HOUSE OF REPRESENTATIVES STAFF ANALYSIS

BILL #: HB 559 Computer Science Instruction in Elementary Schools
SPONSOR(S): Hawkins and others
TIED BILLS: None **IDEN./SIM. BILLS:** None

REFERENCE	ACTION	ANALYST	STAFF DIRECTOR or BUDGET/POLICY CHIEF
1) Early Learning & Elementary Education Subcommittee	15 Y, 0 N	Wolff	Brink
2) PreK-12 Appropriations Subcommittee	15 Y, 0 N	Bailey	Potvin
3) Education & Employment Committee			

SUMMARY ANALYSIS

Florida law requires that public school students receive opportunities for computer science instruction. Implementation of specific computer science instruction content, such as coding in elementary and middle schools, is currently discretionary for school districts.

The bill revises requirements for computer science instruction to include computational thinking and foundational computer science skills in elementary schools and instruction to develop students' computer usage and digital literacy skills in middle school.

The bill has an indeterminate fiscal impact on school districts related to the implementation of required computer science instruction. *See* Fiscal Comments.

The bill provides an effective date of July 1, 2021.

FULL ANALYSIS

I. SUBSTANTIVE ANALYSIS

A. EFFECT OF PROPOSED CHANGES:

Present Situation

Computer Science Courses and Instruction

Florida law defines computer science as "the study of computers and algorithmic processes, including their principles, hardware and software designs, applications, and their impact on society."[1] Computer science also includes computer coding and computer programming.

Foundational skills for computer science learning include problem solving, such as computational thinking, understanding and recognizing patterns, understanding and implementing sequencing, and understanding representation, meaning how computers represent data.[2] One application of these skills is computational thinking, which refers to the thought processes involved in expressing solutions as computational steps or algorithms that can be carried out by a computer.[3] Essentially, it is a problem-solving process that designs solutions that capitalize on the power of computers.[4] Although typically associated with computer science, computational thinking can be applied in the classroom setting through lessons in core subject areas. For example, in English language arts, students may be asked to analyze simple sentences and determine a framework for generating similar sentences, using pattern recognition and problem solving skills.[5]

Public schools are required to provide students in grades K-12 opportunities for learning computer science including computer coding and computer programming.[6]
Such opportunities may include:[7]

- instruction on computer coding in elementary and middle school;
- instruction to develop computer usage and digital literacy skills in middle school; and
- courses in computer science, computer coding, and computer programming in high school, including opportunities to earn industry certifications related to the courses.

Computer science courses must be offered to students in high school and middle school.[8] The Florida Virtual School (FLVS) must offer computer science courses identified in the Course Code Directory. If a school district does not offer an identified course, the district must provide students access to the course through FLVS or through other means.[9] There are 66 middle and high school computer science courses currently identified in the Course Code Directory.[10]

Effect of Proposed Changes

[1] Section 1007.2616(1), F.S.
[2] K-12 Computer Instruction Framework Steering Committee, *K-12 Computer Instructional Framework*, pgs. 183-198, available at https://k12cs.org/wp-content/uploads/2016/09/K%E2%80%9312-Computer-Science-Framework.pdf (last visited March 9, 2021).
[3] *Id.* at 86.
[4] *Id*.
[5] Code.org, *Computational Thinking Lesson Assessment*, *available at* https://code.org/curriculum/course3/1/Assessment1-CompThinking.pdf (last visited March 9, 2021). If provided the following sentences: "The triangle has three sides." and "The square has four sides." A student can determine a framework sentence of "The ____ has ____ sides." This framework provides the student a basis for describing additional shapes. *Id*.
[6] Section 1007.2616(2)(a), F.S.
[7] *Id*.
[8] *Id*.
[9] Section 1007.2616(3), F.S.
[10] Florida Department of Education, *Florida Course Code Directory Computer Science Course Information 2020-2021* (2020), *available at* http://www.fldoe.org/core/fileparse.php/7746/urlt/2021CompSci.pdf (last visited March 9, 2021).

The bill revises requirements for computer science instruction to include computational thinking and foundational computer science skills in elementary schools and to require, rather than allow, instruction to develop students' computer usage and digital literacy skills in middle school.

B. SECTION DIRECTORY:

Section 1. Amends s. 1008.2616, F.S., requiring, rather than authorizing, certain computer science skills be taught in elementary school; revising the computer science skills to be taught in elementary school.

Section 2. Provides an effective date of July 1, 2021.

II. FISCAL ANALYSIS & ECONOMIC IMPACT STATEMENT

A. FISCAL IMPACT ON STATE GOVERNMENT:

1. Revenues:

   None.

2. Expenditures:

   None.

B. FISCAL IMPACT ON LOCAL GOVERNMENTS:

1. Revenues:

   None.

2. Expenditures:

   The bill has an indeterminate fiscal impact on school districts related to the implementation of required computer science instruction. *See* Fiscal Comments.

C. DIRECT ECONOMIC IMPACT ON PRIVATE SECTOR:

None.

D. FISCAL COMMENTS:

The bill specifies computer science instructional content that must be provided to elementary and middle grades students. Districts may incur costs to provide curriculum meeting these requirements; however, the impact is expected to be minimal.

III. COMMENTS

A. CONSTITUTIONAL ISSUES:

1. Applicability of Municipality/County Mandates Provision:

   None.

2. Other:

   None.

B. RULE-MAKING AUTHORITY:

None.

C. DRAFTING ISSUES OR OTHER COMMENTS:

None.

IV. AMENDMENTS/ COMMITTEE SUBSTITUTE CHANGES

None.