

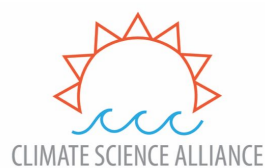
art • storytelling • science



climate kids

# Climate Science Activity Book

CLIMATE KIDS IS A PROJECT OF THE CLIMATE SCIENCE ALLIANCE



# WELCOME TO CLIMATE KIDS!



**Hello Climate Kids and Welcome!** We are so glad you are here. As you may have heard, the Earth needs our help. Our global climate is changing and this will impact our communities, both human and natural. This is a big problem and it will take all of us thinking creatively to come up with solutions.



As scientists, Climate Kids (that's you!) have three very important jobs:

## **Find the Problem - Discover Solutions - Tell Your Story**

Here at Climate Kids HQ, we wanted to make sure you have all the tools and training you need to complete these important steps to help protect the earth. In this **Climate Science Activity Book** you will find science, art, and storytelling resources for all ages to get you started. Have fun and thank you for your hard work!

- **Climate Kids Team**

# ABOUT US



## climate science alliance

The Climate Science Alliance is a boundary spanning network of leaders, scientists, managers, and community members focused on sharing ecosystem-based resiliency approaches to safeguard our communities and natural resources from the impacts of a changing climate. We do this through leading activities and creating partnerships that increase awareness of climate change impacts, promote solutions, and facilitate actions.

**For more information: [www.climatesciencealliance.org](http://www.climatesciencealliance.org)**



## climate kids

Climate Kids is a series of community level collaborative projects that provide youth education on climate change through science activities, storytelling, and art. Each Climate Kids project brings together local artists, scientists, educators, and storytellers to engage and support youth from all socioeconomic levels and inspire them to become environmental stewards and leaders. Climate Kids is an initiative of the Climate Science Alliance.

**For more information: [www.climatekids.org](http://www.climatekids.org)**



## what is climate change?

Climate change is caused by the increased levels of **greenhouse gases** in the atmosphere. These greenhouse gases include carbon dioxide (CO<sub>2</sub>), methane, and nitrous oxide, and they act like a *heat-trapping blanket* around the earth. The more greenhouse gases, the thicker the blanket, the warmer Earth gets.

Since the Industrial Revolution, human activities have caused an increase in greenhouse gases (GHG), which causes the systems that regulate heat and climate—such as oceans, soils, and forests—to become unbalanced.

Scientists have found warming average temperatures around the world, which coincides with the increase in greenhouse gases. As we continue to use non-renewable energy sources for electricity, transportation, industry, commercial and residential activities we contribute to the increase of greenhouse gases and our warming planet.

## climate change overview

[Climate Change 101 with National Geographic](#)



## what you need to know

The Earth's climate is changing

Climate change is caused by humans releasing fossil fuels and other greenhouse gases into the environment

Over time these molecules build up and begin to act as a thick blanket that traps heat around the Earth

Climate change is impacting Earth's natural balance and is causing more extreme events across the world

## dive deeper

[The Carbon Cycle by Nathaniel Manning](#)

[The Difference Between Climate and Weather by Crash Course Kids](#)

[Is Our Climate Headed for a Tipping Point? By Victor Donnay](#)

[Climate vs. Weather - Trend and Variation](#)

[Climate Change Talking Points](#)

[Climate Change Talking Points \[Spanish\]](#)

[Climate Change in San Diego's Local Environment](#)

[Finding Solutions to Climate Change](#)

[Greenhouse Gas Game](#)

[Climate Kids by NASA](#)

[Climate Kids Classroom by EcoSchools](#)

[Climate Change LIVE!](#)

[Exploring California's Climate Change Research](#)

## HOW THIS BOOK IS LAID OUT

Each age range will cover a specific Climate Kids topic noted on the left. Background information for that topic will be provided above, followed by links to activities, resources, videos, and more! Activities may require a computer, additional materials, or supervision.

**{FOR PARENTS & GUARDIANS}**

### background

Information about the Climate Kids theme.

### hands-on science

- Activity #1
- Activity #2
- Activity #3
- Activity #4

### storytelling

- Activity #1
- Activity #2
- Activity #3
- Activity #4

### art

- Activity #1
- Activity #2
- Activity #3
- Activity #4



## background

A **pollinator** is an animal that helps plants produce fruit or seeds. When **pollinators** such as bees, birds, bats, butterflies, and small mammals go to plants to eat their nectar, they get **pollen** grains stuck on them, which then rubs off onto the next plant they travel to. The **pollen** from one plant can then fertilize the next plant that the **pollinator** gets **nectar** from. Only fertilized plants can make fruit and/or seeds, and without them, the plants cannot reproduce. **Pollinators** are essential to plant propagation and our food production. As the earth warms and precipitation changes, pollinators and their plants are in trouble - we will learn more with the following activities.

## hands-on science

[Earth's Birthday - Butterfly Lab](#)

[Pollinator Observations](#)

[Pollinator Scavenger Hunt](#)

[Every Party Has a Pollinator](#)

[Great Pollinator Project](#)

## storytelling

[Wings of Life by Disney Nature](#)

[Wild Science: Bees and Climate Change](#)

[Please Don't Kill My Hive by Science Rap Academy](#)

[A Butterfly is Patient by Dianna Aston and Sylvia Long](#)

## art

[Recycled Bird Feeders](#)

[Butterfly Masks](#)

[Eric Carle Butterflies](#)

[Bottle Cap Flowers for Pollinators](#)

[We've Been Busy Bees](#)

[Climate Kids Coloring Book](#)



background

Our global climate and the food that we eat everyday are inextricably linked. With these activities we will explore our food system and the role it plays in our changing climate and alternatively, how climate change will impact our food, how it's produced, transported, and more!

