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Brian L. Mitchell
Director

PUBLIC MEETING MINUTES

Name of Organization:	Computer Science Subcommittee
Date and Time of Meeting:	Tuesday, March 27, 2018 @ 2:00 P.M. – 4:00 P.M.
Place of Meeting:	Nevada State Library and Archives Governor's Office of Science Innovation and Technology 100 North Stewart Street, Suite 220 Carson City, NV 89701

Please use the following numbers to join the conference Call:
North: 775-687-0999 or
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I. Call to Order / Roll Call

Chair Mark Newburn

The Computer Science Subcommittee was called to order by Chair Mark Newburn at 2:02 P.M. on March 27, 2018, on the tele-conference remote site, listed above.

Members Present
Mark Newburn
Cindi Chang
Dave Brancamp
Dr. Andreas Stefik
Heather Crawford-Ferre
Kimberly De Lemos
Kindra Fox
Melissa Scott

Members Absent
Dr. Pavel Solin
Frank Matthews
Kris Carroll
Rob Sidford

Staff Present
Brian Mitchell
Debra Petrelli

A quorum was declared.

II. Public Comment (No action may be taken upon a matter raised under public comment period unless the matter itself has been specifically included on an agenda as an action item.)
Chair Mark Newburn

There was no public comment.

III. Welcoming Remarks and Announcements
Chair Mark Newburn

Chair Newburn welcomed everyone. He noted several key items on the agenda for today, including the ½ credit graduation requirement and its importance.

IV. Approval of the Minutes from the February 16, 2018 Meeting (For possible action)
Chair Mark Newburn

Chair Newburn asked if there were any corrections to the February 16, 2018 Minutes as written. None were made. Kim De Lemos made a motion to approve the Minutes of February 16, 2018, as written. Melissa Scott seconded the motion. The motion passed unanimously.

V. Update on Nevada Computer Science Summit (For possible action)
Chair Mark Newburn, Cindi Chang

Ms. Chang commented that the team assigned to the Computer Science Summit, which is taking place on June 18, 2018, is moving forward and have accomplished some of their goals. She said a logo has been chosen and an agenda framework has been set up. She said they are still looking for volunteers to help out during breakout sessions. She said an invitation flyer has gone out to all school district's curriculum directors and superintendents, as well as the University of Nevada, Las Vegas (UNLV), University of Nevada, Reno (UNR), Nevada State College, Touro University and College of Southern Nevada (CSN). She commented that Ms. Scott is working on getting vendors and exhibitors set up. She said the team has another meeting approaching and expects to resolve additional summit details at that time, and will thereafter share that information with the subcommittee. There was further discussion on the details at UNLV, the summit venue location.

VI. Discussion on Changes to the 1/2 Credit Graduation Requirement (For possible action)
Chair Mark Newburn

Chair Newburn commented on a condensed set of standards, as well as proposed language changes to the Nevada Administrative Code (NAC), to include NAC 389.450 – "Prescribed courses of study for graduation;" and NAC 389.664 – "Units of credit required to receive a standard diploma." He said after a discussion with Ms. Chang, they arrived at key decisions this subcommittee needs to make which will ultimately flow into the Nevada Department of

Education Regulations (Regulations). He pointed out that currently the ½ credit high school graduation requirement is only for a "use of computers" course and in some places a "keyboarding" course. He added that this course is being taught in middle school, even though it is a high-school graduation requirement. He pointed out the key decisions this group needs to make on changes to the ½ credit graduation requirement includes the following:

1) What is the percentage of computer science being taught in the course, versus (for example) application software?
2) Does the subcommittee agree this course should continue to be taught in middle school?
3) If this course should be taught in middle school, what is the content level?
4) Can this ½ credit count in any way towards a fourth-math or third-science credit?
5) Can the ½ credit graduation requirement be satisfied by taking an advanced placement course, a career and technical computer science course, or a dual credit course?
6) What are the actual computer science standards this subcommittee expects to be taught?
7) In the Regulations, would a complete list of standards or only general category areas be needed?
8) Does this subcommittee need to specify which National Education Technology (Ed-Tech) Standards need to be taught?

Kindra Fox, Director of Curriculum and Instruction, Washoe County School District, commented on her concern with computer science courses and that no standards are currently attached. She said perhaps this subcommittee should put together a team that decides upon the standards and/or benchmarks that must be taught in a computer science course. She said currently Washoe County middle schools offering these courses only have a list of recommended high school requirements. She said the school must show how they will meet those requirements, and if approved, the middle school is issued a waiver from the district to teach computer science.

