

Artist Designs Materials Science Exhibits

Tom Rockwell

"What kind of design work do you do?" I am asked when I tell people that I am a designer. "Anything to do with science," I answer and wait for the inevitable puzzled look. In over 10 years as an artist and designer working with scientific concepts, I have found that my interdisciplinary career takes some explaining. I typically describe my work as the creation of scientific illustrations, exhibits for science museums, and large sculptures or playgrounds that teach scientific concepts. My recent projects include design and construction of a **Rainbow Maze**, in which museum visitors get lost in a world of lights and colorful panels made of different optical materials; a giant model of a **Cell Sorter** for an exhibition about nanobiotechnology, in which children move and sort balls representing cells with different properties; and a rotating **Kinetic Window**, in which optical illusions, mixtures of materials of different densities, and a pendulum are set in motion as the circular window turns.

My typical day involves a balance of the practical and the creative. On the one hand, I tend to the financial, legal, and other administrative dimensions of running a small business. Painted Universe Inc., which I founded in 1995, is a design/build firm that currently has six employees and a network of subcontractors. While the practical matters of running a business offer many rewarding challenges, I try to preserve a part of each day for the creative work that I find most fulfilling. Working on drawings or models, brainstorming with clients, and overseeing fabrication keep me involved in the activities that first attracted me to my chosen profession.

I was raised in Europe, the son of an expatriate sculptor, and as a child, I assumed that I would be an artist. Science did not enter the scene until I came to the United States for college. Through a course on music theory, I began to see the beauty and elegance in scientific ideas and imagery. The professor who taught the class was interested in the similarities between music and mathematics, and he analyzed the aesthetics of a mathematical proof as if it were a Bach cantata. Until that time, I had been a typical arts and humanities student, keeping a respectful distance from science. From then on, however, I took a more active interest in scientific knowledge, not in order to pursue a research career, but like a painter exploring a landscape to find scenes worth



Artist and designer Tom Rockwell (right) works with his associate Nathan Blanding in front of the *Rainbow Maze*, a museum exhibit that explores optical materials.

painting. Although I completed a degree in studio art, I spent much of my time looking for images in scientific texts and journals, studying the history of science, and talking with scientists about their work. Subsequent work in science museums and educational playgrounds eventually led me to form my own company.

I was first exposed to materials science when I was asked to develop a demonstration for the new **Future Materials** exhibition that had opened at the Franklin Institute Science Museum in Philadelphia. I studied books such as Rodney Cotterill's *Cambridge Guide to the Material World* (Cambridge University Press, Cambridge, 1985) and visited several DuPont laboratories and factories to learn about materials science and engineering. I was fascinated by what I saw as great sculptural potential in the shapes and patterns of the microstructures of different materials. Years later, in 1998, while working on interactive displays for the lobby of the Materials Research Society's headquarters building, I was

able to create a **Diffusion Sculpture** that showed interstitial diffusion through various crystal structures. Materials science continues to figure prominently in my work, most recently for a traveling exhibition about the **Science of Art**, created in conjunction with the Berkshire Museum in Western Massachusetts. The **Rainbow Maze**, described earlier, employs dichroic glass filters, vinyl with holographic patterns, and a host of colored transparent plastics. Another exhibit, titled **How Hard is Stone?**, illustrates the different hardnesses of granite and marble by allowing visitors to use a pneumatic air chisel to carve different stones.

I feel lucky to be able to do exactly what I want to do. When I visited a science museum as a child, I remember thinking, amid great wonderment, "Who gets to make this stuff?" Thirty years later, I am fortunate to be one of those individuals who has come to exhibit design and scientific illustration without following a formal path. The interdisciplinary nature of this work is captured in only a few academic exhibit design or scientific illustration programs, yet it is that very open-ended quality of the field that has made it so rewarding for me. □

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