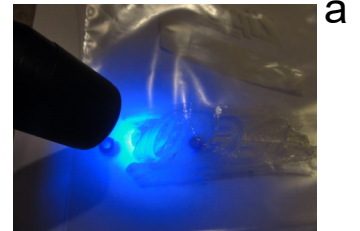
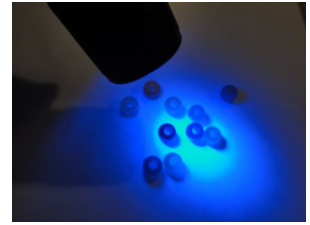


# SENIC—Nanoscale Science and Engineering

## Exploring Ultraviolet Radiation

### Explore!

1. Shine the black light over a UV bead. What happens?
2. Now place the UV bead inside of plastic bag. Select Sunscreen and wipe on the outside with a Q-tip. Shine the black light on the UV beads through the sunscreen. What happens?
3. Place a UV bead inside an amber colored bottle. Shine the black light through the side of the bottle. What happens?
4. Thread a UV bead on a piece of yarn and tie as a bracelet.



UV beads are <https://i.ytimg.com/vi/K5C2ne9irgE/maxresdefault.jpg> the perfect tool for understanding how solar radiation can be harmful. When you expose bare skin to sunlight, your skin will either burn or tan. UV radiation wavelengths are short enough to break chemical bonds in your skin tissue and, with prolonged exposure, your skin may wrinkle or skin cancer may appear.

# SENIC—Nanoscale Science and Engineering Exploring Ultraviolet Radiation

## Sunscreens and Nanotechnology

Why have sunscreens with inorganic agents been used less?

Particles larger than 150nm scatter visible light  
 Our eyes see visible scattered light (visible range is 400-700nm)  
 The scattered light is seen as a white sunscreen



## Nanotechnology to the rescue?

Inorganic particles made < 100 nm—do not scatter visible light  
 Sunscreen will appear clear or translucent



[http://](http://allaboutskenlightening.net/wp-content/uploads/2011/05/dfgffgf.jpg)



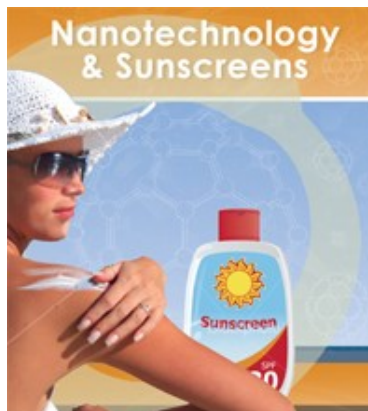
[www.keys-soap.com/solarrx.html](http://www.keys-soap.com/solarrx.html)

<http://allaboutskenlightening.net/wp-content/uploads/2011/05/dfgffgf.jpg>

## Appearance

With advances come issues of risk. Some fear that the use of nano-sized particles of Ti and Zn pose risks to human health and the environment. Note the Australian ad at the far right stating micro-sized not nanosized.

<http://action.foe.org>



Visit [www.nnci.net](http://www.nnci.net)