



OHIO LEGISLATIVE SERVICE COMMISSION

Anthony Kremer

Fiscal Note & Local Impact Statement

Bill: H.B. 170 of the 132nd G.A.
(L_132_0743-6)

Status: In House Education and Career Readiness

Sponsor: Reps. Carfagna and Duffey

Local Impact Statement Procedure Required: No

Subject: Instruction in computer science

State & Local Fiscal Highlights

- The bill requires the State Board of Education to adopt academic content standards and a model curriculum for grades K-12 in computer science. The administrative responsibilities of the State Board and the Ohio Department of Education (ODE) will increase to develop and communicate the new computer science academic content standards and curriculum to school districts. Public districts and schools are not required to use these new standards and model curriculum.
- The bill adds computer science instruction as an option to several prescribed subjects in the state minimum high school curriculum. Districts and schools choosing to add computer science instruction may incur increased costs to update curricula, lesson plans, instructional materials, and technology for the unit of computer science education that may be included in the required four units of math education, the three units of science education (other than any life sciences or biology courses), or the five units of electives. Such districts and schools may also incur costs to reimburse staff members for the cost of professional development for teachers.

Detailed Fiscal Analysis

Computer science academic content standards and curriculum

Academic content standards

The bill requires the State Board of Education, by December 31, 2018, to adopt academic content standards and a model curriculum for instruction in computer science in grades kindergarten through 12. The bill further directs the State Board, when developing these standards and curriculum, to consider recommendations from computer science education stakeholder groups, including teachers and representatives from higher education, industry, and Ohio and national computer science organizations. The administrative responsibilities of the State Board and the Ohio Department of Education (ODE) will increase to develop and communicate the new

computer science standards and curriculum to school districts. In FY 2017, about \$3.9 million in GRF funding is specifically appropriated to ODE in line item 200427, Academic Standards, for developing, revising, and communicating academic content standards and curriculum models to school districts, and for developing professional development programs and other tools on content standards and model curricula. Under the bill, public districts and schools may use all or any part of the standards and model curriculum, but are not required to do so.

High school curriculum

Current law prescribes 20 units of study in specified subject areas as the minimum high school curriculum for a diploma from a public school or a chartered nonpublic school. The bill adds computer science instruction as an option to several of the prescribed subjects in that curriculum. Specifically, for districts and schools choosing to offer courses in computer science, the bill permits a student to apply instruction in computer science as one of the four required units of math, one of the three required units of science, or one of the five required units of electives. If a student substitutes more than one computer science course, the bill requires that the course must be (1) sequential and progressively more difficult or (2) cover different subject areas in computer science. The bill also prohibits students from substituting computer science for any life sciences or biology course and requires schools to communicate to students substituting computer science for Algebra II that Algebra II may be required for college admission at some institutions. Districts and schools choosing to add instruction in computer science may incur increased costs to update curricula, lesson plans, instructional materials, and technology.

Qualification to teach computer science

State Board rules require that a public school teacher generally must be licensed in the subject area the teacher is teaching. The rules also permit a licensed teacher to obtain a supplemental teaching license, which allows an educator to temporarily teach in an additional area while they work toward obtaining a standard license in that area. In line with these rules, the bill generally requires school districts choosing to offer computer science education under the bill to employ an individual who is licensed in computer science or holds a license endorsement in computer science to teach in the computer science field and permits licensed individuals to qualify for a supplemental teaching license to teach computer science, according to rules adopted by the State Board. Under the bill, these rules must require the individual to pass a content examination in computer science before obtaining the supplemental license. The rules must also permit an individual, after two or more years teaching under the supplemental license, to advance to a standard educator license in computer science by completing a pedagogy course, unless the individual has already completed such a course for the applicable grade levels.

In addition, in order for a student to apply one unit of instruction in computer science to satisfy one unit of math or one unit of science under the bill, the bill requires the teacher of the course to be appropriately licensed as described above and complete a professional development program determined appropriate by the district board prior to teaching the course. Finally, if an individual is teaching Advanced Placement (AP) computer science, the bill requires completion of a professional development program endorsed or provided by the college board at any time during the calendar year.

Most school district collective bargaining agreements have a tuition reimbursement clause that specifies the amount the district will reimburse staff members for coursework related to professional development. If the professional development involves university coursework, the district may have an individual limit (e.g., a certain dollar amount or a specified number of credit hours) or a district-wide dollar limit for all staff. If the professional development does not involve university coursework, the district typically pays the full cost of the program. Thus, districts choosing to offer computer science education under the bill may incur additional costs to reimburse staff members for the cost of professional development.

Computer science and technology funds

The bill authorizes a school district, educational service center, brick-and-mortar community school, or STEM school to establish a computer science and technology fund to be used for various purposes to support computer science programs and professional development related to such programs, including (1) the delivery of online assessments, including instruction and data that support online assessment readiness, (2) wireless connectivity in school buildings, (3) network services, such as improving bandwidth capacity and filtering devices, and (4) the purchase of computers, tablets, and equipment. The fund may consist of district or school moneys designated for such purposes, private moneys donated to the district or school, or any future state moneys allocated to the district or school for such purposes. Districts and schools may use moneys in the fund to leverage or match private donations made to the district or school for those purposes. There appears to be no fiscal effect as a result of this provision, as districts and schools may already support these activities and receive donations under their current powers.

Synopsis of Fiscal Effect Changes

- The substitute bill (L_132_0743-6) eliminates the As Introduced (previous) bill's competitive technology grant program for public districts and schools, which was appropriated \$2.5 million in FY 2019 from the GRF to support computer science programs and professional development related to those programs. In addition, ODE will no longer experience an increase in administrative responsibilities to award the grants and to produce a report on the effectiveness of the grant program.

- The substitute bill adds a requirement that the State Board adopt a model curriculum for instruction in computer science, in addition to the academic content standards required under the previous bill. This requirement will further increase the administrative responsibilities of the State Board and ODE. However, the substitute bill extends the date by which the State Board of Education must adopt academic content standards for instruction in computer science (and, under the substitute bill, the model curriculum) from July 1, 2018 to December 31, 2018.
- The substitute bill, in accordance with current requirements, generally requires that school districts employ individuals who are licensed in computer science or hold a license endorsement in computer science, but also permits other licensed individuals who qualify for a supplemental teaching license to teach computer science courses during the transition process. The previous bill permitted school districts choosing to offer computer science education to employ individuals who are licensed to teach in any of grades K-12 to teach computer science courses regardless of whether the individual held a license for teaching computer science as long as the individual completed professional development courses. Compared to the previous bill, the substitute bill may qualify fewer teachers to teach computer science courses due to more stringent criteria.