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March 17, 2019

Rep. Robert Sanchez, Co-Chair
Sen. Douglas McCrory, Co-Chair
Rep. McCarty, Ranking Member
Sen. Berthel, Ranking Member
Education Committee
Legislative Office Building, Room 3100
300 Capital Avenue
Hartford, CT 06106

Regarding Raised Bill No. 1033: AN ACT CONCERNING THE INCLUSION OF COMPUTER SCIENCE
AND FINANCIAL LITERACY AS PART OF THE HIGH SCHOOL GRADUATION REQUIREMENTS

Distinguished Leaders:

I am Norman Sondheimer, a resident of Avon. I am a retired computer scientist, a member of
the State Department of Education Computer Science Advisory Committee, a member of the
CSforCT Steering Committee and the Legislative Advocacy Advisor of the Connecticut Chapter
of the Computer Science Teachers Association.

Thank you for raising a bill that will allow a student taking a high school computer science
courses to count it towards the nine credits needed for high school graduation in science,
technology, engineering, and mathematics (STEM).   I will comment at the end as to whether
the current wording makes that intent as clear as necessary.

Clarifying whether computer science is a STEM subject will simplify achievement of existing
legislative and executive intent. I support the computer science section of Raised Bill No. 1053
with the stipulation that since "science, technology, engineering and mathematics" appears
elsewhere in Connecticut education law and in bills under consideration that it would be better
to once and for all define computer science as being included in these subjects for all
educational purposes.

I am somewhat surprised to find the need for this bill. Two years ago, when you passed
Connecticut's landmark computer science education legislation, I had thought districts would
recognize that computer science is a STEM subject. The State Board of Education has since
adopted rigorous computer science standards that formally define the subject removing any
confusion on what computer science is.

However, there remains confusion about whether computer science is a STEM subject.   The
evidence and perhaps the source of that confusion is the U.S. Department of Education. They
often refer to STEM and computer science as separate subjects, as in this press release: "U.S.

Department of Education Announces STEM, Computer Science Education Grant Opportunities." In one 2018 Department of Education document in the Federal Register giving the Secretary's priorities for discretionary grant programs, they refer to "STEM and computer science" 42 times. They now correct that on the Department's STEM home page by using the language in your bill: "Science, Technology, Engineering, and Math, including Computer Science."

The issue of whether computer science is a STEM subject has not gone unnoticed elsewhere in the Federal Government. Federal Public Law 114-59: The STEM Act of 2015 clarifies the issue for several key departments and agencies as follows:

> For purposes of carrying out STEM education activities at the National Science Foundation, the Department of Energy, the National Aeronautics and Space Administration, the National Oceanic and Atmospheric Administration, the National Institute of Standards and Technology, and the Environmental Protection Agency, the term ''STEM education'' means education in the subjects of science, technology, engineering, and mathematics, including computer science.

Again, you can see the same language you have used. However, this refers to all uses of STEM education. References to "science, technology, engineering and mathematics" appear many times in official Connecticut education documents. While we support the computer science section of the current bill since high school graduation requirements are very important to students, it would be better to codify into law "For purposes of education, science, technology, engineering and mathematics includes computer science." to clarify all current and future discussions of STEM education.

A second reason for making a general statement on computer science being a STEM subject is that the current bill could be read as requiring students take a computer science course. Several other written testimonies including one from Charlene Russell-Tucker, Acting Commissioner at the Connecticut Department of Education have made that interpretation. Having worked with Senator Witkos and Senator Maroney on the submitted bill on which this bill is based, I know that was not their intention. So again, please consider placing "For purposes of education, science, technology, engineering and mathematics includes computer science" into Connecticut Law and not changing the STEM high school graduation requirement to avoid misinterpretation.

Thank you again for your support.

Yours truly,
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