the Water Brothers

THE BIG THAW

1. How much of the worlds fresh water supply is frozen as ice?

2. Where is the world's water bank?

3. Who are "Students on Ice"?

4. What are some famous geological features of Iceland?

5. How many times faster is climate change occurring in the arctic?

6. How many mountain glaciers are found in Iceland?

7. Why should melting ice in the arctic matter to people in the tropics?

8. What can birds tell us about arctic climate change?

9. How is the Ocean Conveyor Belt affected by climate change?

10. How does sending "message bottles" help with climate change?

11. Why is plankton so important to ocean life?

12. What is the importance of sea ice for polar bears?

13. With glaciers receding and mineral deposits being discovered: what are the affects on the local area?

14. Describe some global issues that are associated with climate change and/or melting ice.

15. What should we be doing in Canada to prevent The Big Thaw?

THE BIG THAW

the Water Brothers 🌍   EPISODE GUIDE ANSWERS

1. How much of the worlds fresh water supply is frozen as ice?
   - 70%

2. Where is the world's water bank?
   - Arctic

3. Who are "Students on Ice"?
   - The organization offering unique educational expeditions to the Antarctic and the Arctic that is featured in the episode

4. What are some famous geological features of Iceland?
   - Volcanoes, geysers

5. How many times faster is climate change occurring in the arctic?
   - 3 times faster

6. How many mountain glaciers are found in Iceland?
   - 200 to 300

7. Why should melting ice in the arctic matter to people in the tropics?
   - Reducing habitat: people living at sea level would have to move to another area

8. What can birds tell us about arctic climate change?
   - When climate changes, their migration patterns change

9. How is the Ocean Conveyor Belt affected by climate change?
   - There's more fresh water from melting ice, which reduces water density and supplies of CO_2 to the bottom of the ocean

10. How does sending message bottles help with climate change?
    - It educates the people who find the bottles about the oceans currents, and if these individuals respond, the distance traveled can then be recorded

11. Why is plankton so important to ocean life?
    - Plankton is the base of the entire ocean's food chain

12. What is the importance of sea ice for polar bears?
    - The ice is the hunting platform for polar bears to hunt seals!

13. How could some people benefit from melting ice in the arctic?
    - Increase in jobs, boost in local economies (mineral exploration, mining, etc)

14. Describe some global issues that are associated with climate change and/or ice melting.
    - Reduction of food supply, which decreases the reproduction rate of animals

15. What should we be doing in Canada to prevent the Big Thaw?
    - Become ambassadors and take a more active role in educating others around the world

THE BIG THAW

the Water Brothers

ACTIVITIES

GLACIAL RETREAT

Students will build skills by analyzing then interpreting actual geologic data. This activity is meant to follow a discussion of glaciers and their effects on alpine landscapes, and perfect to use in conjunction with the episode "The Big Thaw"

http://serc.carleton.edu/quantskills/activities/glacial_retreat.html

SEA ICE

In this activity, students learn about sea ice extent in both polar regions (Arctic and Antarctic). They start out by forming a hypothesis on the variability of sea ice, then test their hypothesis. They do this by graphing real data from a recent 3-year period to learn about seasonal variations and over a 25-year period to learn about longer-term trends. They finish with a discussion of their results and predictions.

Activity takes about 30-45 minutes.
http://cleanet.org/resources/41790.html

HOW THE CLIMATE AND OCEAN CURRENTS ARE INTERLOCKED

Students examine the seasonal extent of sea ice in the Canadian Arctic and become familiar with the process of Arctic sea ice formation. Afterward, students create an Arctic food web in order to explore the possible impacts of climate change on Arctic ecology.

http://nature.ca/education/cls/lp/lpasi_e.cfm