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Nanotechnology for Enhancing Math, Science, and Language Arts in the Elementary Grades: How Small Is Your Future?

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by Doriel Moorman

Nanoscience is the study of matter at the molecular scale and takes us into a scientific arena where the properties of matter are different from the macroworld in which we live. It demands new tools, new understandings, and may be the beginning of a new technological revolution. This unit introduces elementary students to the world of nanotechnology. It provides them with an overview of what nanotechnology is, how it is used, and how it will impact our future. This unit provides students with a basic understanding of the structure of matter, how scientists are able to study and manipulate nanoparticles, and the role that nature plays in this emerging science. It was written to make integration into a math and/or language arts curriculum program relatively easy without sacrificing the content that is required to be covered. It is an engaging and interactive unit with the goal of enticing students to develop an interest in science in general and nanoscience in particular. The four key factors presented for students to keep in mind as they explore the nanoworld are: all matter is made of atoms, atoms are in constant motion, molecules have size and shape, and molecules arranged into nano-objects have unexpected properties.

(Developed for Elementary Math Enrichment and Elementary Language Arts Enrichment, grade 5; recommended for Math, Science, and Language Arts, grade 5 and adaptable for grades 2-4)