Date: April 12, 2019

To: Walt Wilcox, Chairman, and all members of the
Wyoming State Board of Education

From: Computer Science Standards Review Committee

Subject: Revised Computer Science Standards with Embedded Priorities

As a committee of K-14 teachers and administrators, computer science professionals and interested community members, we appreciate the thoughtful feedback we received from the State Board of Education, our education community, and the public. We have read and discussed the feedback and engaged in serious discussions on the issues raised. Although this brief letter addresses only the key issues and adjustments, know that we spent many hours critically analyzing each of the standards, both before and after we received feedback.

Outcomes: The proposed standards are based on, and aligned with, national standards and standards from several other states. During our original rounds of small, large, and full group discussions on each standard, we considered perspectives from a multitude of stakeholders with and without content area expertise. During our most recent meeting, based on all the recent feedback, we worked with the WDE to revise the K-5 standards to include guidance for prioritizing standards while maintaining alignment with national expectations.

Standards and Benchmarks: Many of the committee members are current or former elementary educators both with and without expertise in computer science. We believe each of the standards is grade-level appropriate and is in alignment with the national standards and standards in several other states. However, we understand the difficulties inherent with teaching elementary classes and believe that, in this set of revisions, we have created a solution for reducing the total load at the elementary grades.

Based on three separate rounds of review and consensus-building on the elementary benchmarks, we determined that they can be broken into three groups: *priority*, *supporting*, and *enhanced*. First, we marked as "*priority benchmarks*" the ones we determined to be most essential for students to master at their grade level. Second, we identified many benchmarks that will naturally be taught in the course of teaching the priority benchmarks or in teaching to benchmarks from different content areas. We marked these as "*supporting benchmarks*". These benchmarks cover essential skills but need not be separated out as individual outcomes. Third, we identified some benchmarks that would be beneficial for students to know, but not essential. These benchmarks are marked as "*enhanced benchmarks*".

There are now four priority benchmarks for the K-2 grade band and nine for the 3-5 grade band.

Utility: We understand and appreciate your concerns related to domain-specific language. We believe it is important that, to adequately prepare students, the standards be written in the language of computer science just as the math and science standards are written in the languages of math and science. We do understand some terminology is unfamiliar to many teachers and, indeed, many members of the public. We have added clarifications within some of the benchmarks (for example, clarifying “authentication factor” with “login”), provided a glossary, and provided implementation ideas for each benchmark.

In response to the confusion due to the overall format, we have worked with the WDE to make the document more user-friendly. We know that the many references to cross-disciplinary standards and support material add complexity, but they also highlight how interconnected computer science now is with many other disciplines. We believe that, as districts implement these new standards, the cross-references will be an essential resource.

The issue of labeling is also understood by the committee. However, in order for teachers to have easy access to classroom resources and professional development opportunities as they implement these standards, our labelling must be consistent with other standards so teachers can find resources developed by others. Therefore, we have kept the benchmark labeling as it was in the draft.

Deployment: While we are excited to help add this 10th content area to the Common Core of Knowledge, we too are very concerned with implementation across the state. We agree that it would be helpful to have specific deployment plans regarding professional development and certification. We endorse your statement that the legislature should support implementation and professional development opportunities with additional funding. Resources and professional development opportunities are available. Let’s make sure our teachers have access to them.

Conclusion: We appreciate all of the feedback on the original standards document. After reconvening and going through a point-by-point review of how each K-5 benchmark fits as a building block for a quality Computer Science education, we feel that the new version provides the guidance needed to help maintain a reasonable load for classroom teachers.

We want to reiterate our thanks to everyone who took the time to read through the standards document and related resources. We, too, want the best for Wyoming students and we believe the review process and our subsequent revisions have strengthened the proposed standards.

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