

Physics
At Work

Dr. Linda Shore

Director of the Teacher Institute at the Exploratorium;
San Francisco, CA

Dr. Linda Shore was intrigued by science growing up, and thought that one day she could turn her intrigue into a career. "I grew up watching Carl Sagan's television show, *Cosmos: A Personal Voyage*, and remember being fascinated by his ability to translate science and make it exciting," said Shore.

She earned her masters degree in physics from San Francisco State University and her doctorate in Science Education at Boston University. When she returned to San Francisco in 1993, she joined the Exploratorium, an interactive science and art museum, founded in 1969 by famed physicist and educator Dr. Frank Oppenheimer.

Dr. Shore wants to dispel the myth that the Exploratorium is merely a science museum. "That is just the tip of the iceberg." The museum houses teacher-education programs, exhibits for sale and for rent, along with over 700 hands-on exhibits.

As the director of the Teacher Institute, Dr. Shore fills her days helping science teachers teach better, assisting with a Web cast or the design of an exhibit, and traveling to other museums to design teacher programs. "Every day is a little bit of a surprise," she said.

But Dr. Shore said that the biggest surprise about her job is how much it still teaches her about science. "My job is to translate science to the public, teachers, and students, which is similar to receiving interesting homework assignments; I never know what the questions are going to be."



Roger Barrett

Exhibit Designer, Science
Museum of Minnesota,
Minneapolis, MN

Roger Barrett has been an exhibit designer for five years at the Science Museum of Minnesota, known for its traveling exhibit program, its innovative interactive exhibits, and their Exhibits-for-Sale program.

Recent exhibits that Barrett has been involved in are Robots, Race, BioMusic, Water, the Science of Fear, and Nanotechnology. During the fabrication portion of the project, Barrett will work with a scientist or Curator to develop exhibit content. Barrett also is involved in choosing building materials, which is not an easy decision. "Durability is a factor, as well as aesthetics, cost, ease of construction and green materials," said Barrett.

Patricia Rayner

Physical Science Teacher
and Inventor of the
All American Atom;
Bethel, CT

Patricia Rayner has been teaching science for over 25 years, but it was early on in her career when she discovered that students learn better through hands-on activities. It was then that she developed the "All American Atom" that allows students to learn about the atom by making a model of it.

"Model-making is very important," says Patricia. "You can feel it, touch it, and see it to understand it, and it uses the creative part of the brain." Her students use the kit she developed, which involves building a plastic, three-dimensional nucleus with atoms spinning inside.



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Active Physics

Roger Barrett's passion for science is evident in the way he works to build scientific exhibits. By collaborating with a curator or a scientist he makes the exhibits more interesting. Barrett's extensive involvement proves his commitment for each project that he designs. Using Barrett's example, you might want to ask students about school projects that they have created and that gave them a sense of accomplishment based on their achievement. Consider discussing the *Chapter Challenge* presentation where they also developed and designed an exhibit that was interactive and conveyed important scientific information.

Patricia Rayner's discovery that students learn better through hand-on activities can be used to illustrate how models achieve a fuller understanding of science. Point out that Patricia's model of the All American Atom uses an interactive technique to teach students about the atom. You might want to ask students how their *Chapter Challenge* is similar to how Patricia Rayner employs the hands-on aspect of learning.

Physics At Work

The three profiles presented in the *Physics At Work* show how people with a passion for physics have carved out interesting careers for themselves. Dr. Linda Shore's recollection of how a television show covering a wide variety of science subjects fascinated her so much that she went on to earn a post-graduate degree in physics from San Francisco State University and a doctorate

in Science Education at Boston University. Her interest and involvement in the interactive science museum, where she now serves as the director of the Teaching Institute, is a career choice full of interactive designs and exhibits. You might want to ask students if an educational show on television has inspired them to pursue a subject that they love, just because they saw it come to life on a television set.