Exploring Size—Tiny Ruler

How small can you cut?

NanoDays™
The Biggest Event for the Smallest Science!

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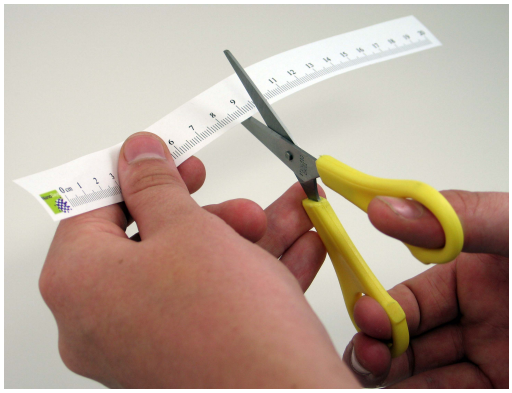
Try this!



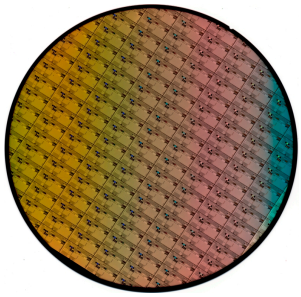
1. Take a paper ruler. It's 20 centimeters long—a fifth of a meter. Do you think you can cut it down to a nanometer in size?
2. Cut the ruler in half so you have a piece that's 10 centimeters long.
3. Take the 10 centimeter piece and cut it in half.
4. Keep cutting the halves in half. How small a piece can you get before you can't cut it any more?

What's going on?

You probably didn't manage to cut the paper ruler down to a nanometer. A nanometer is a billionth of a meter. That's really small!

Most people can't cut the paper smaller than about a millimeter. (The lines on the ruler mark millimeters.) A nanometer is a million times smaller than that!

How is this nano?



Silicon wafer patterned with computer chips

A nanometer is a billionth of a meter. That's way too small to see, and definitely smaller than you can cut a piece of paper!

Nanoscale science focuses on things that are measured in nanometers, including atoms and molecules, the basic building blocks of our world. Scientists need special tools and equipment to work on the nanoscale. Regular tools like scissors are too big!

In the field of nanotechnology, scientists and engineers study the world of the nanometer and make new materials and tiny devices. Nanotechnology allows them to make things like smaller, faster computer chips and new medicines to treat diseases like cancer.