## hands-on science

[Plant Inquiry](#)

[Growing Seeds Experiment](#)

[Carbon FoodPrint](#)

[Be Water Aware](#)

[Calling All Food Heros: Food Choices](#)

## storytelling

[Climate Agriculture and the Challenges Ahead](#)

[Understanding Food and Climate Change \[Book\]](#)

[Understanding Food and Climate Change \[Interactive Guide\]](#)

[Kiss the Ground - Soil](#)

[Soil Solutions to Climate Problems](#)

[Climate Change Phenomena](#)

[Nourish Life](#)

[Happy Cows Help Save the Planet](#)

## art

[Illustrated Graphs](#)

[FoodPrint Solutions](#)

[Climate Smart Cookbook](#)

[Climate Kids Coloring Book](#)





background

Oceans cover 71 percent of the world and are the basis of all life. Although the intake of **carbon dioxide** into marine ecosystems is a natural process, scientists are observing significant impacts of too much **carbon dioxide** entering this system. As ocean temperatures rise along with global temperatures, plants and animals struggle to adapt to higher temperatures. Increased amounts of **carbon dioxide** entering an aquatic system leads to an increased rate of **ocean acidification**. These activities will explore climate impacts to our oceans.

## hands-on science

[Ocean Warming Experiment](#)

[Ocean Acidification in a Cup](#)

[Sea Level Rise Viewer by NOAA](#)

[Climate Interpreter Activities](#)

## storytelling

[Ocean Acidification by the Alliance for Climate Education](#)

[Sea Level Rise by NASA - EarthMinute](#)

[Drawing Connections by Cabrillo National Monument](#)

[A Guide to San Diego Sea Shells by Nancy Lee](#)

[Can Wildlife Adapt to Climate Change? by Erin Eastwood](#)

[Underwater Farms vs. Climate Change by Ayana Elizabeth Johnson](#)

[Change for the Oceans by Monterey Bay Aquarium](#)

[What Do You Think About Climate Change](#)

## art

[Climate Ocean Magazine Poetry](#)

[Handprint Crabs and More!](#)

[Recycled Fish](#)

[Climate Kids Coloring Book](#)

## background

**Aerosol particles**, microscopic bits of dust, soot, and sea spray suspended in the air, are the most poorly understood component of Earth's atmosphere. Our atmosphere is made up primarily of gases. In addition to these gases, our atmosphere also contains very small liquid droplets and solid particles, known as **particulate matter (PM)**. These particles play an important role in human health and climate that we will explore with these activities.

## hands-on science

[Where is the Air?](#)[Incomplete Combustion](#)[Cloud Formation Demo](#)[Aerosols and Climate](#)[Air Quality Detectors](#)[The Clean Air Act](#)[AQI Detectors](#)

## storytelling

[Why Is There Air?](#)[My Name is Aerosol by Nasa](#)[The Ballad of CO2 by CAICE](#)[Just 5 Questions: Aerosols](#)[Atmospheric Aerosols by NASA](#)[Science of Smog by Kim Preshoff](#)[How do Greenhouse Gases Work by Earth Minute](#)[Threats to Our Atmosphere](#)[Cloudy Climate Change by Jasper Kirkby](#)

## art

[Protecting Planet Earth](#)[Climate Kids Coloring Book](#)

# LEARNING RESOURCES

excited to learn more?

Check out these free resources from our partners and beyond to keep the learning going!

[San Diego Natural History Museum](#)

[Birch Aquarium](#)

[Living Coast Discovery Center](#)

[Fleet Science Center](#)

[San Dieguito River Valley Conservancy](#)

[iNaturalist](#)

[San Diego Zoo Global](#)

[Cabrillo National Monument](#)

[Project WET](#)

[California Academy of Science](#)

[Online STEM Activities](#)

[Nat Geo for Kids](#)

[PBS Kids](#)

[Virtual Tours](#)

[Khan Academy](#)

[Mystery Science](#)

[Codecademy](#)

[TedEd](#)

[Smithsonian](#)

[edX](#)

**CONGRATS!**

Once you are done with the activities in this book, fill out the Climate Kids certificate on the next page and have your parent or guardian sign it!

Share your accomplishments with us on social media @CSAinAction or @climatesciencealliance

**Good Work Climate Kids!**



# Certificate of Excellence

IS PRESENTED TO

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for learning about climate change and  
committing to help protect the Earth.

INSTRUCTOR SIGNATURE

DATE







Climate Kids in Action!

# 10 things I can do to help



START AN EARTH-FRIENDLY PROJECT WITH YOUR FRIENDS AND FAMILY



[www.climatekids.org](http://www.climatekids.org)

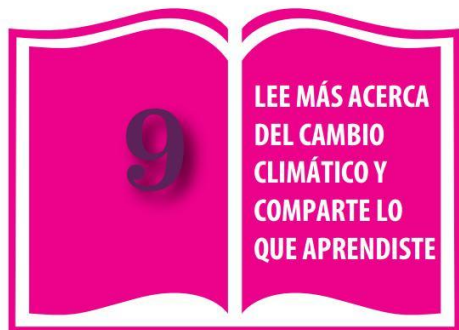




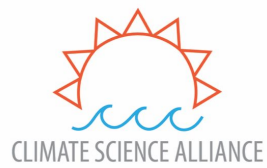
¡Climate Kids en Acción!

# 10 cosas

Que puedo hacer para ayudar



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Climate Science Alliance - [www.climatesciencealliance.org](http://www.climatesciencealliance.org)

Climate Kids - [www.climatekids.org](http://www.climatekids.org)