

The background features a dark blue gradient with a subtle pattern of white stars. On the left side, there are several technical diagrams in white. These include circular gauges with numerical scales (140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260) and various circular paths, some solid and some dashed, with arrows indicating direction. The diagrams appear to be related to engineering or scientific instrumentation.

NANO CAMP

BRIGHT LIGHTS

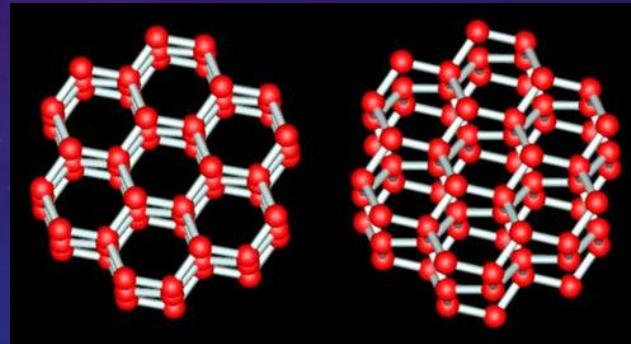
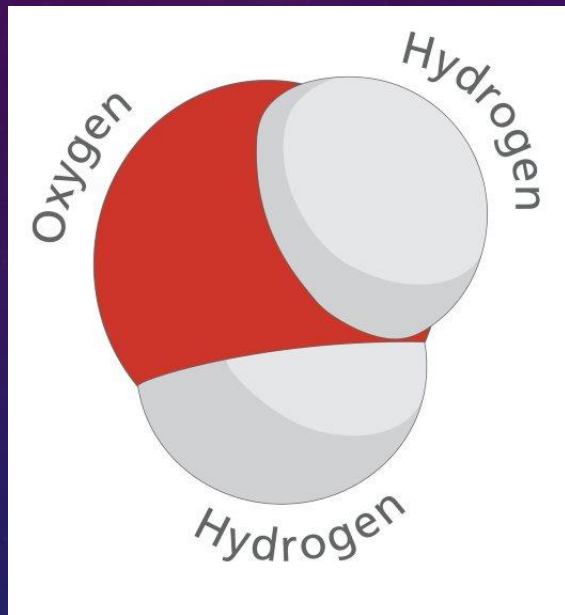
AT UNIVERSITY OF NEBRASKA-LINCOLN

SNOWFLAKES - SELF-ASSEMBLY



The complex structure of snowflakes results from the nanoscale arrangement of water molecules in an ice crystal.

WHY DO SNOWFLAKES HAVE 6 SIDES?



Oxygen atoms self-assemble into a hexagonal shape through hydrogen bonds.

NOW YOU GET TO SELF-ASSEMBLE!

- Look at your "Exploring Fabrication - Self Assembly" sheet - play Game 3 to build a human snowflake using the nanostructure model.

LOTUS LEAF - NANOFABRIC

- Nanoscale features on surface influence how a material behaves on macroscale.



WHAT MAKES THINGS HYDROPHOBIC?

