

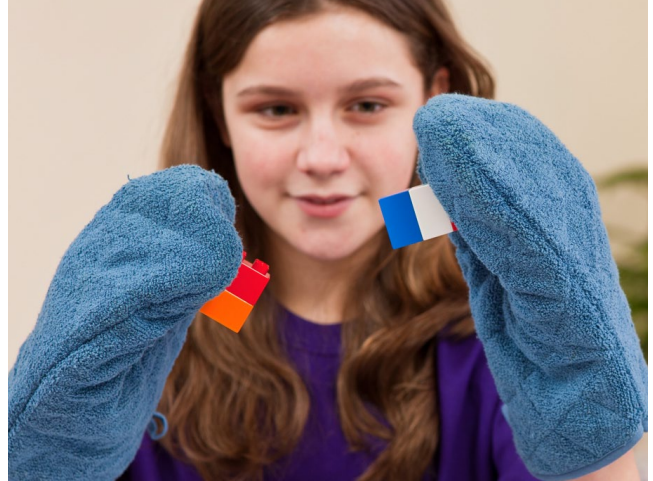
# Mitten Challenge

What's the right tool for the job?

## Description

In this activity, kids try to put together toy bricks—wearing oven mitts on their hands!

Suitable for kids ages 3 and up.



## Materials

Lego® or Duplo® type building blocks

Oven mitts

**Note:** Larger Duplo sized building blocks are better for young kids, while smaller Lego sized ones are better for older kids.



## Time

**Preparation:** 5 minutes

**Activity:** 5 minutes

**Cleanup:** 5 minutes

## Safety

Small building blocks can present a choking hazard to young children. Supervise children at all times.

# Step 1

Put on a pair of oven mitts.

Try to build something out of the bricks.



# Step 2

Now try building without the mitts.

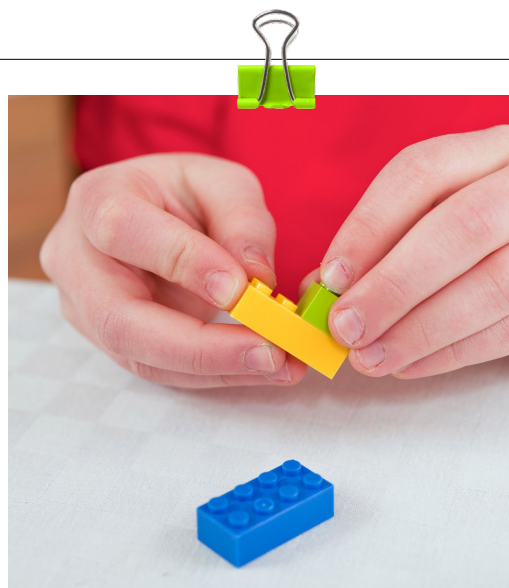
Is it easier or harder?



# What's going on?

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

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.



## How is this nano?

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.

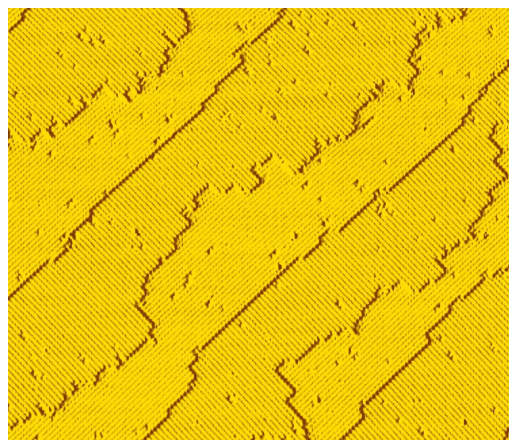
Moving atoms around with regular tools is kind of like trying to build out of toy bricks with oven mitts on your hands! Like everyone else, scientists and engineers need the right size tools for the job.



Researchers in a lab

## Tools

Scientists and engineers use special tools and equipment to study and make nano-sized things. For example, a special tool called a *scanning probe microscope* (SPM) lets scientists “feel” things that are too small to see with regular microscopes. Using this tool, researchers can detect and make images of individual atoms and molecules

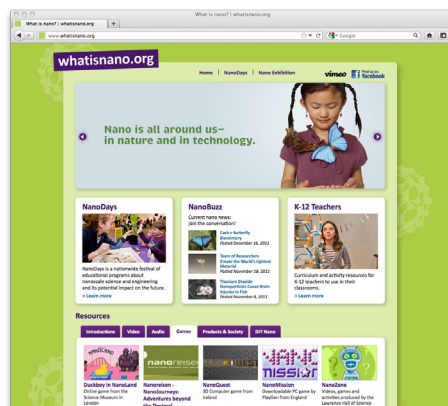


SPM image of silicon atoms

## Learn more

Learn more at:

**[www.whatisnano.org](http://www.whatisnano.org)**



## Credits



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Activity photographs, Gary Hodges Photography

Image of scientists in lab courtesy Cornell NanoScale Science & Technology Facility / Charles Harrington Photography.

Image of silicon by Brian Schwartzentruber, courtesy Max Legally.