

## **FREE Teacher Workshop**

University of Rochester  
Life Sciences Learning Center

Wednesday, August 4  
8:00 am – 4:00 pm



## **Nanoparticles: Benefits and Health Risks**

Nanoparticles are extremely small particles that have one dimension that is less than 100 nanometers (or 0.1 micrometers). Nanoparticles are used in many products but may pose a risk to human health and the environment.

During this workshop, middle school and high school teachers will experience and provide feedback on nine new hands-on and minds-on activities designed to introduce students to:

- The current and potential benefits of nanoparticles
- Nanotoxicology research to study the health risks of nanoparticles

Teachers who attend this workshop will be eligible to become “pilot teachers” and receive free supplies for pilot testing the activities in their classrooms.

The workshop agenda and registration form is attached. Continental breakfast, lunch and parking will be provided.

If you would like to join us for this workshop, please complete the registration form and return it by email, fax or mail before July 15 to:

Dina Markowitz, Ph.D.  
Life Sciences Learning Center  
University of Rochester  
575 Elmwood Avenue, Box EHSC  
Rochester, NY 14642  
Email: [dina\\_markowitz@urmc.rochester.edu](mailto:dina_markowitz@urmc.rochester.edu)  
Fax: (585)256-2591

For a “preview” of the concepts addressed in the workshop, explore the AOL article series at <http://www.aolnews.com/category/nanotech/>

AOL NEWS SPECIAL REPORT

### **THE NANOTECH GAMBLE**

**BOLD SCIENCE. BIG MONEY. GROWING RISKS.**



Nanotechnology has long been hyped for its potential to cure diseases, ease energy problems, supercharge our computers and more. But increasing evidence shows that the engineered particles could pose a giant risk to the environment and human life.

# AGENDA

University of Rochester  
Life Sciences Learning Center Workshop  
**Wednesday, August 4, 2010**

## Nanoparticles: Benefits and Health Risks

- 8:00 - 8:30**      **Registration and Continental Breakfast**
- 8:30 - 8:45**      **Introduction and Workshop Overview**
- 8:45 – 9:15**      **Nano Survey**  
Survey community members about their knowledge and attitudes toward nanotechnology.
- 9:15 – 9: 45**      **Nano Scale**  
Convert common metric units to nanometers. Explore a scale model to understand how incredibly small nanoparticles are.
- 9:45 – 10:15**      **Nano Particles**  
Explore the relationship particle size and particle number and surface area.
- 10:15 – 10:45**      **Nano Benefits**  
Create a poster to inform community members about the benefits of a current or potential nanoparticle application.
- 10:45 – 11:15**      **Nano Risks**  
Develop hypotheses about nanoparticle entry sites and organs to which nanoparticles could travel. Review current research on possible human health risks associated with nanoparticles.
- 11:15 – 12:00**      **Nano Toxicology**  
Simulate research on the effects of nanoparticles on humans: epidemiology studies, human studies, animal studies, and in vitro studies.
- 12:00 - 12:30**      **Lunch**
- 12:30 – 1:45**      **Nano Silver**  
Design and conduct a nanotoxicology experiment using seeds, duckweed, or Daphnia.
- 1:45 – 2:30**      **Nano Ecology**  
Use information about ecosystem research to create a model that illustrates food chain disruption and biological magnification.
- 2:30 – 3:00**      **Nano Benefits and Risks**  
Consider the benefits and risks of nanoscale sunscreens. Propose actions that people could/should take when the risks are poorly understood.
- 3:00 – 3:30**      **Wrap-Up Discussion**
- 3:30 – 4:00**      **Information for Potential Pilot Teachers**

**Workshop Registration Form**  
University of Rochester  
Life Sciences Learning Center Workshop  
**Wednesday, August 4, 2010**

**Nanoparticles: Benefits and Health Risks**

Name: \_\_\_\_\_

School: \_\_\_\_\_

Grade(s) and Subject(s) you teach: \_\_\_\_\_

School Address: \_\_\_\_\_

Home/Cell Phone: \_\_\_\_\_

Email address - where you can be reached during the summer:

\_\_\_\_\_

*Please complete this form and send it by mail, fax or email to:*

Dina Markowitz, Ph.D.  
Life Sciences Learning Center  
University of Rochester  
575 Elmwood Avenue, Box EHSC  
Rochester, NY 14642

Email: [dina\\_markowitz@urmc.rochester.edu](mailto:dina_markowitz@urmc.rochester.edu)

Fax: (585)256-2591