Patrick F. Leahy

Pennsylvania Junior Academy of Science | March 1, 2014

Thank you, Bob, for your kind introduction and for serving our engineering students at Wilkes University so well. And thank you, PJAS, for asking me to say a few words of welcome tonight. More importantly, thank you for all the ways you have been promoting science since 1934.

I'd like to take a moment right at the start to salute the parents who are here tonight for supporting their young scientists. As a father of four kids under the age of 15, I've been to many of these types of events, and believe me, I know the sacrifice you make. Also, I'd like to recognize all of the teachers who are here tonight too. One of my heroes, Tim Healy, the president of my undergraduate alma mater, used to call K-12 teachers the "unsung heroes" of education. In fact, each year he would recognize a distinguished high school teacher with an honorary degree from Georgetown University. So please join me in recognizing all of the unsung heroes who are here tonight

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Thank you all for being here, but I'd like to address my comments principally to all of you students. I am delighted to say a few words here tonight, but you might be asking yourself: "Why him?" After all, as Mr. Taylor pointed out when introducing me, I studied poems as an undergraduate. What can I possibly know about science? Well, probably not much I guess. But this I do know: Poetry and science have a lot in common. Both seek the truth. Both tackle the big questions. Both urge us to wonder. In fact, some poets, like Emily Dickinson, wrote their poems in the same structure as science experiments. Priscilla Long, a contemporary writer whose favorite topic is science, says: "Doubt and an open mind serve both enterprises ... each watches, observes, and records." And, good or bad, both ultimately produce more questions than answers. So although I've never been a scientist, I am someone who can appreciate science. Therefore, I want to say one thing to you students: thank you. Thank you for applying your energy, your diligence, and your hard work to the sciences. The STEM fields – science, technology, engineering and math – need you. Those fields need you now more than ever. We need our best and brightest in these fields because science is opening up countless fields of discovery.

In 2013 alone the following scientific discoveries occurred: Scientists determined that there are perhaps 50 billion sun-like stars in our galaxy. Fifty billion! Take a moment and just imagine that number. One in five may have planets surrounding them with temperatures that could sustain life. So there are 10 billion chances that we are not alone. Scientists of a different sort continue to measure how the Earth is warming. I know it's hard to believe, given the severity of this winter. Last year the oceans warmed at a rate 15 times faster than anytime in the past 10,000 years. Incidentally, don't look at the five-day forecast. It is depressing. Advances in stem cell research will soon make engineering functioning organs possible — something that was considered science fiction just a few short years ago. And an insurance company famously stated that the first person to live to 150 years old is alive today, thanks largely to the marvels of modern science. This prompted at least one scientist to say that someone born in the next 50

years could live forever.

And that was just a few of the many discoveries in 2013 alone. I cannot imagine the scientific discoveries that you will experience in your lifetimes. Lots of advances and lots of questions. We need you in the STEM fields to help us with these advances and with these questions. As you pursue the STEM disciplines, I urge you to embrace the arts too, something that the Rhode Island School of Design has coined the STEAM fields: science, technology, engineering, math plus the arts. In my view pursuing the arts can make you a better scientist. Pursuing the arts can help you make sense of these discoveries. If we are not alone in our universe, what does that mean for our civilization? If the Earth is warming, what do we do about it? If we can engineer functioning organs, how do we make this available to everyone? If we can make people live forever, should we? Pursuing the arts can help you look at problems from different perspectives. The great advances in the future will come at the intersection of disciplines. Pursuing the arts can help you communicate your ideas to others – to other scientists, to professionals in other disciplines, to investors, government officials, even students. Einstein said: "You must be able to explain your concepts so a 6-year- old can understand them."

So let me conclude with one simple thought. As you pursue your education, pay close attention not only to the sciences but also to the arts; not only to the STEM fields but also to the STEAM fields. That is the essence of a liberal education, an education that will serve you well in an increasingly complex, fast-moving world. After all, it was a poet – Ralph Waldo Emerson – who said about science:

"Men love to wonder, and that is the seed of science."

I congratulate all of your students on your hard work. With all of you coming of age in the years ahead, I am very hopeful for our future. Thank you very much.