Did-you-know?

A single blink of an eye is about one-billionth of a decade. An eye blink is to a year what a nanometer is to a yardstick.

What is nano?

Nano is a scientific term meaning one-billionth (1/1,000,000,000) of a meter. At this size, the size of atoms and molecules, some materials take on new properties. Nanoscientists study and make very tiny, nanometer-sized things that could change and improve everyday items, from the clothes we wear to the cars we drive. Scientists at Montana State University are researching how nanotechnology can improve medical treatments, energy efficiency, and more.

Try this!

Fill two clear glasses with exactly 8 ounces of room temperature water. Put a whole antacid tablet in the first glass and record the time it takes to dissolve. In the second glass, put in an antacid tablet that an adult has divided up into about 8 equal pieces. Record the time it takes to dissolve. In a third glass, put in an antacid tablet that an adult has turned into powder. Time how long it takes for the powder to dissolve.

What happened?

Small things have more surface area for their volume (the amount of space they occupy) than bigger things do. Some materials that aren’t very reactive at all in big pieces are very reactive at all when they’re tiny. Steel wool catches fire, but it is almost impossible to ignite a lump of metal on fire. Things on the nanoscale have a lot of surface area, so they react much more easily and quickly than they would if they were larger.

Here are some measurements to help you think about how small nano really is.

• One inch equals 25.4 million nanometers.
• A sheet of paper is about 100,000 nanometers thick.
• A human hair measures roughly 50,000 to 100,000 nanometers across.
• A single blink of an eye is about one-billionth of a decade.

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