

What is climate change?

When we burn fossil fuels such as coal to make electricity, we add carbon dioxide to the atmosphere. Carbon dioxide and other gases remain in the atmosphere and are slowly increasing the world's temperatures. Cutting down forests adds to the problem because trees absorb carbon dioxide.

How does climate change affect where birds live?

Birds and other wild animals live where they can find food to eat and materials to build a home. Climate change can affect these resources in different ways. For example, in the future a bird may not be able to find food in the same places where it can build a home.



This Mountain Bluebird has caught a caterpillar.

How does climate change affect birds' food?

Climate change affects plants, fish, insects, and other things that birds eat. Some birds migrate to raise their chicks in places where there's plenty of food. Climate change can mean the food the chicks need is not available at the right time.

Birds and Climate Change

Earth's climate is changing, and this could affect more than 300 species of birds. For example, by the year 2080, the Mountain Bluebird, Burrowing Owl, and Golden Eagle may lose more than half of the areas where they can live. Working together, we can fight climate change and help protect birds.

How You Can Help

You can help protect birds and also fight climate change at home and at school. Here are some ideas:

- Talk about the causes of climate change and how it affects birds and other wildlife.
- With your teacher or parent, go to climate.audubon.org to find a list of birds in your area that are at risk from climate change.
- Make a bird-friendly garden to provide birds with food and places to rest and nest.
- Save energy by carpooling or taking the bus and by turning off lights when you're not using them.
- Go on a bird field trip.
- Learn how to identify birds. Keep a list of all the different kinds you see.



Kids from summer camp get outside at Dogwood Canyon Audubon Center, Cedar Hill, Texas.



This Mountain Bluebird has caught a caterpillar.

Birds and Climate Change Teacher's Guide

Background

All the controversy doesn't change the facts: Climate change is real and it is having negative consequences for life on Earth right now. Children can't help but hear about climate change, and without extra support to understand this complex phenomenon, they are left with little more than fear and a sense of helplessness and hopelessness. That's why it's important to cover climate change as part of a rigorous science curriculum that places it in its appropriate context along with earthquakes, volcanoes, tornadoes, hurricanes, floods, and droughts.

Audubon's 2014 "Birds and Climate Change Report" uses a vast amount of scientific data to identify and project the effects of changing climate conditions on North American birds. (See "The Audubon Report at a Glance" here: climate.audubon.org/article/audubon-report-glance.) The findings are sobering. Audubon's study found that 314 North American species are at risk from global warming, with 126 of those projected to lose more than 50 percent of their current range by

2050. Many birds will need to either adapt or move in response, and we don't know for



sure if those that move will find the resources they need to survive and reproduce.

The National Audubon Society agrees with the United Nations and the vast majority of scientists worldwide that climate change is a fact and that it is caused by human activities. Carbon dioxide and other greenhouse gases produced by burning fossil fuels are building up in Earth's atmosphere, resulting in a gradual rise in global temperatures. The dual nature of climate change can empower children rather than simply scaring them:

People caused it; people can take steps to remedy it. In other words, yes, there's trouble, but there's also hope for the future because human beings are smart and resourceful. Having recognized the problem, we can work towards solving it.

A Quick-Reference Glossary

climate change: A shift in Earth's weather patterns relative to long-term average conditions. Effects include rising temperatures and increased frequency of intense rainfall events or declining snowfall.

global warming: A type of climate change by which temperatures on Earth are rising as a result of the build-up of carbon dioxide and other greenhouse gases in the atmosphere.

greenhouse gases: Certain gases in the atmosphere (water vapor, carbon dioxide, nitrous oxide, and methane, for example) that trap heat instead of letting it escape into space.

fossil fuels: Fuels, such as oil, coal, and natural gas, formed deep inside Earth from the remains of plants and animals that lived millions of years ago.

Climate Change and Birds

Because birds are "the wildlife next door," children everywhere are familiar with them. By linking learning about climate change to birds we can engage children's interest and their investment in positive actions that they and their families can take to begin to address the problem.

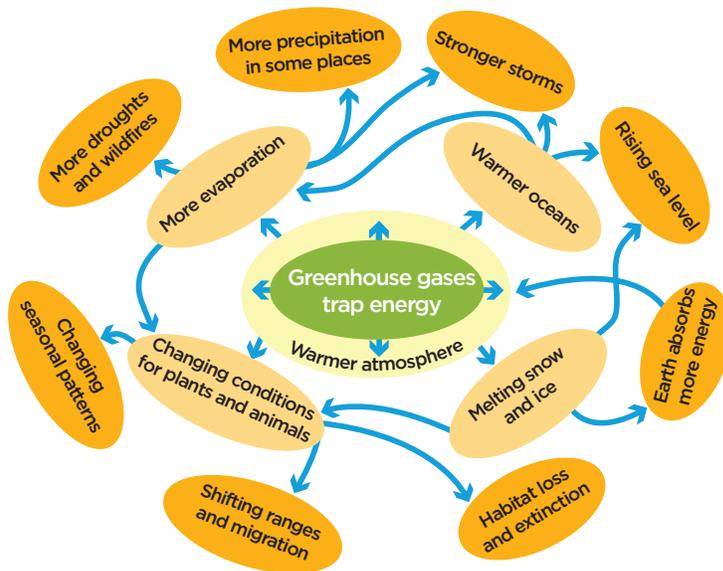
Using the Poster as a Teaching/Learning Tool

Encourage students to look closely at the poster, talk about it among themselves and as a class, and ask questions. Questions can be starting places for research projects and presentations.

Have a class discussion geared toward understanding what climate change is using the definitions above. This graphic from the U.S. Environmental Protection Agency (EPA) shows the interrelated effects of climate change.

For additional teaching help from the EPA, go to: epa.gov/climatestudents/basics/concepts.html.

Climate Connections



Focus on the poster's "How You Can Help" list and choose one or more of the actions to undertake as a class. Go online to climate.audubon.org to identify local birds that might be at risk as a result of climate change.

Get parents and caregivers involved in raising awareness about saving energy. Encourage children to look for energy-saving opportunities at home and at school.

Get Outside to Learn About and Help Birds

Invite students to name the birds they've seen or know about. Make a class list and add to it over time. When a student sees a new bird, he or she can identify it and share it with the class.

Participate in a citizen science project—e.g., the Great Backyard Bird Count (gbbc.birdcount.org) or Project FeederWatch (feederwatch.org).

Explore the possibility of creating a bird-friendly garden on the school grounds. Contact your local Audubon chapter to learn about possible field trips and other educational activities. To find the Audubon Center, sanctuary, or chapter near you, go to: audubon.org/audubon-near-you.

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