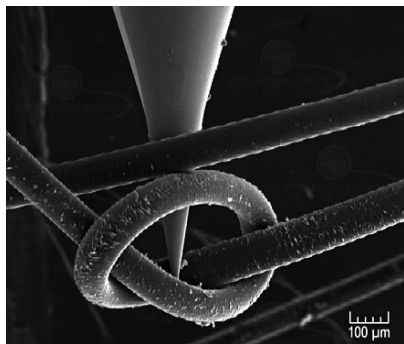




## MITTEN CHALLENGE Determine why nanoscientists need special tools.

### Materials

- Oven Mitts
- Lego or Duplo-style building blocks



Nanotechnology tools are used to measure and manipulate matter on an atomic and molecular scale.

### Procedure

- Put on a pair of oven mitts. Try building something out of the bricks.
- Now try building that same thing without the mitts. Is it easier or harder?

### Results

It's difficult to build small things if your tools are too big!

### Why?

Your fingers are just the right size for building with toy bricks. Oven mitts cover your fingers and make your hands bigger, so you can't work as easily or precisely wearing them.

In the field of nanotechnology, researchers study and make tiny things that are measured in nanometers. A nanometer is a billionth of a meter. That's very, very small—the size of atoms and molecules, the building blocks that make up our world. Moving atoms around with regular tools is kind of like trying to build with toy bricks with oven mitts on your hands! Scientists and engineers need special tools and equipment to study and make nano-sized things.

To learn more about nanotechnology, check out the Pink Palace's *Science of Small* suitcase.