Title: What is a Theory?

Francis Collins, Director, Human Genome Project:
In a conversation you might have with a friend, you might say, "Well, you know, I have a theory that Jack over there has a crush on Peggy." And that would be, you're sort of making a guess.

Kenneth Miller, Biologist, Brown University:
Well, within science that's not what we mean by theory. Theories never become facts in science. Theories explain facts.

Georgia Dunston, Microbiologist, Howard University:
The value of a theory is it gives us a framework for asking questions about the reality.

Niles Eldredge, Paleontologist, American Museum of Natural History:
They're the big ideas in science, and they've been tested so much that they are sort of the reigning explanation for whole sets of phenomenon. They're taken very, very seriously. Evolution is the only theory in science that explains the diversity of life on Earth.

Kenneth Miller, Biologist, Brown University:
Without evolution, the things that we do in the laboratory and in the field, the experiments we carry out and the interpretations we make from those experiments, are not connected with each other. You might say that without evolution to tie it together, biology is little more than stamp collecting.

Francis Collins, Director, Human Genome Project:
For me, as a scientist who studies the human genome, the instruction book for our own species, without the framework of evolution to understand what we look at every day, it would make no sense.

Niles Eldredge, Paleontologist, American Museum of Natural History:
The really key element of any scientific idea, hypothesis or theory is that it should lead you to make predictions about what you might expect to see in the world if it were true.

Eugenie Scott, Executive Director, National Center for Science Education:
So theories are actually very important. If we say "the theory of evolution," we are praising it. We're not saying it's a guess or a hunch. We're saying it's a very important explanation that helps us understand the natural world better. Theories explain laws and facts. They're the most important thing we do in science.