Exploring Forces

Try this!

1. Fill the full-size cup with water by dipping it into the bowl. Try to pour the water back into the bowl. What happens?
2. Now fill the miniature cup with water. Can you pour the water back out?

What's going on?

It's easy to pour water out of a regular-sized cup, but not out of a miniature cup. That's because size can affect the way materials like water behave.

When you tip the regular cup, the force of gravity pulls the water out of the cup. When you tip the miniature cup, gravity isn't strong enough to overcome the natural tendency of water molecules to stick together.

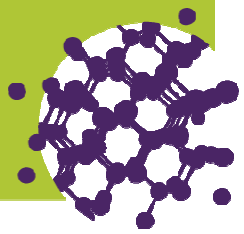
How is this nano?

At the nanoscale, different physical forces and material properties dominate. If you were nano-sized, you'd hardly notice gravity. Instead, you'd be concerned with how bumpy, shaky, and sticky the nano-landscape is:

- Molecules have distinct shapes
- *Thermal energy* makes molecules vibrate
- *Van der Waals* forces make molecules stick together

NanoProperties

NanoDays



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What's different about nano?