

K-12 NEATEC Modules



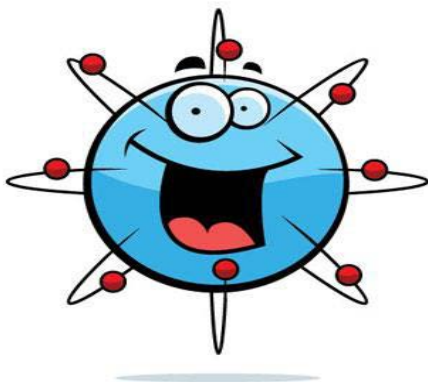
Thin Films (Grades 6-8)

Using soap bubbles students learn how to measure the thickness of a thin film by observing the colors of the light spectrum and comparing them to a wavelength chart. They also learn the application of Thin Films in the world of nanotechnology and the everyday objects it is used for. Many elements of middle school math are also incorporated into the module as students calculate the volume and surface area of a sphere. This module takes place over 4, forty minute periods.



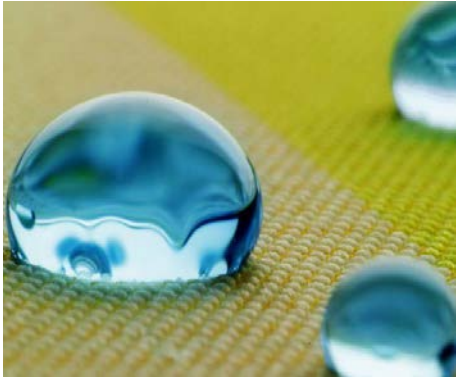
What is Nanoscience? (Grades 6-8)

Introductory overview of nanoscience and how size affects the property of materials. Using flashcards students compare objects ranging from macroscale to the nanoscale and match them up with scientific notation. Surface area reaction time is then explored using different size tablets dissolved in water while monitoring the height of the reaction over a given time. This module takes place over 4, forty minute periods.



Now That's Tiny (Grades K-2)

Students are given an introduction to Nano-scale by comparing tiny objects they encounter every day to items they can't see such as cells, molecules, and atoms. Through the use of hand lens students learn about the technology that allows Nano-scientists to observe things that are too small to be seen by the human eye and how Nanoscience is influencing our lives and why it is important. This module takes place over 6, forty minute periods.



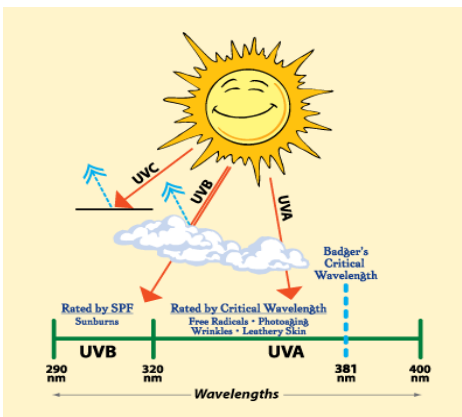
Nano-Text Fabric (Grades 3-5)

Students compare Nano enhanced fabric to regular fabric to see first-hand what manipulating material on a molecular level can do as liquid is repelled or "wicked" away by the Nano-Text fabric and left staining other material. Through their own observations they will be asked to discover which materials are influenced by nanotechnology and why it is beneficial to us and will be introduced to vocabulary words such as hydrophobic and hydrophilic. This module takes place over 1, forty minute period.



Nano Sand (Grades 3-5)

Students participate in activities that compare the properties of regular play sand to that of hydrophobic Nano sand, observing the different effects water has on each and how Nano has influenced each. They are then asked to formulate ideas on why hydrophobic sand is beneficial and in what ways it can be utilized to solve real world problems such as oil spills and water retention during farming. This module takes place over 3, forty minute periods.



Ultra Violet Rays and Opacity (Grades 3-5)

Using UV color changing beads, students are shown the power of UV radiation from the sun under certain conditions and how the opacity of different materials relates to the amount of protection it provides against UV rays. A comparison between materials enhanced by nanotechnology is also made, and the protectiveness of sunscreen is witnessed. Transparent, translucent, and opaque are introduced as new vocabulary terms. This module takes place over 3, forty minute periods