Sticky Ice

Science Film Festival Knowledge Through Entertainment

Is it possible to remove ice from a bowl without getting your hands wet? You can if you know the science behind it...

Ages: 5 - 11 **Under 30 minutes**

Through this experiment, students can understand the broader impacts of temperature changes on ice and how even small changes in conditions (like the addition of salt) can lead to significant environmental shifts

MATERIALS

- Ice
- Bowl
- Salt
- Water
- String

STEP-BY-STEP TUTORIAL

1

Step 1

Hand each student or group a piece of string and present the challenge of lifting an ice cube out of a bowl of water using only the string, without touching the ice or getting their hands wet.

2

Step 2

Allow the students to experiment with different strategies to lift the ice cube using the string.

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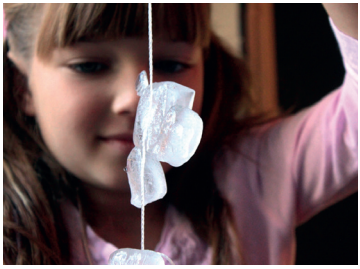
3 **Step 3**
Once they've tried, place the string on top of an ice cube and sprinkle salt over both the string and ice.

4 **Step 4**
Have the students wait for about one minute while the salt begins to affect the ice.

5 **Step 5**
After a minute, instruct the students to gently pull on the string. The ice cube should now stick to the string and lift out of the water.



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6

Step 6
Explain to the students that the salt lowers the freezing point of water, causing the ice to melt slightly and refreeze, trapping the string in the process.

7

Step 7
Wrap up by discussing how this principle relates to real-world applications, such as salting roads in winter, and connect it to the broader topic of freezing point depression and climate change impacts.

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The experiment can be connected to the effects of global warming through the principle of how salt affects ice. In the experiment, salt lowers the freezing point of water, causing the ice to melt slightly and then refreeze. This process mimics what's happening in polar regions due to global warming. Rising global temperatures are causing ice sheets and glaciers to melt at accelerated rates, and as they melt, they disrupt natural cycles, leading to increased sea levels and changes in ecosystems.

Furthermore, just as salt disrupts the stability of ice in the experiment, higher temperatures are disrupting natural freezing and thawing cycles. This melting contributes to reduced ice coverage, particularly in the Arctic, where feedback loops occur. As ice melts, it exposes darker ocean water, which absorbs more heat, accelerating the melting process – a major consequence of global warming.

SOURCE

https://www.kiwico.com/diy/stem/quick-easy-experiments/sticky-ice

KiwiCo was founded to nurture children's creativity and problem-solving skills through hands-on projects, making it easier for parents to provide enriching activities. The company simplifies the process of building, exploring, and creating together by designing fun and educational experiences that foster creative confidence. With a growing team of designers, experts, and kid testers, KiwiCo aims to equip children with the skills they need to face future challenges. Founder and CEO Sandra, an engineer and mother of three, created KiwiCo to inspire curiosity and exploration in families.