

CAREER**● Experimental Physicist**

*In the course of a single day, you could find **Melissa Franklin** operating a huge drill, giving a tour of her lab to a 10-year-old, putting together a gigantic piece of electronic equipment, or even telling a joke. Then you'd see her really get down to business—studying the smallest particles of matter in the universe.*

Melissa Franklin is an experimental physicist. “I am trying to understand the forces that describe how everything in the world moves—especially the smallest things,” she explains. “I want to find the things that make up all matter in the universe and then try to understand the forces between them.”

Other scientists rely on her to test some of the most important hypotheses in physics. For instance, Franklin and her team recently contributed to the discovery of a particle called the top quark. (Quarks are the tiny particles that make up protons and neutrons.)

Physicists had theorized that the top quark might exist but had no evidence. Franklin and more than 450 other scientists worked together to prove the existence of the top quark. Finding it required the use of a massive machine called a particle accelerator. Basically, a particle accelerator smashes particles together, and then scientists look for the remains of the collision. The physicists had to build some very complicated machines to detect the top quark, but the discovery was worth the effort. Franklin and the other researchers have earned the praise of scientists all over the world.

Getting Her Start

“I didn’t always want to be a scientist, but what happens is that when you get hooked, you really get hooked. The next thing you know, you’re driving forklifts and using overhead cranes while at the same time working on really tiny, incredibly complicated electronics. What I do is a combination of exciting things. It’s better than watching TV.”

It isn’t just the best students who grow up to be scientists. “You can understand the ideas without having to be a math genius,” Franklin says. Anyone can have good ideas, she says, absolutely anyone.

Don’t Be Shy!

Franklin also has some good advice for young people interested in physics. “Go and bug people at the local university. Just call up a physics person and say, ‘Can I come visit you for a couple of hours?’ Kids do that with me, and it’s really fun.” Why don’t you give it a try? Prepare for the visit by making a list of questions you would like answered.