

# SCIENCE

## FROM HOME



## Lifting Ice Challenge

Can you figure out how to lift an ice cube using only string and salt, without touching it or tying any knots? Explore common, safe substances in order to understand their chemical and physical properties. Make observations about household elements, and think critically about how the chemical properties of water, the most abundant substance on the planet, affect its freezing and melting process.

### Materials

- Plate or tray
- Ice cubes
- String, about 12"
- Salt

### Instructions

- Place some ice cubes on the plate or tray.
  - What are the freezing and melting points of water or ice?
- Think how you might lift the ice cubes using only the salt and the string without tying any knots or touching the ice cube.
- Generate a hypothesis: I think \_\_\_\_ will let me lift the ice cube if I \_\_\_\_\_ because \_\_\_\_\_).
  - *Hint: Try laying the string on top of the ice cube and then pouring salt on top of the string. It may take a few seconds to work!*
- Test your method a few times with different amounts of salt, waiting longer or shorter amounts of time, or different amounts of string touching the ice.
  - How does salt lower the melting point of ice? Why does the melted ice refreeze, encasing the string? *When salt interacts with ice, it lowers its melting point to below 32 degrees Fahrenheit (0 degrees Celcius). The thin layer of ice that is touching the salt melts, but that water cools back down and refreezes around the string. This refreezing allows the string to be used to lift the ice cube.*
  - What are some applications of this science? *Think about making ice cream or melting ice on the roads with salt during the winter.*