Joint Task Force on Computer Science and Information Technology

November 21, 2016

Executive Summary

The South Carolina Department of Education (SCDE) and the Education Oversight Committee (EOC) convened a joint task force on computer science and information technology. The Task Force was chaired by the Honorable Molly Spearman, State Superintendent of Education, Neil Robinson, Chairman of the EOC, and Rep. Dwight Loftis, a member of the House Ways and Means Committee and the EOC. The Task Force was composed of individuals who represent K–12 education, higher education, business and industry, parents, and communities throughout South Carolina (See Appendix).

The Task Force identified five (5) key findings through studies of national, state and local computer science research and practices. These are:

1. National and state data demonstrate a high demand for and significant job growth in the next decade in computer science, information technology, and related fields including cyber security.

2. As in other states, the opportunity for students in South Carolina to take a computer science course appears to be severely limited, with female students, students in poverty, and African-American and Hispanic students, disproportionately underrepresented in the courses that are offered.

3. As in other states, South Carolina has few postsecondary teacher preparation programs in computer science and few opportunities for teachers to acquire computer science content knowledge and pedagogical skills.

4. As in other states, South Carolina's citizens are limited in their awareness of career opportunities in computer science and the importance of computer science education.

5.The SCDE is taking action to expand access to computer science education.

Based on these findings, the Task Force identified five (5) recommendations for action by the SCDE and key agents in the public and private sector. These recommendations assume SCDE's completion and the approval of the K–8 computer science standards this fiscal year. These are:

1. The SCDE, with the assistance of Task Force members, should develop and implement a Computer Science Initiative including a broad reaching, communication plan.

2. The SCDE should create clear pathways in grades 9–12 to computing and information technology (IT) careers.

3. The SCDE and State Board of Education should approve computer science as a recognized field of teacher certification.

4. The SCDE, with the assistance of Task Force members, should identify measures of successes and challenges in expanding opportunities for all students to access computer science education.

5. South Carolina should offer a variety of learning opportunities for students, educators, and parents based on the new K–8 computer science standards.

In its recommendations, the Joint Task Force proposes strategies to equip educators to teach digital literacy, computational thinking, and computer science, and to increase student enrollments in and completion of computing courses such that the computational skills of **all** students, as defined in the *Profile of the South Carolina Graduate*, and interest in and pursuit of computer science and information technology careers are significantly increased.

The Joint Task Force proposes an initial state investment in a Computer Science Initiative for Fiscal Year 2017–18 of at least $500,000 for five (5) interrelated actions:

1. Increase staffing at the SCDE to include at least one staff member solely devoted to coordinating Computer Science Initiative development and implementation in collaboration with key public and private sector agents ($100,000);

2. Develop and implement a Computer Science Initiative communication plan ($25,000);

3. Provide professional learning opportunities in computer science for educators in five to ten pilot districts ($175,000);

4. Support learning opportunities for students and parents, such as summer camps, that emphasize computer science learning for minorities, females, and students in poverty in five pilot sites ($50,000 to $100,000); and

5. Provide incentives to pilot in five school districts expanded computer science opportunities for all students ($50,000 to $100,000).

The Task Force met on June 8, July 26, September 21, and October 14, 2016. Appendix A contains the agenda for each meeting. Appearing before the Task Force were Dr. Gene Bottoms, Senior Vice President of the Southern Regional Education Board (SREB), SCDE staff from the Offices of Career and Technology Education, Standards and Learning, Educator Services, and Federal and State Accountability in the Divisions of College and Career Readiness and Federal, State, and Community Resources, and Anthony Owen, Coordinator of Computer Science for the Arkansas Department of Education.

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The Task Force was composed of the following individuals who represented K–12 education, higher education, business and industry, parents, and communities throughout South Carolina.

