Computer Science Teachers Association

April 9, 2012

Barbara Cargill
Chair, State Board of Education
William B. Travis Building
1701 N. Congress Avenue
Austin, Texas, 78701

To Ms. Cargill and Honorable Members of the State Board of Education

I am writing on behalf of the Computer Science Teachers Association to support the proposal to include computational thinking and computing resources to the state mathematics standards.

Computational thinking is the critical thinking foundation for the 21st century. It is an approach to solving problems in a way that can be implemented with a computer. Students use a set of concepts, such as abstraction, recursion, and iteration, to process and analyze data, and to create real and virtual artifacts. CT is a problem solving methodology that can be automated and transferred and applied across subjects.

There has been a burgeoning recognition that computational thinking is now the driving force in innovation across all disciplines, but most especially in mathematics and the sciences. Advances in computing allow mathematicians and scientists to envision new problem-solving strategies and to test new solutions in both the virtual and real world. Computing has made possible profound leaps of innovation and imagination as it facilitates our efforts to solve pressing problems.

These advances, in turn, drive the need for educated individuals who can bring the power of computing supported problem solving to an expanded field of endeavors. It is no longer sufficient to wait until students are in college to introduce these concepts. Our students today live in a data-driven world and they will go on to live a life heavily influenced by computing. They must begin to work with algorithmic problem solving and computational methods and tools in K-12 if they are to be prepared for the jobs of the future rather than the jobs of the past.

CSTA therefore supports the proposal to include the following items in the proposed TEKS:

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(a)(1) The desire to achieve educational excellence is the driving force behind the Texas essential knowledge and skills for mathematics, guided by the college and career readiness standards. By embedding statistics, probability, and finance, while focusing on **computational thinking**, fluency and solid understanding, Texas will lead the way in mathematics education and prepare all Texas students for the challenges they will face in the 21st century.

(a)(2) … Students will select appropriate tools such as real objects, manipulatives, **algebraic programming,** paper and pencil, and technology, and will apply appropriate strategies such as mental math, estimation, number sense, **test-first analysis, generalization and abstraction** to solve problems…Students will effectively communicate mathematical ideas, reasoning, and their implications using multiple representations such as symbols, diagrams, graphs, **computer programs**, and language….

Texas has a unique position among the states as a leader in standards and curriculum. We therefore hope you will continue to support efforts to ensure that all students have access to critical knowledge and skills they need to participate fully in the new data-driven world.

Yours truly,

Chris Stephenson

Dr. Chris Stephenson
Executive Director

Valerie B Barr

Dr. Valerie Barr
Computational Thinking Task Force Chair

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