







Instant Ice

6th - 8th
Grade

Materials

-  Refrigerated Bottle of Water
-  Large bowl or container
-  Rock salt
-  Ice
-  Thermometer
-  Timer



Students will learn about the freezing temperature of water and how ice crystals form.

Directions

1. Grab your large bowl or container and fill it almost entirely with ice (leave a little space at the top).
2. Place a bottle of refrigerated water deeply into the ice. Keep it as close to the center as possible.
3. Sprinkle some rock salt all over the surface of the ice.
4. Insert a thermometer into the ice right next to the bottle of water. Keep an eye on the thermometer for the next half hour or so.
5. Once the temperature of the bowl or container has reached 17°F, set a timer for 10 minutes.
6. After 10 minutes, gently remove the water bottle and strike it against the table. Observe as your water freezes instantly!

The Science

By adding rock salt to our bowl of ice, we are dropping the temperature of this mixture below the normal freezing point of water (32°F). This process is called freezing point depression. Using this mixture, we can bring the bottled water below its normal freezing temperature making it “supercooled”. When water freezes, its molecules will come together in a very orderly way to form a crystalline structure. These crystals need something to grow on and they use microscopic impurities in the water or locations on the bottle to do that. Striking our supercooled water against a table rapidly increases the speed at which these ice crystals form and freezes the bottle of water almost instantly.

