Stained Glass Art

What does stained glass have to do with nano?

Try this!

Peel the backing off a piece of contact paper. Place small pieces of colored tissue paper on the sticky side of the contact paper. Use black paper to make a border.

Take the backing off another piece of contact paper and carefully put it on top of the other piece, sticky sides together. Trim your artwork.

Now hold your design up to a light or window. What do you notice?

Stained-glass windows are an early example of nanotechnology! Tiny nano-sized pieces of metal create different colored glass.

What's going on?

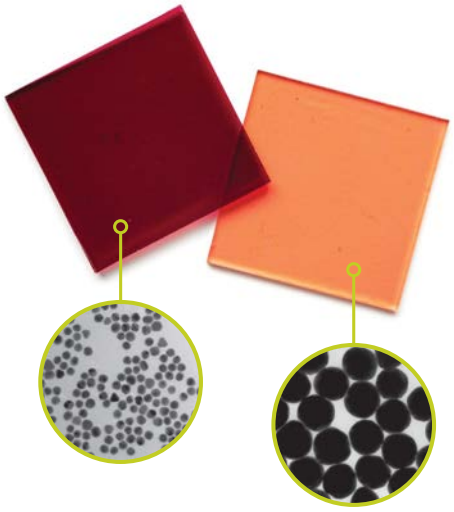
Tissue paper gets its colors from dyes that are added to the paper during the production process. But stained glass isn't dyed! Since the Middle Ages, gold and other metals have been used to color glass.

Big pieces of gold look shiny and golden, but tiny pieces of nano-sized gold can appear red, purple, or blue, because they interact differently with light. Nano gold has been used in red stained glass for centuries!

Stained-glass window

Other metal particles produce different colors. For example, green or yellow glass can come from nano-sized particles of silver.

How is this nano?



Changing the size of gold nanoparticles changes their color

Medieval stained-glass windows are an early example of nanotechnology. People didn't know exactly why it worked, but they knew that adding metals to glass gave it different colors, and they could control their results.

Many nano materials behave differently as they get even smaller. In the picture to the left, the orange glass contains nano particles of gold that are about 90 nanometers across. The red glass contains gold particles that are only about 30 nanometers across! (A nanometer is a billionth of a meter.)