Chair Newburn suggested in going forward, the subcommittee decide upon computer science standards and what grade levels it can be taught in, as well as which Ed-Tech Standards need to be taught. He said a link of those standards could be added to the Regulations, or put in broad categories with a separate non-regulation guidance document that can be distributed to all school districts. He asked if there is a preference on whether categories be kept as "general," in the Regulations, or listed out as specific standards. Mr. Brancamp pointed out there may be some adjustments to the Ed-Tech Standards, as they are currently being reviewed. He agreed it would be beneficial to have a set of standards for computer science. He said, as a level of precaution, if Nevada is audited by the federal government on assessment or standards, they will question a high school credit course containing too many middle school standards. If it is considered a course that counts as a graduation credit at a high school level, the federal government will expect only a minimal number of middle school standards to be included.

There was a general discussion on what the broad categories and language would look like if general headers were used, as well as discussion on whether to continue to allow a computer science course in middle school. It was noted that currently in the Regulations, the ½ credit for computer science may be offered in middle school. There were comments on how these computer standards are written in the Regulations will be somewhat dependent on whether the ½ credit in multiple grade levels remains to be allowed. It was suggested that listing major topics within the Regulations without specific detail, may be a more realistic endeavor for this

subcommittee. There were several comments on the havoc it will wreak with several school districts if middle schools are not allowed to offer this computer course any longer.

Chair Newburn asked whether the group had a preference, to include detailed computer standards within the Regulations or just list broad categories, more or less outlining the standards with a supporting guidance document. Mr. Brancamp noted the rules for the Regulations can be found in NRS 385.080. The group further discussed that the guidance document should contain a list of specific standards expected to be taught, but would need strong language. Opinions from both Washoe and Clark Counties were given on whether this course should still be taught in middle school and regardless of where it is taught, should be held to the same standards as a high school graduation requirement. The group agreed they prefer descriptions rather than specific numbered standards for the Regulations with the availability of the course being taught in both middle and high school levels. Chair Newburn suggested they go with a broad concept category then have a follow up document to send out with specific standards expected to be taught. He pointed out this way the Regulations can always be changed later. The subcommittee agreed.

Chair Newburn said he would like to some degree have this course taught in middle school, as this course is the computer science role component, where every student should have the opportunity to take the course. He added that by offering this course in middle school, it may change the trajectory of some students and help them decide to take more of these courses in high school. It was the consensus of the group that this course be an option for middle school students, and that it makes sense to offer it at an earlier age. Chair Newburn added even if the course is taught in middle school, there will still be the caveat to select the standards, which will consist of sufficient high school standards, which will alleviate Mr. Brancamp's concerns with the Federal Government. There was further discussion on the current overlap of standards between middle school and high school.

Ms. Scott commented she feels strongly about keeping no less than 50% of the computer science course for productivity tools (i.e. word processors, spreadsheets and databases), which should be integrated and used throughout all courses. The group also agreed 40% - 50% for productivity tools should be taught and they further discussed how many students currently do not have these skills when they get to high school. Chair Newburn pointed out that at 50%, digital citizenship (appropriate and responsible use of technology, such as choosing an appropriate password and keeping it secure) also goes into the mix, which could technically be taught as computer science or as applications in use of computers. He said if the percentage is a little less than 50%, it could be claimed that digital citizenship is computer science, or if a higher percentage, Computer Applications. The subcommittee agreed upon 50% productivity tools and 50% computer science be applied to the course, using digital citizenship for flexibility.

Chair Newburn opened the discussion on teaching the course in middle school, and asked whether the group felt it should remain being taught in middle school, and whether it should include 6th, 7th, and 8th grades. Ms. De Lemos said school principals in the Clark County School District have confirmed to her they need the flexibility to offer this course in all middle school grades. The group discussed their concerns with 6th grade students taking the course with high school standards attached. Ms. Scott pointed out that across the state and in a variety of rural school districts, it would also be a good idea to include all middle school grades, then

leave it up to each individual school district. Mr. Mitchell asked whether a student that takes this course in 6th grade, and shows interest in computer science, will have an opportunity to further that education in 7th and 8th grade, before they get to high school. Ms. De Lemos responded that Clark County currently has teachers that teach over and above the required standards. She said Clark County has other courses in middle school that students may participate in to continue their interest and Clark County is creating more extracurricular activities that combine high school and middle school grade levels, to also further extend interest. Ms. Scott pointed out it is up to individual school principals whether or not they offer different courses, and it also depends on schedules and resources. Ms. De Lemos said this is an ongoing conversation in Clark County; how to keep student interest and extend interest in computer science. She said Clark County is evaluating opportunities outside of the classroom and wants to garner more interest in clubs and computer science events for both middle and high school students, keeping interest going, even if not in front of a teacher, giving more opportunities to all students. The subcommittee agreed that 50% computer science can be taught in middle school. It was pointed out that the concept level is slightly more high school standards than middle school standards. The subcommittee agreed that the Regulations will contain broad concept areas and will have a separate guidance document with detailed computer science standards to address this item.

