**Michigan K-12 Computer Science Standards**
**Frequently Asked Questions (FAQ) Updated 9-26-2019**

## ALIGNMENT WITH MITECS AND OTHER MICHIGAN CONTENT STANDARDS

**Question 1:** How does this interact with the Michigan Integrated Technology Competencies for Students (MITECS)? Is this to be viewed as a replacement for the MITECS?

**Answer 1:** The Michigan K-12 Computer Science Standards do not replace the MITECS. While the Michigan K-12 Computer Science Standards can be taught in a standalone setting, the MITECS amplify learning across the content areas. The MITECS are competencies that thread throughout learning and living and enhance it. There is some alignment between the Michigan K-12 Computer Science Standards and the MITECS. A crosswalk will be forthcoming. A crosswalk will also be forthcoming between the Computer Science Standards and other Michigan content standards.

## ASSESSMENT/REQUIREMENT OF STANDARDS

**Question 2:** What are the assessment plans?

**Answer 2:** Currently there are no plans to include the Michigan K-12 Computer Science Standards on a state summative test.

**Question 3:** Will there be a computer science graduation requirement for high school?

**Answer 3:** As of 2019, no modifications are planned to the Michigan Merit Curriculum.

**Question 4:** Will a coding language count for foreign language requirements?

**Answer 4:** As of 2019, there have not been any changes to what is considered a World Language.

## FUNDING

**Question 5:** Will there be funding dedicated to support professional learning?

**Answer 5:** The Michigan Department of Education (MDE) is working with strategic partners to offer computer science professional learning opportunities. At this time there is no additional funding appropriated at the state level, however the MDE encourages districts to utilize Title II and Title IV Part A to support teacher professional learning.

**Question 6:** Will there be additional funding for cash-strapped districts to purchase some of the tools and items that would support teaching this curriculum (for instance, items like Spheros, Dash and Dot, and more)?

**Answer 6:** Currently the state does not have dedicated funding for devices or curriculum support materials for CS implementation, however, we recommend that districts leverage REMC Save for all purchases. Districts can also access their Title IV Part A Effective Use of Technology funds to support CS implementation. See here for more information regarding the use of Title IV Part A. Additional funding opportunities are available through the MDE and the MiSTEM Advisory Council. Grants are announced in the MDE Weekly Communication. The MDE will be seeking funding to assist districts with implementation, including professional learning and curriculum support materials.

## IMPLEMENTATION TIMELINE, PROCESSES, RESOURCES

**Question 7:** What is the MDE implementation timeline?

**Answer 7:** The initial implementation of the Michigan K-12 Computer Science Standards is three years:

2018-2019 Standards development and adoption
2019-2020 Awareness and engagement, professional learning
2020-2021 Resource alignment and development

**Question 8:** What might the implementation timeline look like at the district level?

**Answer 8:** There are many different approaches districts can take. In a district where computer science programming already exists at the secondary level, the district could examine where gaps exist in meeting the standards and add programming at the high school level, including Career and Technical Education (CTE) pathways options, Advanced Placement (AP) options, or development of a specialized course, such as Cybersecurity. From there the offerings could be extended down in an integrated manner. Some districts may choose to implement in an integrated approach in a grade K-8 and then extend up or down from that

grade level. These are local decisions that should be made when looking at curriculum holistically across the district.

**Question 9:** Is an introductory slideshow available?

**Answer 9:** Slides from public information sessions are posted here.

**Question 10:** Is this being rolled out gradually K-12 bottom to top, top to bottom, or all at once?

**Answer 10:** At the state level, the standards are being adopted K-12. Local districts may determine how to best deliver course content.

**Question 11:** Are we assuming integration into the current classrooms or new classes created to meet the standards?

**Answer 11:** This is a district decision as to how best to deliver the computer science standards. Many of the standards lend themselves to an integrated approach and examples of districts doing so will be forthcoming.

**Question 12:** How will you ensure that the CS curriculum is being taught in all classrooms?

**Answer 12:** The MDE will monitor several data points at the state level, including the expansion of participation in AP Computer Science Principles and AP Computer Science A courses. As with other content areas, the MDE does not monitor actual instruction but rather student outcomes. Because computer science will not be added to a state summative test at this time, the MDE will look for other ways to examine student understanding of computer science.

