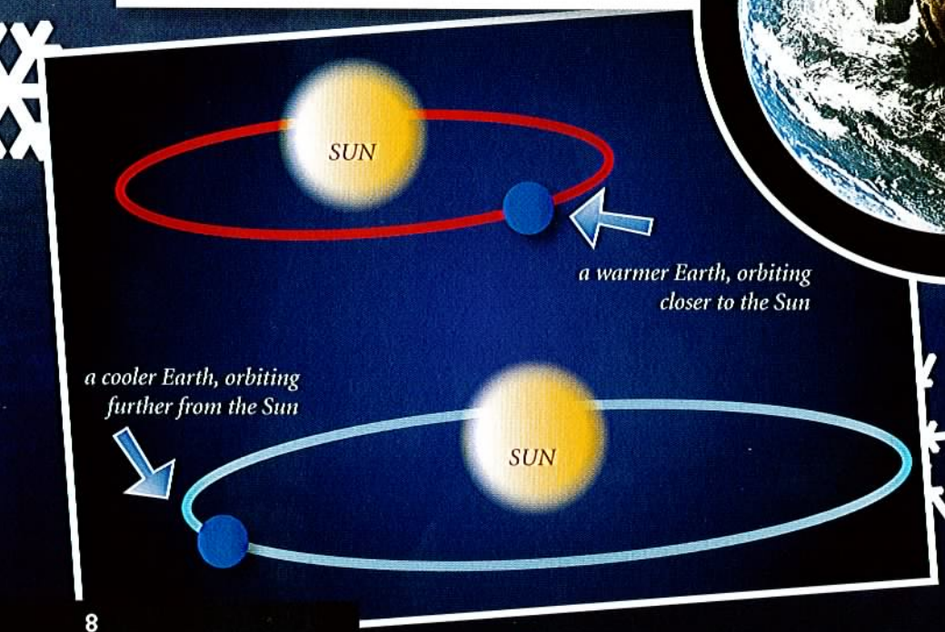
Earth's history has seen a series of ice ages followed by warmer periods. This is a natural process and nothing to be alarmed about. Earth's climate changes from warm to cold for many reasons. Here are just a few.

TEXT TYPE
Exposition

1 Changes in Earth's Orbit

Orbiting closer to the Sun means warmer temperatures for the planet. Orbiting further away from the Sun brings about colder temperatures.



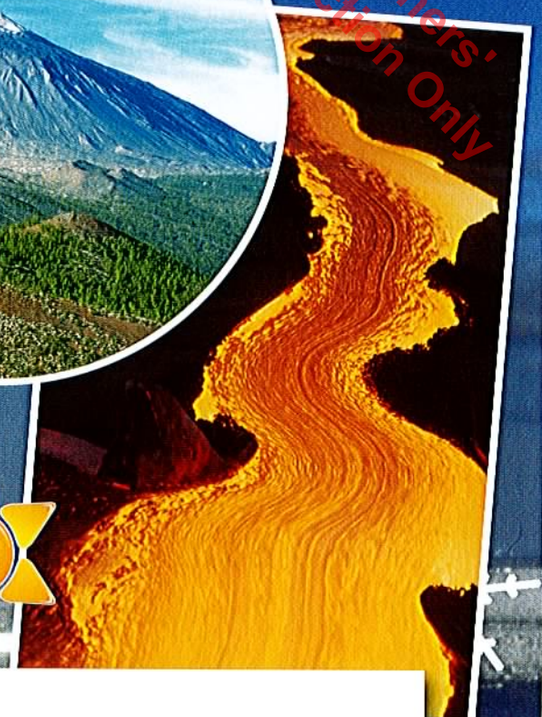


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2 Volcanic Activity

A rise in volcanic activity can increase the temperature on Earth. Less volcanic activity may result in a lower temperature.



3 Movement of the Oceans

Ocean currents can move warm and cold water around Earth. Changes in currents can change global temperatures.

