

Ice Worlds

Recommended for grades 3 & up



Program Summary

Ice Worlds allows students to appreciate the delicate balance between ice, water and the existence of life, which has been a topic of exploration and discovery in science for generations. In travels to the Arctic and Antarctic regions of our planet, students will examine the ecosystems that live and thrive there and see how their survival is connected with our own. Beyond Earth, they'll see how the existence of ice shapes the landscape and the natural systems on other planets and moons in our solar system. Narrated by two-time Academy Award nominee for Best Actress, Emily Watson.

The Earth is a dynamic planet with a global climate that is always changing. One of the most dramatic changes occurs each year as ice turns to water and returns to ice once again. The amount of ice trapped over land in the polar regions also determines sea level and the amount of solar energy absorbed by the planet as bright reflective ice transforms into dark absorbing oceans. With funding from the National Science Foundation, *Ice Worlds* showcases worlds sculpted and transformed by ice throughout the solar system, including our ice planet Earth.

Curriculum Connections

- Energy from the Sun
- Habitats in the Polar Regions
- Changes in Temperature
- Earth's Axial Tilt & the Seasons
- Earth's Climate
- Human Impacts on the Earth

Vocabulary

- Arctic
- Antarctica
- Aurora
- Carbon dioxide
- Cassini/Huygens spacecraft
- Climate change
- Comet
- Earth's axis
- Enceladus
- Europa
- Geyser
- Glacier
- Gulf stream
- Ice
- Ice Ages
- Iceberg
- Ice core
- Krill
- Methane
- Phoenix spacecraft
- Polar ice caps
- Titan
- Triton
- Sea levels

Resources

Web Links

Center for Astrophysical Research in Antarctica

<http://quest.arc.nasa.gov/antarctica/background/cara/>

This Web site describes why the South pole is a good place to conduct certain kinds of astrophysical research, what it's like to work in such a difficult environment, and much more.

National Ice Core Laboratory Science Management Office

<http://www.nicl-smo.sr.unh.edu/>

If "Ice Worlds" fired you up to know more about what can be learned from ice cores, this is the place to come for the goods.

The Antarctic and Southern Ocean Coalition (ASOC)

<http://www.asoc.org/>

The ASOC is a conservation group working to protect the biological diversity and wilderness of Antarctica, including its oceans and marine life. Their homepage includes a newsletter and other current press items, information about how to get involved, and a list of links to like-minded organizations.

Books

The Ice: A Journey to Antarctica

by Stephen J. Pyne; University of Iowa Press, 1986

A lyrical essay on Antarctic ice in all its myriad forms, with complementary chapters on Antarctic exploration, literature, earth science, and geopolitics.

Endurance: Shackleton's Incredible Voyage

by Alfred Lansing; Carroll & Graf, 1986

One of the most riveting adventure stories ever written, chronicling Ernest Shackleton's failed attempt to reach the South Pole—and his crew's miraculous escape after their ship was crushed in pack ice.