Ernest Andrade, Charleston Digital Corridor
Josh Bell, Teach for America SC
Lindsay Boozer, SCDE
Dr. Duncan Buell, Computer Science and Engineering,
University of South Carolina
Dr. Quinn Burke, Department of Teacher Education, College of Charleston
Jena Collins, Apple Inc.
Christopher Leventis Cox, Parent, Columbia
Lonnie Emard and Clint Hankinson, IT-oLogy
Dr. Julie Fowler, SCDE
Karla Hawkins, SCDE
Mary Hipp, SCDE
Elisabeth Kines, Palmetto Promise Institute and formerly
SC Department of Commerce
Angela Leon, HP Inc.
Dr. Bruce Martin, Information Systems Technology, Midlands Technical College
Dr. Tom Peters, South Carolina's Coalition for Mathematics & Science
Darlene Prevatt, SCDE
Christie Reid, York 2
Darwin Shorters, St. John's High School, Charleston County School District
John Turner, Parent, Fort Mill

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Findings:

Finding 1: National and state data demonstrate the high demand for and significant job growth in the next decade in computer science, information technology, and related fields like cyber security.

The report *Rebooting the Pathway to Success: Preparing Students for Computing Workforce Needs in the United States* estimates that by the year 2020, "one of every two jobs in the "STEM" fields (science, technology, engineering and mathematics) will be in computing. These occupations pay extremely well, providing opportunities for U.S. workers to embark on dynamic careers, enjoy a good standard of living, and contribute to the innovation that drives the country's economic growth."[1]

According to the Bureau of Labor Statistics, "employment of computer and information technology occupations is projected to grow 12 percent from 2014 to 2024, faster than the average for all occupations. These occupations are expected to add about 488,500 new jobs, from about 3.9 million jobs to about 4.4 million jobs from 2014 to 2024.[2]

As reported by the National Center for Women and Information Technology, by 2018 there will be "nearly 1.4 million computing job openings in the U.S. At current, graduation rates and projected annual job openings, only 61% of those jobs could be filled by U.S. computing degree earners.[3] The report documents that 70 percent of projected job openings in South Carolina can be filled by persons earning computing degrees.[4]

In addition to computing, information technology jobs exist. IT-oLogy projects that 85% of all jobs in information technology (IT) reside within existing industries like banking, retail, health care, insurance and energy.[5] Moreover, IT skills are cross-cluster skills. For example, in the Business Management and Administrative Services cluster, all businesses use some kind of finance or accounting services, human resources, and administrative support that require IT skills. Science, Technology, Engineering, and Mathematics disciplines use IT specialists to upgrade computer systems. The Arts, Audit-Video Technology, Multi-Media, and Marketing Communications clusters include careers requiring IT knowledge such as "graphic design, website development and design, and broadcast production (videos, animation, and radio ads).[6]

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[1] *Rebooting the Pathway to Success: Preparing Students for the Workforce Needs in the United States*. Association for Computing Machinery. http://pathways.acm.org/ACM_pathways_report.pdf

[2] United States Department of Labor. Bureau of Statistics. *Occupational Outlook Handbook*. http://www.bls.gov/ooh/computer-and-information-technology/home.htm

[3] *Computing Education and Future Jobs: A look at National, State, and Congressional District Data*. National Center for Women & Information Technology.

[4] https://www.ncwit.org/edjobsmap

[5] Be a Part of Information Technology. Published by IT-oLogy and Midlands Education and Business Alliance (MEBA)

[6] Ibid.

Code.org reports that South Carolina currently has 4,138 open computing jobs in South Carolina, and the average salary for a computing occupation in SC is $72,663, which is significantly higher than the average salary in the state of $40,580.[7] At the postsecondary level, according to Code.org, South Carolina had 448 computer science graduates in 2014.

The Task Force found that "computers and information technology (IT) touch nearly every aspect of modern life. Information Technology can help with such diverse tasks as driving motor vehicles and diagnosing disease. IT enables seamless integration and communication between businesses anywhere in the world. To keep IT systems running, a large workforce is needed to maintain networks, create new software, and Ensure information security."[8] There is a substantial need for graduates in nearly all disciplines to have been offered the opportunity to study computer science.

[7] Support K-12 Computer Science Education in South Carolina. <https://code.org/advocacy/state-facts/SC.pdf.>

[8] Lauren Csorny, Careers in the Growing Field of Information TechnologyServices. April 2013. <http://www.bls.gov/opub/btn/volume-2/pdf/careers-in-growing-field-of-information-technology-services.pdf.>

Finding 2: As in other states, the opportunity for students in South Carolina to take a computer science course appears to be severely limited with female students, students in poverty, and African-American and Hispanic students, disproportionately underrepresented in the courses.

