Polar Bears in Hot Water

What’s black and white and red all over? ... A polar bear with a sunburn! Polar bears and their homes are threatened. What is the cause of this threat? Although there is no simple answer, a lot of it has to do with changes in the polar bear’s environment from global warming.

Polar bears roam around the Arctic Ocean from Russia to Canada. Polar bears are designed to hunt on ice. But the polar ice cap that the bears live on is melting earlier and earlier each year. The faster the ice melts, the harder it is for a polar bear to hunt.

Some polar bears are beginning to starve. Since the 1980’s, scientists have noticed a 22% polar bear decline. If this trend continues, polar bears could be extinct in 100 years.

Scientists believe that the ice cap is melting due to global warming. Cars, computers, airplanes and air-conditioners all run on energy. Most of the energy we use comes from burning coal or oil. These are known as fossil fuels. Burning fossil fuels release greenhouse gases. These gases trap the heat of the sun and make the earth grow warmer.

Seals, the animals that polar bears hunt, are also declining due to global warming. Warm weather too early in the year causes the snow dens of the seal to collapse. This causes more seal pups to die. There is less food for polar bears to hunt.

Other Arctic and Antarctic species such as walrus, seals and penguins may soon be in the same situation as the polar bear.

Content objective: Life Sciences

Adaptations in physical structure or behavior may improve an organism’s chance for survival.

As a basis for understanding this concept:

Students know when the environment changes, some plants and animals survive and reproduce; others die or move to new locations.

For more lessons on this science content objective, please see the FOSS science curriculum at www.fossweb.com.
**POLAR BEAR FACTS**

Everything about polar bears is adapted to living on ice.

- Their large feet act like snowshoes.
- Small bumps on their feet (called papillae) prevent them from slipping.
- Short ears and a small tail reduce heat loss.
- They have black skin and clear fur with a hollow core that traps and holds heat.
- Their long, glossy outer hairs easily shed water.
- Their dense, wooly underfur provides warmth.
- Polar bears also have a thick layer of fat which keeps them warm by trapping heat.

**WORDS TO KNOW**

- **Decline:** To become less in amount.
- **Extinct:** An animal that is extinct is no longer in existence. The species has died without leaving any living representatives.
- **Fossil Fuels:** A fuel such as coal, oil or natural gas formed in the earth from plant or animal remains.
- **Global warming:** An increase in the average temperature of the Earth's atmosphere, especially a sustained increase great enough to cause changes in the global climate. The present warming is generally attributed to an increase in greenhouse gases.
- **Greenhouse gases:** A greenhouse gas is any gas that absorbs and traps heat in the atmosphere. Greenhouse gases include water vapor, carbon dioxide, methane, nitrous oxide, ozone and others.
- **Trend:** A trend is a general tendency to move in a specific direction.

**TEST YOURSELF**

What changes are happening in the polar bear’s environment?

Why are these changes a problem?

What do scientists think is causing the ice caps to melt?

Imagine a polar bear in the middle of the jungle or in the desert. How would the traits that make the polar bear good at surviving on snow and ice be a problem in a different environment?

**GREENHOUSE GASES & GLOBAL WARMING**

As you can see, the polar ice cap was much larger in 1979 than in 2003. If global warming continues, many scientists believe the polar ice cap will be entirely gone by the year 2050.

Some of the sun's rays get trapped beneath greenhouse gases instead of going back into space. This makes the earth warmer.

Many of today's greenhouse gases are released into the air when we burn fossil fuels like gas and coal. Cars and electricity burn a lot of fossil fuels.
4 things YOU can do
To reduce your energy use, help solve global warming, and save the polar bear!

1. Turn off your computer when you are not using it.
2. Turn out the lights when you leave the room.
3. Turn off the TV.
4. Reuse or recycle things like bags whenever possible. It takes energy to make new things.

Ask your parents:

😊 To replace any light bulbs in your room or house with more efficient light bulbs such as compact fluorescents.
😊 To hang some of your clothes to dry instead of using the dryer.
😊 To turn the heat down just 2 degrees in the winter.
😊 To walk with you instead of drive when possible.
😊 To help you plant a tree. Plants absorb greenhouse gases.

What the Sierra Club is Doing to Help Polar Bears

To help save the polar bear from extinction, the Sierra Club is:

- Working to pass and enforce laws that will give polar bears full protection.
- Encouraging the use of clean, renewable energy (like wind and solar power) that does not release greenhouse gases.
- Distributing energy efficient light bulbs.
- Asking automakers to make cars that use less fuel.

To learn more go to: www.sierraclub.org/twopercent

Tell us what you’re thinking!

Show us how you are going to do your part to help solve global warming and save polar bears. Then cut on the dotted line and mail it to us! If we print your letter or drawing, you could get a FREE Sierra Club backpack, hat or children’s book. Go ahead — tell the world what’s on your mind!

Name ___________________________ Age/Grade ___________ Submissions become property of the Sierra Club and may be used without limitation or restriction.
your pictures

Brandi, 4th Grade

Save a Tree. Live.

Samantha, 2nd Grade

Keep your world clean!

Trianna, 6th Grade

Our Rain Forest is to enjoy not destroy.

TOMORROW’S PLANET
By Ann Pinkerton and Eileen Weckerle
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