

DO TRY THIS AT HOME

Issue #118

Featuring: **Marvin and Milo**

What you need: • Ice cubes • Tap water • Scales
• A microwave oven • Identical microwave-safe cups

Brrrrrh! It's autumn Milo - not a time for cocktails, more like hot tea. I bet I can boil water faster than you can melt ice!

Put a few ice cubes into a dry cup and weigh it.

Pour water into another cup until it weighs the same as the first one.*

* It is dangerous to heat distilled water in a microwave, so use tap water.

Stand the cups on opposite sides of the oven's turntable and microwave them.*

The water should boil before the ice melts!

Inside the microwave there's a quickly-changing electric field. Water molecules are slightly charged at both ends, and want to align themselves with this electric field. Because the field keeps changing, the molecules in liquid water are spun back and forth, raising the temperature of liquid quickly. The water molecules in ice are fixed in a crystal structure, and so can't rotate and so the temperature doesn't increase as much.