According to a national survey conducted by Gallup and Google, three in four high school principals reported that their schools did not offer computer science with programming/coding. Only 21 percent of principals stated that their schools offered College Board Advanced Placement (AP) computer science courses.[9] A national study found that in 2013 18 percent of students who took the AP exam were female, 8 percent were Hispanic and 4 percent were African-American.[10] In July of 2016, Facebook announced a $15 million investment over five years in Code.org to teach more women and minorities how to code.

In South Carolina in 2014–15, 262 students in sixteen school districts and the Governor's School for Science and Mathematics took the AP Computer Science A examination. This represents 0.6% of the 42,303 AP exams administered.[11] In 2015–16, however, the number of AP exams completed in Computer Science increased to 340.[12] (See Appendix B) Geographic distribution of high schools offering these AP courses was largely confined to the Greenville and Charleston metropolitan areas. However, the Task Force does note that the SCDE supports both virtual and traditional enrollment in AP Computer Science A and that enrollment in and passage of VirtualSC's AP Computer Science A, specifically, is increasing. (See Appendix B.)

In addition, 176 students in 13 school districts and 16 high schools or career centers earned a national industry certification in computer science, computer software, networking, or digital Literacy in 2014–15. Overwhelmingly, these Career and Technology Education (CATE) completers were in Business Information Management programs. Of these 176 students who earned a national industry certification, two-thirds (64 percent) attended schools in metropolitan areas of the state. Code.org reports that only 22 percent of the 2014 college graduates in computer science in South Carolina were female.[13] However, the Task Force does note that enrollment in the Information Technology (IT) cluster is increasing from 10,330 students in 2013 to 11,599 in 2014. Additionally, the Task Force notes that Project Lead the Way's Gateway to Technology program currently boasts the highest number of enrollment at the middle school level. Approximately 9,936 students participated in 2014–15.

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[9] *Searching for Computer Science: Access and Barriers in U.S. K-12 Education*. <https://services.google.com/fh/files/misc/searching-for-computer-science_report.pdf>.

[10] Eleanor Barkhorn. *Tech's Gender and Race Gap Starts in High School*. The Atlantic Monthly. January 10, 2014. <http://www.theatlantic.com/education/archive/2014/01/techs-gender-and-race-gap-starts-in-high-school/282966/>.

[11] http://ed.sc.gov/data/test-scores/national-assessments/ap/

[12] Ibid.

[13] *Searching for Computer Science: Access and Barriers in U.S. K-12 Education*. <https://services.google.com/fh/files/misc/searching-for-computer-science_report.pdf>.

Research funded by the National Science Foundation (NSF) *Broadening Participation in Computing Alliance in South Carolina* also found a lack of geographic and economic diversity in terms of where computing coursework is offered in the state. Researchers found over 70 percent of respondents who reported offering computing coursework were located in the state's three largest cities (Charleston, Columbia, and Greenville).[14] However, the Task Force does believe that the adoption and implementation of South Carolina K–8 computer science standards will continue to increase the number of all students, including minorities, females, and those in poverty, who develop an interest in computer science and enroll in computer science courses.

[14] Quinn Burke, Madeleine Schep and Travis Dalton. *CS for SC: A Landscape Report of K-12 Computer Science in South Carolina*. February 1, 2016.

Finding 3: Like other states, South Carolina has few postsecondary teacher preparation programs in computer science and few opportunities for teachers to acquire computer science content knowledge and pedagogical skills.

The Google and Gallup national survey found that 44 percent and 57 percent of principals, respectively, contend that difficulty to recruit computer science certified teachers is the key barrier to providing computer science courses.

