

## 2010 Summer RET Project Outline

### Project #6: Applications of Nanotechnology in Health and Beauty Products

1. Basic review of particulate fillers
  - a. Particle synthesis
  - b. Particle properties
  - c. Particle characterization
2. Review of nanoparticles in health and beauty products
  - a. Facial cosmetic applications
  - b. Hair care applications
  - c. Dental applications
3. Topics for classroom implementation
  - a. Correlate specific nanoparticle applications to usable classroom topics  
i.e. – chemistry, biology, math or physics
  - b. Select several application to be used in classroom lesson plans
4. Experimental
  - a. Gold nanoparticle synthesis via 'green chemistry'
    - i. Design experiments to synthesis gold nanoparticles using several different synthesis techniques.
    - ii. Analyze particles with light microscope and SEM
    - iii. Determine which experiments will work best in classroom
  - b. Hair care products
    - i. Collect different hair coloring products and conditioners
    - ii. Treat hair samples with products
    - iii. Analyze hair samples with light microscope and SEM
  - c. Dental Products (to be discussed if interested)
    - i. Toothpastes
    - ii. Dental filler materials (colloidal silver, ceramics)
5. Create plans for classroom implementation
  - a. Emphasize key science areas (math, chemistry, biology etc)
  - b. Define concepts to be used in lesson plans
  - c. Design experiments