Polytechnic University
Revitalizing Achievement by using Instrumentation in Science Education

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Good morning, I am honored to be here today to have the opportunity to address teachers and students about the importance of science education. Edwin Powell Hubble, probably the greatest observational astronomer of our century, renowned for determining that there are other galaxies in the universe beyond the Milky Way, once said, “Equipped with his five senses, man explores the universe around him and calls the adventure Science.”

The New York City Department of Education collaboration with colleges and universities, in particular the Poythechnic Science Program, provides science teachers and students with opportunities to become explorers and participate in this unique adventure. This hands-on journey across the endless frontier of science, guided by distinguished members of the Polytechnic University faculty, has resulted in elevating science literacy and the achievement of middle and high school students across the city.

It is professional learning opportunities such as this one, that allow dedicated and focused learners like you to achieve higher competency and expand your understanding of self, role, context and career. As teachers and students who have had the extraordinary opportunity to practice science, and directly experience the process of scientific discovery, you are better equipped to understand science and join in the adventure as the next generation of explorers and problem solvers.

I would like you to take a moment to think about what the following famous problem solvers have in common:

Neil Alden Armstrong (the first man to walk on the moon),
Jimmy Carter (the 39th President of the United States)
Leonardo da Vinci (the great Italian artist)
Thomas Edison (invented the light bulb)
Alfred Hitchcock (American film maker)
Alexander Graham Bell (inventor of the telephone)
George Westinghouse (invented air brake system for trains)
Montel Williams (popular talk show host)

If you said that they all had degrees in engineering, then you know that throughout the ages from the builders of the Egyptian pyramids to the inventors of the personal computer, engineers have been the shapers of progress. Engineers have been the first to walk on the moon, paint great works of art, and invent the telephone and light bulb. You also know that engineers convey ideas graphically and may need to visualize products or processes in three dimensions and need to see things in terms of graphics, drafting, and design. In other words, as Theodore Von Karman said: “scientist study the world as it is, engineers create the world that never has been.”

Engineers are problem solvers who search for quicker, better, and less expensive ways to

use the forces and materials of nature to meet today's challenges. Every year, nearly 100,000 new college students enroll in engineering programs, perhaps because they've dreamed of building a skyscraper or of starting their own software company. They may also know that biomedical engineers create artificial body parts that can drastically improve disabled people's lives and computer engineers are behind today's electronic music craze. And once on campus, they discover the cool things that engineering students do, like wiring a remote Thai village for electricity or learning how to make race cars go even faster. More than 1.2 million engineers work in the United States today, making engineering the nation's second-largest profession. Engineering offers more career options than any other discipline. It's a profession that can take you from the depths of the ocean to the far reaches of outer space, from within the microscopic structures of the human cell to the top of the tallest skyscrapers. Whether it's cell phones, digital cameras, DVDs, or facial recognition devices that can pick out a terrorist in a crowded football stadium, engineers are behind almost all of today's exciting technology.

An engineering degree also opens doors to other careers. Many engineering graduates have moved into other professions such as medicine, law, and business where their engineering background has been a valuable asset.

Collaborations with colleges and universities such as this allow teachers and students to visit and use labs, research, dialogue with college professors, and explore careers in science and engineering. As educators, we must nurture and expand such collaborations and partnerships that draw upon and join the experiences of superior teachers and scientists to raise the levels of student achievement and provide our youngsters with the intellectual tools necessary to succeed in the 21st century. Our shared commitment to these goals, coupled with the enormous reservoir of talent and dedication present here day, will ensure continued exploration of the excitement, beauty and utility of the adventure called science.