SREB's report from the Commission on Computer Science and Information Technology found that only 10 of the 16 SREB states currently offer straightforward paths to computer science certification."[15]

Currently, South Carolina does not certify teachers in the content area of computer science, and there are no computer science teacher preparation programs in the state's institutions of higher education. While the state has approved a certification endorsement in computer science, requirements for this endorsement area have yet to be determined. Given the importance of computer science for K–12 students and ensuring that teachers are adequately prepared to teach this content, offering computer science as a full field of teacher certification would allow South Carolina to issue certificates in the subject area to out-of-state teachers who apply for reciprocity and to admit candidates in the area of computer science into the Program of Alternative Certification for Educators (PACE). Additionally, approval of computer science as a full field of teacher certification would allow college and university educator preparation providers to develop initial programs leading to certification in this area. Currently, the University of South Carolina at Columbia and Winthrop University are developing proposals for training high school teachers in the area of computer science; the College of Charleston is developing a proposal for training middle school teachers.

[15] *Bridging the Computer Science Education gap: Five Actions States Can Take*. The Report of the SREB Commission on Computer Science and Information Technology. September 14, 2016 DRAFT.

Finding 4: South Carolina must educate communities on the importance of computer science education.

The Google and Gallup national study also found disconnects between the demand for and interest in computer science between educators, parents and students. "Parents see computer science education as a good use of school resources and often think it is just as important as other courses. Two-thirds of parents think computer science should be required learning in schools. Parents in lower-income households are even more likely to have this view. However, "despite this high level of interest, many school and district administrators do not perceive a high level of demand for computer science education among students and parents in their communities. Most principals and superintendents surveyed say it is important to offer computer science education."[16] Barriers to prioritizing computer science services in South Carolina include access to appropriate devices, time in school schedules, finding certified computer science teachers, and the lack of South Carolina K–8 computer science standards.

The Task Force supports the SCDE's plans to update South Carolina statute, §59-39-100(D), which currently requires keyboarding to be included in all courses recognized for the one computer science graduation unit required for a state high school diploma.[17] Research in South Carolina funded through a grant from NSF supports this need for updated legislation and K–8 Computer Science Standards. It found that while a wide range of educators are interested in incorporating computing into their existing coursework, educators overwhelmingly responded, "keyboarding," when asked what is being taught as computing.[18]

[16] *Searching for Computer Science: Access and Barriers in U.S. K-12 Education*. <https://services.google.com/fh/files/misc/searching-for-computer-science_report.pdf>.
[17] South Carolina Code of Laws. http://www.scstatehouse.gov/code/title59.php.
[18] Quinn Burke, Madeleine Schep and Travis Dalton. *CS for SC: A Landscape Report of K-12 Computer Science in South Carolina*. February 1, 2016.

Finding 5: The SCDE is currently taking action to expand access to computer science.

According to Code.org, six states, Arkansas, Florida, Indiana, Massachusetts, New Jersey and Texas, have developed K–12 Computer Science standards. South Carolina is one of six states, Idaho, California, Wisconsin, Washington, and Virginia, who are currently developing computer science standards, which is the first and most important step in expanding availability of computer science education to all students in South Carolina. The standards team is comprised of a diverse group of educators and includes individuals who represent minorities, females, and students in poverty. Timeline for completion is spring/summer of 2017.

Concepts and skills that are fundamental to computer science learning, such as computational and algorithmic thinking, keyboarding, and problem-solving, are already emphasized in state standards such as the *South Carolina College- and Career-Ready Standards for English Language Arts*, *South Carolina Standards for Mathematics*, and *South Carolina Academic Standards and Performance Indicators for Science 2014*, which reinforces the Task Force's view that the K–8 standards should not be taught in isolation or without context.[19]

South Carolina schools also currently offer a variety of computer science and related courses in a variety of modalities (i.e., virtual and traditional). Additionally, the SCDE currently promotes computer science and related curricula in a variety of ways, including through Hour of Code (approximately 2,660 teacher accounts in South Carolina at current) and the annual Business and Education Summit.

[19] SC Department of Education. Standards and Learning. http://ed.sc.gov/instruction/standards-learning/

Recommendations:

Recommendation 1: The SCDE should develop and implement a Computer Science Initiative communication plan.

