

Resources For Using Nanooze in the Classroom

What else can we do with Nano?

While West Virginia Nanooze highlights nanotechnology in West Virginia, there is a lot more going on with nano science nationally and internationally. There are countless ways nanotechnology is being utilized to improve health, environment, safety, consumer goods, etc.



● You may want to discuss some of these uses in class with students after showing any of the **following videos**:

- <http://www.youtube.com/watch?v=RdlSRJHFpLI>
- <http://www.bing.com/videos/search?q=what+can+we+do+with+nanotechnology&q&qs=n&form=QBVR&pq=what+can+we+do+with+nanotechnology&sc=1-34&sp=-1&sk=#view=detail&mid=3C40230B9E5BA97E423F3C40230B9E5BA97E423F>
- <http://www.bing.com/videos/search?q=what+is+nanotechnology+video&qpv=what+is+nanotechnology+video&FORM=VDRE#view=detail&mid=25CECAE300572774FEAA25CECAE300572774FEAA>

● Nanotechnology and Risk

Though nanotechnology presents exciting scientific advancements, there are also significant risks associated with this developing technology. The following sections of a debate about the risks and ethics of nanotechnology will provide students with enough background to engage in a rich discussion on these topics.

- **Nanotech Nightmares:** <http://www.latimes.com/la-op-salvi-kimbrell26feb26,0,449500.story#axzz2j1VpEtYY>
- **Nano-morals:** <http://www.latimes.com/la-op-salvi-kimbrell29feb29,0,1825762.story#axzz2j1VpEtYY>

● Nanotechnology and Sunscreen

If students read the above debate pieces, they will already have sufficient knowledge to discuss the benefits and risks of nano-sunscreens. Additional resources on this topic include:

- **Friends of the Earth Report on the Dangers of Nano-sunscreens:** http://libcloud.s3.amazonaws.com/93/23/9/634/Nanotechnology_and_sun-screens.pdf
- **Andrew Maynard's Critique of FoE Report:** <http://2020science.org/2010/06/08/friends-of-the-earth-come-down-hard-on-nanotechnology-are-they-right/>
- **Nano-sunscreens Leave their Mark:** <http://2020science.org/2010/08/19/nano-sunscreens-leave-their-mark/>
- **Nanoparticles and Sunscreens:** <http://www.cancer.org.au/preventing-cancer/sun-protection/nanoparticles-and-sunscreen.html>

● Nanotechnology and the Precautionary Principle

● Introduce the Precautionary Principle, using the following short video:

<http://www.youtube.com/watch?v=3RC7EGDtOYM&feature=c4-overview&list=UU8cxoTk9MOHdZB3gyJNjEtw>

● If students have read about nano-sunscreens, discuss whether the precautionary principle has been adequately applied from the following perspectives: consumers; scientists; sunscreen manufacturers.

Students can discuss the following questions:

- **Who's "in charge" of nanotechnology?**
- **Who really benefits from nanotechnology?**
- **What do we REALLY need that nanotechnology may be able to provide?**
- **Is there a "nano divide" between the "haves" and "have nots" in the world today?**

● Additional Resources:

- **National Nanotechnology Infrastructure Network:** <http://www.nnin.org/education-training>
- **The World of Nanotechnology:** <http://science.howstuffworks.com/nanotechnology1.htm>
- **Nano & Me Website:** www.nanoandme.org
- **Introduction to Nanotechnology Website:** www.nanogloss.com
- **Big Picture on Nanoscience:** http://www.wellcome.ac.uk/stellent/groups/corporatesite/@msh_publishing_group/documents/web_document/wtd015798.pdf
- **Risk Bites Website:** <http://www.youtube.com/user/riskbites>
- **The Project on Emerging Nanotechnologies:** <http://www.nanotechproject.org/cpi/about/analysis/>
- **Nanotech Risks:** <http://www.youtube.com/watch?v=qcOKLV8CW08&feature=c4-overview-vl&list=PL754C8308270FE9C3>
- **Nanotech, Now and Later:** <http://www.latimes.com/la-op-salvi-kimbrell27feb27,0,908254.story#axzz2j1VpEtYY>