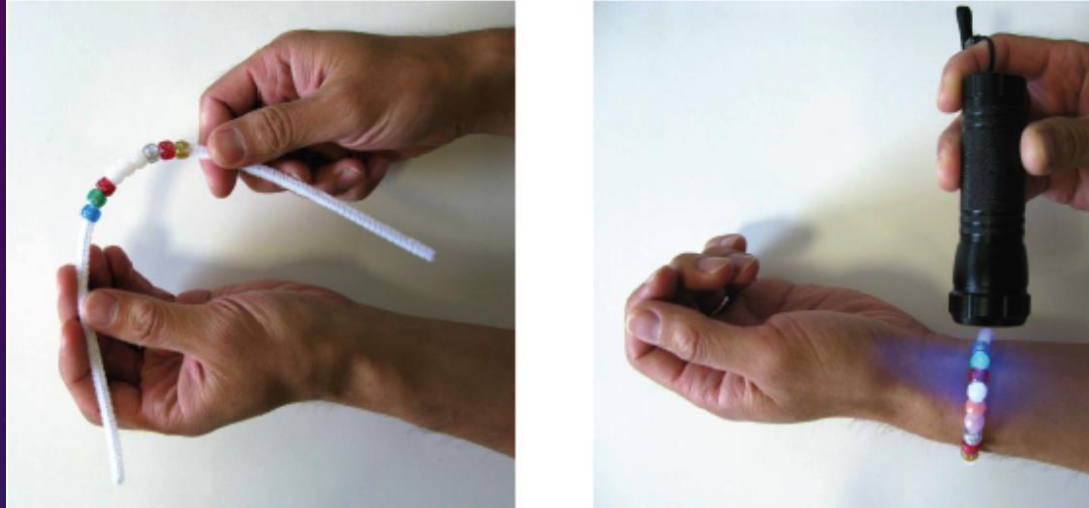


- Surface of lotus leaves have waxy, nanometer-sized bumps that keep water and dirt from sticking.
- Normally, water and dirt can attack a fabric from many angles, but adding a layer of hydrophobic solution covers fabric so that water and dirt collect on top of the 'whiskers' of the solution and roll off.

USE NANO FABRIC!

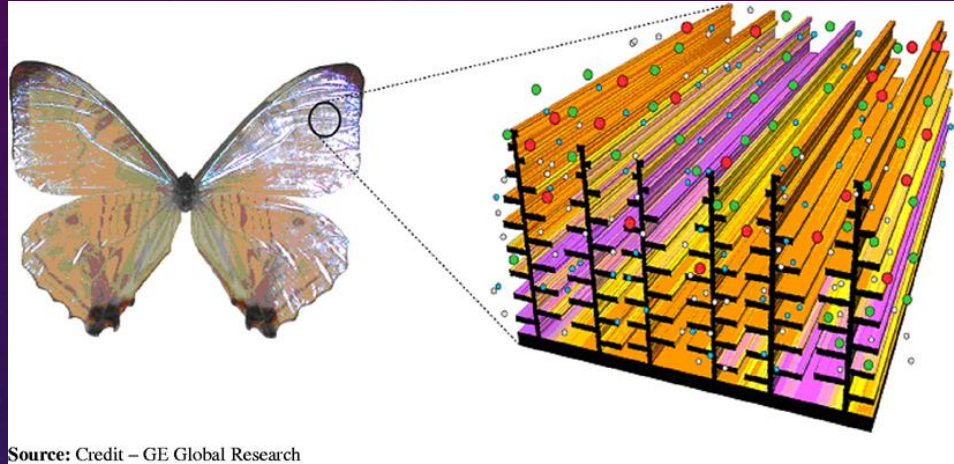
- Look at your "Exploring Products - Nano Fabric" sheet - follow directions.
- Demo - Nano Shirt with koolaid

SUNLIGHT - UV BEADS



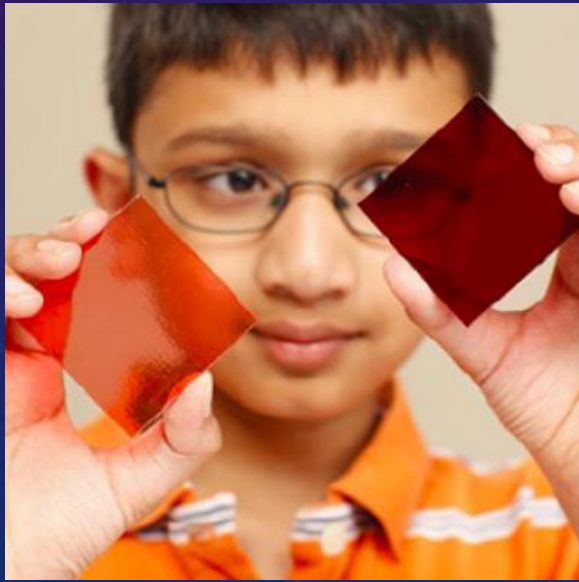
- UV beads contain special material (*photocromic dye*) that changes color when exposed to UV light because... the UV light breaks a bond in dye molecule so molecules rearranges shape. New shape needs more energy to have its bonds broken.

NANOSTRUCTURE - BUTTERFLY



Source: Credit – GE Global Research

- Blue Morpho butterflies have wings with overlapping scales covered with ribs. There is air space a few nanometers between ribs so light waves bouncing off top and bottom surfaces of neighboring ribs interfere.



- Spaces between gold particles cause different colors of gold.