The communication plan should include details outlining how South Carolina will communicate to all educators, parents, and students the importance of computer science education while explaining the relationships among digital literacy, computer science, and computational thinking. The plan should identify and utilize an array of partners, such as the State Board of Education, the Education Oversight Committee, career and technology education centers, the Regional Education Centers, schools, and school districts,

- Due to the current development state of the South Carolina K–8 computer science standards, the Task Force defers to the SCDE and its K–8 computer science standards team regarding standards content and organization. However, the Task Force feels strongly that effective communication with and training of educators, parents, and students will be critical to successful implementation of the K – 8 computer science standards and impact on student learning once the standards are approved by the State Board of Education (SBE).
- The Task Force recognizes the American Library Association's (ALA) definition of *Digital Literacy*. ALA defines *Digital Literacy* as "the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills."[20]
- The Task Force recognizes the Computer Science Teachers Association's (CSTA) definition of *Computer Science*. CSTA defines *Computer Science* as "the study of computers and algorithmic processes, including their principles, their hardware and software designs, their applications, and their impact on society."[21]
- The Task Force recognizes the definition of *Computational Thinking* adopted by the International Society for Technology in Education (ISTE) and the Computer Science Teachers Association (CSTA). These professional organizations define *Computational Thinking* as "a problem solving process that includes (but is not limited to) the following characteristics: formulating problems in a way that enables us to use a computer and other tools to help solve them; logically organizing and analyzing data; representing data through abstractions such as models and simulations; automating solutions through algorithmic thinking (a series of ordered steps); identifying, analyzing, and implementing possible solutions with the goal of achieving the most efficient and effective combination of steps and resources; generalizing the transferring this problem solving process to a wide variety of problems."[22]

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[20] American Library Association. Definition of Digital Literacy. http://connect.ala.org/node/181197.
[21] *CSTA K-12 Computer Science Standards*. Revised 2011. P. 1. <https://csta.acm.org/Curriculum/sub/CurrFiles/CSTA_K-12_CSS.pdf>
[22] Operational Definition of Computational Thinking for K-12 Education. <http://www.iste.org/docs/ct-documents/computational-thinking-operational-definition-flyer.pdf>.

- The definitions listed above are guiding but not exhaustive. The Task Force recognizes that the South Carolina K–8 computer science standards team is currently developing definitions and other resources unique to the state.

The communication plan should also include information pertinent to its Computer Science Initiative, including information for educators (e.g., professional learning opportunities, information about certification), students and parents (e.g., professional learning opportunities, pathways to computing and IT careers), and business and industry (e.g., partnership opportunities). The communication plan should be updated, as needed, to support a five-year strategic plan.

Recommendation 2: Upon developing K–8 computer science standards, the SCDE should create clear pathways in grades 9–12 to computing and IT careers, review its current process for identifying computer science courses that meet the graduation requirement, and identify computer science courses that are approved for mathematics credit.

The South Carolina K–8 computer science standards team is currently using a variety of resources, including multiple national frameworks and other state standards, to create South Carolina standards by grade level that will be unique to the state. The SCDE is also currently planning to make decisions about developing 9–12 computer science standards after the approval of the K–8 computer science standards.

- The Task Force recommends that the SCDE review its current process for awarding computer science high school graduation credit and revise §59-39-100(D) as appropriate.
- The SCDE may want to consider, subsequent to the approval of the K–8 computer science standards, creating a course based on the new computer science standards for Grade 8 that is mandated for students in Grade 8 as their computer science high school graduation credit. The Task Force would encourage the SCDE to consider that rigorous computer science courses satisfy graduation requirements.
- Alternatively, the SCDE could create a process by which a computer science course is approved for high school graduation credit based on its relevancy to current industry and higher education needs; development of computational thinking; and advancement of a student's achievement of the principles outlined in the *Profile of the South Carolina Graduate*. The Grade 8 course described above could be included in this list.
- The Task Force further recommends that the SCDE also create a process to oversee the selection of computer science courses that are approved for high school mathematics graduation credit in compliance with South Carolina statute §59-39-100(B), which allows the SCDE to approve one unit in computer science to count toward the mathematics graduation requirement (i.e., one of four required courses).

Recommendation 3: South Carolina should offer a variety of learning opportunities for students, educators, and parents based on the new K–8 computer science standards. The provision of these learning opportunities will require a public-private partnership between public education, higher education, business and industry, and educational laboratories.