## STANDARDS CONTENT

**Question 13:** What was the process for standards development?

**Answer 13:** When the Michigan CS Standards stakeholder group began the process of considering the need for standards for students in Michigan, it studied the K-12 Computer Science Framework (k12cs.org) developed by a cross-sector team that convened for similar purpose. The CS Framework has been taken up by other states across the nation as a reliable, representative compilation of the concepts and practices encompassed by the computer science field. After reviewing the CS Framework and talking with national experts involved in its development,

the Michigan stakeholders determined that the CS Framework would serve as a foundation to Michigan CS Standards.

Built upon the K-12 Computer Science Framework, a set of standards were created by the Computer Science Teachers Association, which has served as a model for adoption by other states. After studying models from other states, engaging in conversation among the experts in computer science, K-12 and higher education, government, business, and industry, the Michigan stakeholder group unanimously supported the recommendation to adopt the CSTA Standards for Michigan. The Michigan Computer Science Standards were developed using truncated standards that also reference sub concepts and descriptive statements, which will be addressed at the implementation level.

**Question 14:** Why does it appear that the standards don't cover any technology program skills such as Microsoft Office?

**Answer 14:** Technology skills, such as those for using word processing applications, are included as foundational skills within the competency of Empowered Learner in the Michigan Integrated Technology Standards for Students (MITECS). To be clear, word processing is not computer science. The MITECS and CS Standards are also intended to be platform agnostic, so that students can apply technology competencies (MITECS) and foundational computer science skills regardless of the platform involved.

## TEACHER PREPARATION

**Question 15:** What trainings will be available for teachers expected to deliver this new set of standards?

**Answer 15:** There are trainings offered through Michigan and national partners. Trainings through Michigan providers include the REMC Association, MACUL, Michigan Virtual, and EduPaths. National training partners include organizations such as Code.org, Project Lead The Way, Microsoft, Apple, Amazon, and Digital Promise. (This is by no means an exhaustive list, but intended to be a starting point.)

The MDE also plans to use Title IV Part A Effective Use of Technology State activity funds to develop computer science professional learning opportunities for educators who teach in Grades K-10.

## TEACHER QUALIFICATIONS

**Question 16:** What type of certification will be necessary for stand-alone classes at a secondary level?

**Answer 16:** The State of Michigan eliminated the computer science endorsement. There are training opportunities such as Code.org through http://www.mi-coding.com/ to prepare teachers. Additionally, the Microsoft Philanthropies Technology Education and Literacy in Schools (TEALS) program can assist an educator with CS classroom implementation. Any teacher who is certified in that grade level can teach computer science. Click here for more information about the computer science endorsement.

**Question 17:** Why was the CS endorsement discontinued?

**Answer 17:** The CS endorsement was eliminated because teacher preparation programs were no longer graduating computer science educators. Eliminating the endorsement has removed barriers for district computer science implementation. Click here for more information.

**Question 18:** Don't you think you should offer a CS endorsement for teachers who get those micro-credentials?

**Answer 18:** The MDE Office of Educator Excellence is currently examining how to best recognize teachers for professional learning.

**Question 19:** How will highly-qualified be defined for teaching the upper-level courses? Will additional funding be available to pull people from private industry to the field to teach our students these skills? Who would be best to teach CS?

**Answer 19:** The requirement for Highly Qualified was eliminated with the Every Student Succeeds Act (ESSA). Michigan instead now has its own definition of what is an “effective teacher.” Someone with a Master’s Degree in Educational Technology would be a great candidate to teach CS if they were to go through some of the additional trainings available through Code.org or through a TEALS partnership, or another professional learning opportunity regarding CS instruction. It is up to the local district to determine who is best qualified to teach computer science at all levels.

## SUPPORTING RESOURCES

**Question 20:** Were there any Michigan edits to the national standards?

**Answer 20:** There weren't any major edits. Minor edits were made to the naming convention at the various levels. The K-12 Computer Science Standards are the Computer Science Teachers Association standards in the truncated format without descriptive statements. The descriptive statements will be included in forthcoming guidance documentation. There were also a few additions to the glossary.

**Question 21:** More and more students are using Chromebooks. Has that environment been considered in terms of writing/running code, i.e. Python on a Chromebook?

**Answer 21:** While there may be some barriers with utilizing Chromebooks, most K-12 programming environments are compatible with Chromebooks. Students would use an online code editor for Java development in AP Computer Science A, for example, Cloud 9.