

Nanotechnology Web Quest 5-E Lesson Plan

Author: Mary Cook	Date: 5/18/09
Topic: Nanotechnology	
Title: What is Nanotechnology?	Grade Level: 5-8
Lesson Summary: This is a computer lab exercise where students will utilize a website (http://nanozone.org) with nanotechnology information to answer a series of questions, play games, and make comparisons of object sizes in order to gain a better understanding of nano-sized particles, nanotechnology, and its current and future uses.	

Arkansas Science Frameworks SLEs: PS 5.8.2 Explain the structure of atoms. PS 5.8.5 Investigate scientists, careers, and historical breakthroughs
Main SLE covered in this activity: PS 5.8.2, 5.8.5 Investigate scientists, careers, and historical breakthroughs
Objectives: The learner will 1) Successfully use Internet links and navigate to find information. 2) State the definition of nanometer. 3) Give an example of a nano-sized particle. 4) Briefly describe a nano-scientist's story. 5) Describe a nanoproduct.
Essential Question: What is nanotechnology and who works in this field?

<i>BACKGROUND INFORMATION</i>
Timeline: 2 class periods (45 minutes)
Materials: <ul style="list-style-type: none">• http://nanozone.org/• Recording sheet for the games and other activities• Computer with Internet (1 per student)
Teacher Preparation: <ul style="list-style-type: none">• Review the website: http://nanozone.org/ and procedure for lesson.• Assign groups if desired (no more than 3)

PROCEDURE

Engage (5 min):

- Click on “What is it?” at <http://nanozone.org>
- Show the 30 second video “What the Heck is Nanotech?”

Explore (10-15 min): Students may work in groups or alone.

- In the “What is it?” section, students will play the games: Green Milk, Save Ratty, and Virus Worker.
- Students will record their results for each game on a student-made Recording Sheet. This will provide practice for students in designing data tables.

Explain (35 – 40 min.):

- (10-15 min) Select some students to report their results from the games.
- (5 min) Click on “How small is it?” and show the 1 minute video, “NanoVideo”. Then have students do the “How Small is Small?” activity.
- (10 min) Click on “Who works on it?” and have students select one comic to read and learn about a nano-scientist. Then write a summary of what they learned or select some students to share with the class what they learned about their scientist.
- (10 min) Click on “Why is it important?” Then click on “FutureNano”. Students should select 3 Nano-products to read about. Then have students write a summary of each product or select some students to share with the class what they learned about Nanoproducts.

Elaborate: Ask to students to summarize what they learned.

- Teacher should clarify any misconceptions.
- Teacher could extend discussion with current news articles.

Evaluate:

Teacher can score the Student Recording Sheet using a rubric created at <http://rubistar.4teacher.org> (ID # 1760297)

CROSS CURRICULAR CONNECTIONS

Math: Fractions, Metric System of Measurements, and Size Comparisons

Language Arts:

- New words such as nanotechnology, nanometer, scanning electron microscope.
- Oral and written communication

Parental Involvement: Ask tech-savvy parents to assist students in the computer lab while doing this Web Quest.

Technology Connections: Internet Research, creating rubrics on-line

Resources:

- <http://nanozone.org>
- **Computers and Internet**
- <http://rubistar.4teacher.org> (ID # 1760297)

Notes: Try out the suggested websites to be sure your school computers will allow students to visit them. If needed obtain permission from your School Technology Administrator.

Credits:

This lesson: __is original __x_ was adapted from ____<http://nanozone.org>'s original lesson.