



How Fast Will it Melt?

Play this game to learn about the process of ice melting in the Arctic!

Activity Guide

Positive feedback loops affect the rate at which icebergs and glaciers melt. Play the game to see how fast icebergs in the arctic melt over a summer season.

Try This!

Imagine that you are in the Arctic. Its summertime and the warm sun and air are causing giant icebergs to melt. Play this game to discover icebergs are influenced by positive feedbacks.

Step 1: Create an iceberg! Use as many hexagon ice pieces as you want to fill in the shapes on the game board.

Step 2: Count the number of shapes where the ocean is exposed.

Step 3: Roll the dice. Multiply this number by the number of shapes where the ocean is exposed on the game board. (For Example: if you roll a 5 and there are 15 open spaces on the board $5 \times 15 = 75$).

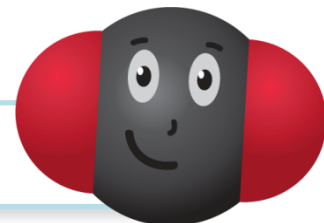
Step 4: Use this number and the chart on the game board to determine how many ice pieces to remove from the game board. Remove the melting ice pieces. (For Example: if your number is 75, you remove 2 ice pieces).

Step 5: Another warm week continues to melt the ice. Roll the dice and take another turn. Remember that as the ice sheet melts and more ocean is exposed this causes a **positive feedback**, which results in higher melting rates. How many weeks will it take till the iceberg is all gone?

Climate Connection

As icebergs and glaciers melt, the replacement of reflective ice with the darker colored ocean encourages more melting. This then triggers a positive feedback loop. Rates of melting in the Arctic are just one example of a positive feedback loop influenced by climate change.

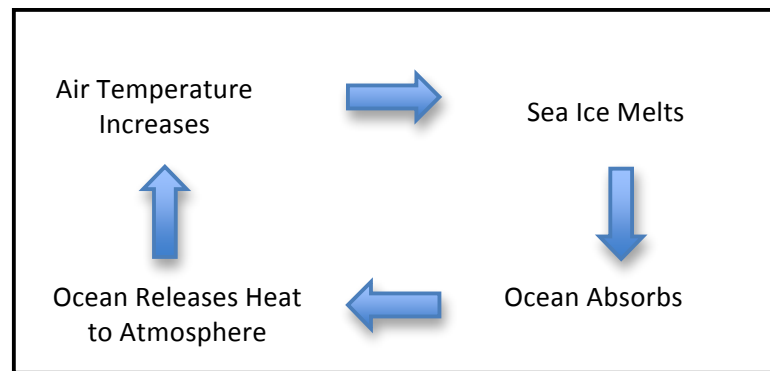
Did you know? Average temperatures in the Arctic region are rising twice as fast as they are elsewhere in the world.



Turn the page over to learn more!

What's Happening?

Positive feedback loops play an important role in the rates of ice melting in the Arctic Ocean. The bright white reflective surface of the ice reflects heat away from the Earth's surface. As the climate changes and air temperature increases, sections of the ice sheet melts and the white surface is replaced with the darker blue of the ocean. This dark blue surface absorbs more heat and increases rates of melting. These new dark colored surfaces absorb more heat, which leads to a faster rate of melting.



This diagram illustrates how positive feedback loops affect the rate of iceberg melting.

Climate Detective Challenge

How is a positive feedback loop influencing rates of melting in the Arctic?

Find the answer to this question on the Activity Map!

