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

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

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

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, so can’t rotate and so the temperature doesn’t increase as much.

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

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

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

The water should boil before the ice melts!

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

Download more Marvin and Milo activities at iop.org/marvinandmilo

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