The approach will require creative coordination and collaboration throughout the state. The Task Force members proposed a myriad of approaches:

- Increase staffing at the SCDE to include at least one staff member solely devoted to Computer Science services, similar to Arkansas's model;
- Provide professional learning opportunities, including possible courses toward recertification credit, and resources for educators on the new South Carolina K–8 Computer Science Standards;
- Make available a list of various professional learning opportunities and resources for educators on the new South Carolina K–8 Computer Science Standards;
- Provide and make available various learning opportunities for students and parents, such as summer camps that emphasize computer science learning in minorities, females, and students in poverty;
- Provide and/or make available grant opportunities for districts to improve computer science instruction and/or learning;
- Encourage dual-credit technical college computer science courses; and
- Provide incentives to districts who expand computer science opportunities for all students.

Recommendation 4: The SCDE and State Board of Education should approve computer science as a recognized field of teacher certification so that colleges and universities can develop pre-service computer science programsand districts can develop strategies to recruit and retain computer science teachers. This work in the area of certification will require a public-private partnership between public education, higher education, and business and industry.

The approach will require creative coordination and collaboration throughout the state. The Task Force members proposed a myriad of approaches:

- Approve an initial and add-on certification in the area of Computer Science, which will require approval by the State Board of Education;
- Develop teacher pre-service computer science programs;
- The Center for Educator Recruitment, Retention, and Advancement, with assistance from the SCDE and institutions of higher education, to recruit and train teachers;
- Give flexibility to districts to employ creative compensation strategies needed to utilize expertise to recruit and retain teachers, such as twelve-month salaries and signing and retention bonuses;
- In rural South Carolina, engage alternative certification opportunities in expanding opportunities for students by using experience from Charles County, Maryland; and
- Encourage industry to invest private funds that would incentivize teachers to gain the necessary professional learning and training that would translate into teaching computer coding and expand opportunities for underrepresented students in afterschool or summer programs.

Recommendation 5: The SCDE should measure and report successes and challenges in expanding opportunities for all students to have computer science education.

The Task Force recommends collecting and reporting the following data annually and longitudinally. The data should be disaggregated by race or ethnicity and gender to measure whether underrepresented students are having the opportunity to have computer science education.

- Number of high school graduates pursing computer science degrees and computer-intensive degrees at two- and four-year colleges and universities;
- Number of AP computer science courses, enrollments, and test scores across the state;
- Number of students taking CATE courses in computer science or information technology and completing CATE pathways;
- Number of computer science course offerings at the middle and high school levels, focusing on geographic location of these courses;
- Number of teachers available to teacher computer science (e.g., initial certification or add-on) as well as unfilled computer science positions or shortages;
- Number of opportunities for underrepresented students in the field; and

Funding Request for Fiscal Year 2017-18:

The Joint Task Force proposes an initial state investment for Fiscal Year 2017-18 of at least $500,000 to the SCDE for the following initiatives:

- Develop and implement a Computer Science Initiative communication plan;
- Increase staffing at the SCDE to include at least one staff member solely devoted to Computer Science services, similar to Arkansas's model;
- Provide professional learning opportunities for educators, including possible courses toward recertification credit, and resources on the new South Carolina K–8 Computer Science Standards;
- Provide funds for tuition reimbursement for teachers who want to receive graduate credit or for loan forgiveness;
- Provide and make available various learning opportunities for students and parents, such as summer camps that emphasize computer science learning in minorities, females, and students in poverty; and
- Provide incentives to districts who expand computer science opportunities for all students

The Task Force also recommends that the SCDE develop with input from educators, business, and two and four-year institutions of higher education a five-year plan to identify specific objectives, strategies, and costs of expanding computer science and information technology instruction for all students in our state. The five-year plan would include, but not be limited to, the following activities, that focus on measuring the impact of this initiative over time and of continuous improvement of the initiative over time. The Task Force realizes that the recommendations put forth above and in the below timeline are contingent upon additional staffing (i.e., at least one staff member solely devoted to Computer Science services) and funding.

