MYSTERY: SUPERCOOLING · 10 MINUTES + 2 HOURS

Water That Won't Freeze

Water freezes at 32°F, right? Chill a glass of water in a salty ice bath and it can get colder than that and still stay liquid. Then drop in a piece of ice and watch it freeze almost instantly.

What you'll need

- ✓ A small drinking glass
- ✓ Water
- ✓ A large bowl
- ✓ Lots of crushed ice
- ✓ Salt
- ✓ Optional: a thermometer

Chill it

1. Fill the bowl with crushed ice.
2. Fill the glass with water and nestle it into the ice. The ice should come up higher than the water.
3. Sprinkle salt all around the ice.
4. Leave it alone for at least 2 hours, in the fridge if it fits. Don't bump it!

Freeze it

5. Gently lift the glass out. Check its temperature if you have a thermometer.
6. Drop a small piece of ice into the water and watch.

Tip: Be gentle. A bump or a shake can start the freezing too soon. If it freezes early, let it melt and try again.

Why it works

Water needs a starting point, called a **seed**, before it can freeze. Usually tiny bits of dust or scratches in the glass do the job.

When water cools slowly and gently, it can drop below 32°F and still stay liquid. That's called **supercooling**. The piece of ice gives the water a seed, and the crystals grow out from it in seconds.

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Record your results

What I checked	What I saw
Water before chilling	
Water after 2 hours	
Temperature (if measured)	
Right after adding ice	
1 minute later	

WINTER CONNECTION

Clouds can hold supercooled water drops. When an airplane flies through, the drops freeze the moment they touch the wings, which is why many planes carry de-icing equipment. Freezing rain coats roads and trees the same way.

Think about it

1. What did the water do the moment you dropped in the ice?

2. Why do you think a bump can make supercooled water freeze?

Watch the video and try 4 more winter mysteries

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