

Fishing for Ice

Have you ever seen people put salt on the road when it snows? Adding salt to ice lowers the freezing point of water from 32° Fahrenheit (0° Celsius) to as low as 0° Fahrenheit (-17.7° Celsius), making the snow turn to water if its temperature is above the new freezing point. The more salt you add, the lower the freezing point will be, which is why places with a lot of snow use a lot of salt to clear the roads quickly. In this experiment, you will make use of this scientific mechanism to fish for ice with just some string and salt.



Materials

½ teaspoon of salt	Small bowl of water
2 Ice cubes	String or yarn
1 Spoon	Scissors
2 Empty plates or bowls	

Directions

1. **Place** one ice cube in each empty plate or bowl.
2. **Cut** the yarn or string into 2 pieces, about 6 inches long, and dip them in the bowl of water.
3. **Lay** one wet string across the top of each ice cube.



4. **Sprinkle** $\frac{1}{8}$ tsp of salt on top of ONE of the ice cubes and the string.
5. **Wait** for two minutes.
6. **Lift** the string of the *unsalted* ice slowly and gently. What happens?
7. **Lift** the string of the *salted* ice slowly and gently. What happens?

(The ice cube should lift up with the string.)
8. **Repeat** the experiment to see if you get the same results.
9. **Clean up** by dumping the ice and melted water into a sink.
10. *Challenge:* **Repeat** the experiment, but leave the string dry. Does anything change?

What is going on?

Why does adding salt make the ice cube stick to the string? Think about what happens if you hold an ice cube in your hand. Does your hand get warmer or colder? Similarly, would the wet string laying on an ice cube get warmer or colder? Remember that salt lowers the freezing point of water, making ice melt. So as the ice melts from the salt, the ice takes heat away from its surroundings, whether that is the air, your hand, or the wet string (which is why your hand feels cold after holding ice). As the string loses heat, the unsalty water in the string freezes, causing it to attach to the ice cube.