Timeline:

Year 1, Fiscal Year 2016–17:
SCDE to complete drafting of K–8 Computer Science Standards;
State Board of Education to consider and approve K–8 Computer Science Standards;
Secure funding for increased staffing at the SCDE;
State Board of Education to approve an initial and add-on certification in the area of Computer Science; and
Institutions of higher education to begin to develop teacher pre-service computer science programs

Year 2, Fiscal Year 2017–18:
SCDE to draft five-year strategic plan with input from stakeholders;
SCDE to draft communication plan with input from stakeholders;
SCDE and external stakeholders to provide professional learning to educators responsible for computer science integration and teaching;
Center for Educator Recruitment, Retention, and Advancement, with assistance from the SCDE and institutions of higher education, to recruit and train teachers;
Institutions of higher education to continue to develop and expand teacher pre-service computer science programs begun in Year 1; and
SCDE to create a process by which a computer science course is approved for high school graduation credit

Years 3 and 4, Fiscal Year 2018–20:
SCDE to implement five-year strategic plan developed in Year 2;
SCDE to implement communication plan developed in Year 2;
SCDE and external stakeholders to continue to provide professional learning to educators responsible for computer science integration and teaching begun in Year 2;
Center for Educator Recruitment, Retention, and Advancement, with assistance from the SCDE and institutions of higher education, to continue to recruit and train teachers begun in Year 2; and
Institutions of higher education to continue to develop and expand teacher pre-service computer science programs begun in Year 1 and continued in Year 2

Year 5, Fiscal Year 2020–21:
Continuation of activities from years 2–4

APPENDIX A

Joint SC Department of Education & Education Oversight Committee

Task Force on Computer Science and Information Technology

Chaired by:
Molly Spearman, State Superintendent of Education
Neil Robinson, Chairman of EOC, and
Rep. Dwight Loftis, Member of EOC and House Ways and Means Committee

Agenda

June 8, 2016
1:00 p.m.
Room 433 Blatt Building

Welcome	Neil Robinson & Rep. Dwight Loftis
Introductions	Neil Robinson & Rep. Dwight Loftis
Discuss Charge to Task Force	Neil Robinson & Rep. Dwight Loftis
Background Information SC & Other State Initiatives	Melanie Barton
Discuss Proposed Meeting Schedule	Neil Robinson & Rep. Dwight Loftis
Discuss Additional Resources Needed	Neil Robinson & Rep. Dwight Loftis

Joint SC Department of Education & Education Oversight Committee

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Agenda

July 26, 2016
1:00 p.m.
Room 433 Blatt Building

Welcome

Implementation of Act 187 of 2015
Anthony Owen, Coordinator of Computer Science
Arkansas Department of Education

Questions and Discussion

Presentation by Staff from South Carolina Department of Education

Questions and Discussion

Next Steps – Framework (See Attached)

September 14 Meeting
Gene Bottoms, Senior Vice President, SREB
Dr. Casey Wardynski, Superintendent, Huntsville City School

Joint SC Department of Education & Education Oversight Committee

Task Force on Computer Science and Information Technology

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Agenda

September 21, 2016
1:00 p.m.
Room 433 Blatt Building

Welcome

Presentation

Recommendations of the Commission on Computer Science, Information Technology and Related Career Fields
Gene Bottoms, Senior Vice President, Southern Regional Education Board (SREB)

Update

Development of Computer Science Standards
Lindsay Boozer, SC Department of Education

Discussion of Computer Science Survey Results

Task Force Members

Next Meeting: October 14, 2016 at 1:00 p.m.

APPENDIX B

AP Computer Science A Exams

Fiscal Year	Total Exams Administered	% of Exams Earning 3 or Higher Score
2012-13	262	63%
2013-14	319	57%
2014-15	262	64%
2015-16	340	54%

Source: http://ed.sc.gov/data/test-scores/national-assessments/ap/

AP Computer Science A	2014-2015	2015-2016
Total Enrolled	20	53
Withdrawn	12	7
Completed Pass	8	43
Completed Fail	0	3
AP Exam 3, 4 or 5	5	n/a
Drop Rate	60.0%	13.2%
Success Rate	100.0%	93.5%
AP Exam Success Rate	62.5%	n/a

Source: SC Department of Education