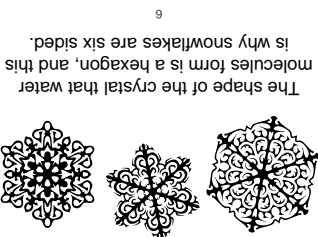


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When water freezes, the molecules line up in a crystal structure so that their positive and negative sides are perfectly matched. To make this lattice structure, they have to spread out. This is why ice expands when frozen.

**EXPANDS**  
**when frozen.**

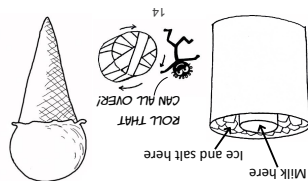
## 1. Frost Wedging

### Materials:

- Water
- Oil
- 2 identical containers
- Plaster of Paris or gypsum
- Balloons
- Freezer

### Method:

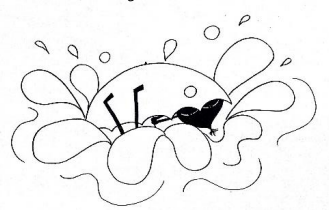
- Fill one balloon with water and one balloon with oil (optional).
- Prepare containers for plaster, for example, by cutting a small cardboard container in half.
- Place balloons in containers.
- Mix plaster & water according to directions and pour it in the containers around the balloons.
- Let dry and then freeze. Remove containers and observe.



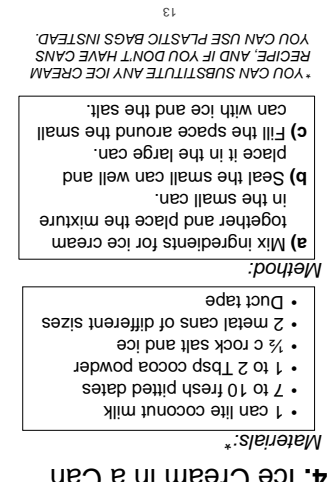
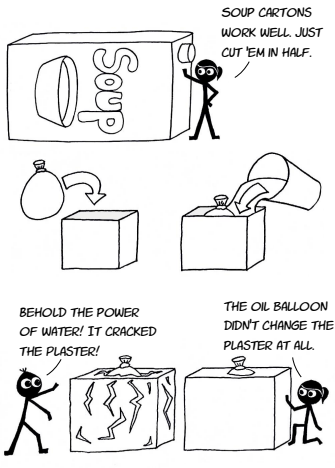
- Carefully remove the small can and roll the can across the floor for 10 minutes.
- Refresh the ice and salt. Drain the water from the large can. Remove the ice and salt.
- Seal the cans again and roll them another 10 minutes.
- Scrape down sides and set the small can in the freezer for 20 minutes. (Optional)

## SCIENCE MOM'S Guide to WATER Part 4

Splash!



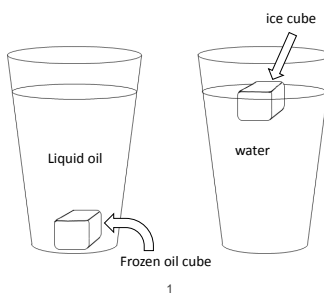
<p>The elements silicon, bismuth, gallium, germanium, and antimony also expand when frozen.</p>	
<p><b>solid</b></p> <p>WE SPREAD OUT TO MAKE A CRYSTAL. (BUT STILL VIBRATING.)</p>	<p><b>liquid</b></p> <p>WE'RE CLOSE TOGETHER AND NOT TUMBLING AROUND.</p>
<p><b>gas</b></p> <p>WE'RE FAR APART AND MOVING FAST!</p>	<p><b>Water (H<sub>2</sub>O)*</b></p> <p>WE'RE FAR APART AND MOVING FAST!</p>
<p><b>Most other stuff</b></p>	<p><b>Water (H<sub>2</sub>O)*</b></p>



## 4. Ice Cream in a Can

Ice floats in liquid water, but the OPPOSITE happens for most other substances!

To see the "regular" way solids behave, place a frozen cube of oil into a cup of liquid oil. It will sink straight to the bottom.



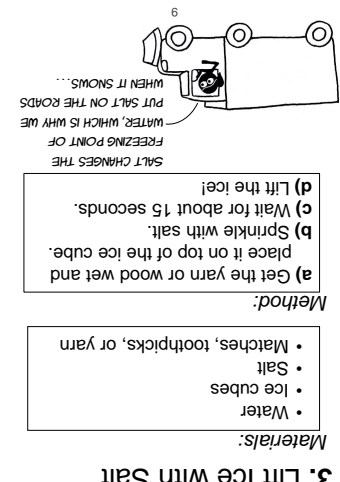
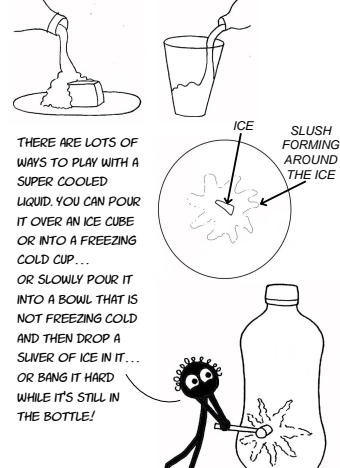
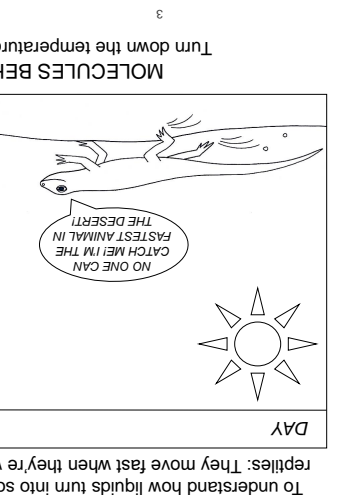
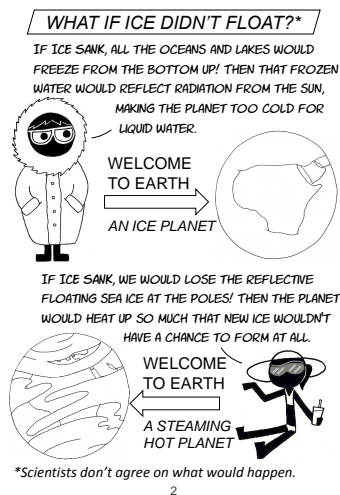
## 2. Magic Slushy

### Materials:

- Bottles of carbonated soda
- Freezer
- Cup and spoon

### Method:

- Place the bottle of soda in the freezer for 3 hours. (YOU MAY WANT TO PLACE SEVERAL IN THE FREEZER AND TAKE THEM OUT AT 30 MINUTE INTERVALS ONCE THEY'VE BEEN IN THE FREEZER FOR AN HOUR. THE CORRECT TIME TO REACH THE "SUPER COOLED" STATE WILL VARY BY FREEZER.)
- Remove soda and be careful not to bump or jar it too hard. Open lid *slowly* and pour soda into an ice-cold cup. If it is super-cooled, it will freeze into a slushy as it is poured.



## 3. Lift Ice with Salt

B

A

A

X

B

C

C

D

F

E

E

D

E

G

G

X