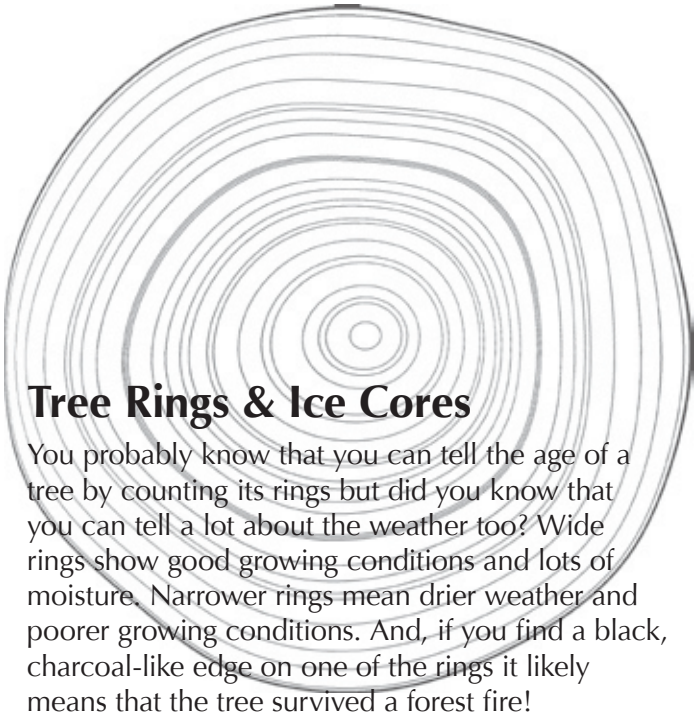
Activity Sheet

Climate: Clues Over Time

How do scientists know what our climate was like 10,000 years ago

or even tens of thousands of years ago? Well, being a scientist is a bit like being a detective. You need to look for clues and you need to develop theories that work to explain what you see. Scientists use different tools to study the past.



Tree Rings & Ice Cores

You probably know that you can tell the age of a tree by counting its rings but did you know that you can tell a lot about the weather too? Wide rings show good growing conditions and lots of moisture. Narrower rings mean drier weather and poorer growing conditions. And, if you find a black, charcoal-like edge on one of the rings it likely means that the tree survived a forest fire!

Scientists use tree rings to learn more about weather in the past and, the older the tree, the farther back they can explore. They don't have to cut down the tree to do it. They have a special tool called an auger to bore into the tree and pull out a sample of the tree rings without harming the tree.

When scientists want to study climate from even longer ago, they bore into ancient glaciers and pull out cores of ice. They look at the air bubbles that were trapped in the ice hundreds of thousands of years ago and this helps them to understand what the climate was like in the past. They can even tell the concentration of greenhouse gases back 160,000 years!

Changes in Vegetation Patterns

If you have visited parks in different parts of the province you may have noticed that there are differences in the types of trees, plants and even animals that you find in them. In southern parks, for example Rondeau and Long Point, you will find tulip trees, sassafras and even some southern animals like the opossum. But, head north to Killbear and Samuel de Champlain and you will find black spruce, hemlock trees and moose.

These differences are the result of many things but they help scientists to understand changes in the environment. Researchers study these patterns and how they change to learn more about the way climate, the environment and vegetation are related. What they learn may help them to predict how plant patterns will change as global warming takes place. With this knowledge they can plan for the future and even breed plants that are better suited to these changing conditions.

and there are other ways too!

Scientists study rocks, fossils, ocean sediments and many other things to learn about climate in the past. This helps them to look for answers about how the earth will respond to climate change in the future.

Activity Sheet

Climate: Clues Over Time

IN THE PARK BE A CLIMATE DETECTIVE!

EXPLORE TREE RINGS

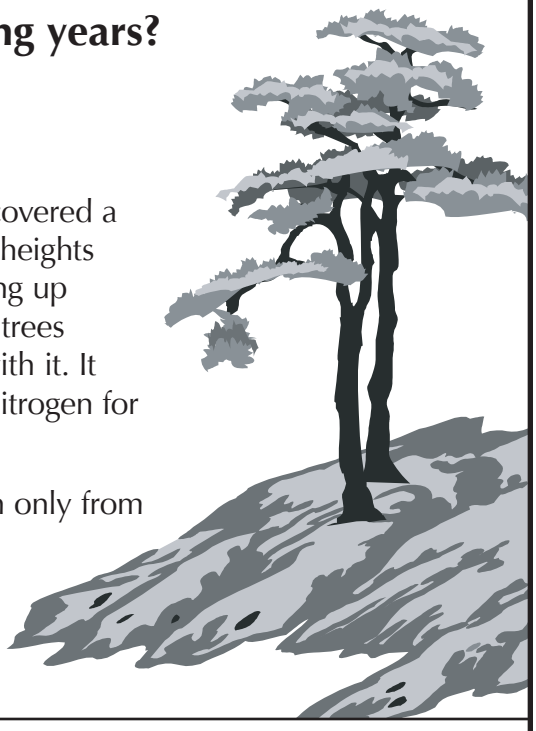
How old is the tree? Count the rings. Trees develop a new ring each year (the centre ring is the oldest!). If you know how long ago the tree was cut down, you can even guess the dates for each ring.

What was the weather like?

What do you think the weather was like 10 years before the tree was cut down?

When were there dry years?

What were the best growing years?



Ontario's Provincial Tree - A Predator?

Researchers at Ontario's University of Guelph have recently discovered a deadly partnership. The white pine tree - known for its majestic heights and soft blue-green needles - is a predator under the soil, teaming up with fungi to eat insects alive! The fungus grows on the roots of trees and releases a toxin that kills any insects that come in contact with it. It absorbs nitrogen from the dead insect and then exchanges the nitrogen for carbon from its host tree.

Up until now, people believed that trees and fungus got nitrogen only from dead and decaying animals.

While we understand that trees play an important role in tying up carbon, this adds another piece to the puzzle, showing how complicated nature can be.