Chair Newburn presented the next questions of whether this ½ credit counts in any way towards a fourth-math or third-science credit. It was agreed that it does not, it is different. Ms. Scott said regulations spell out this does not fit in Senate Bill 200 (SB 200). Ms. Crawford-Ferre said this is backed by the National Council of Teachers of Mathematics (NCTM), who recently issued a statement saying it is discerning that states are using computer science courses to satisfy mathematics courses, and their recommendation is that students take four high school math courses, which would include instructors that are math certified teachers. Chair Newburn clarified, this is not a computer science course, it is a computational thinking and applications course and it does not count in any way towards the high school graduation math or science requirements. The subcommittee agreed. Mr. Brancamp said if more evidence is needed going in that direction, then every standard would have to be at a high school level, as a bare minimum, no middle school standards would count, the only thing that would be counted towards a math or science credit, as SB 200 states, is "an advanced placement computer science course; (b) A computer science course that is offered through a program of career and technical education; or A computer science course that is offered by a community college or university which has been approved pursuant to NRS 389.160." The group discussed how transfer students from out of state would be considered and that school districts would need alternative ways to accommodate these students.

Ms. Fox said Washoe County School District currently allows many courses to apply towards the ½ credit requirement. She pointed out they plan on allowing the course, Computer Principals, to count for that computer literacy requirement, as well as the many CTE courses already allowed to count, by requiring students to take the whole year of the course, they receive ½ credit in Computer literacy and ½ credit of an elective. She added she believes schools would feel "cut off at the knees" if they were not allowed to continue to allow these courses for students and it would hurt students already in the Career and Technical Education (CTE) Pathways and other CTE programs. She said in the end, students would try to "credit by exam" out of the course rather than take the course. She said CTE Pathways allows for a more rigorous computer experience.

Ms. De Lemos said many Clark County schools anticipate a change in this course and are anticipating what they have to do to meet the requirements of the new legislation. She agreed that any shrinkage or lessoning of options for students is not preferable in Clark County. She added that in Clark County middle schools, the ½ credit course is offered in 6th grade, and when students go up to high school, they often take the course again. After more discussion, the group agreed that it must be clear, if a student takes this course in middle school, they do not take it again in high school. Ms. Fox said she is not aware of any Washoe County students having to retake the course in high school and is not aware of any complaints in Washoe County. Ms. Scott pointed out it cannot be allowed that any computer science or CTE course cover the ½ credit, or you risk the student missing the concepts, because the standards covered are not the same standards. Ms. Fox said there are no current standards for CTE courses and believes some CTE courses should still count towards the ½ credit. She said she would hate to see current options go away if they cannot take some sort of CTE Pathway course. The group had further discussion on the topic and decided the percentage should be set high, over the 80% range, so content is mastered and students actually fulfill this requirement. Dr. Stefik was hesitant to impose a specific percentage and voted for as much flexibility as can be provided. Ms. Scott asked how the subcommittee will approach this issue, whether that percentage should be put into the regulations, or is it something they actually need to define. She pointed out currently there are no standards or regulations for this ½ credit course, and the Ed-Tech standards, which have been on the books for a long time have never been tied or linked together, currently putting this all over the map when teaching.

Chair Newburn asked whether this information on the ½ credit and course percentages should be included in regulation or as a topic in a guidance document. It was agreed by the subcommittee the information should be in a guidance document.

Chair Newburn asked whether the group thinks they should keep the regulations broad and utilize a guidance document to comment on specific courses with a "TBD" percentage of the standards that can be offered in place of this course, and whether they agreed to use very broad language in the regulations and then more detailed language within the guidance document. The subcommittee agreed to both.

Chair Newburn said the next decision is whether to allow other courses to take the place of the ½ credit course, provided students meet some majority "TBD" percent of the standards of the course. He pointed out that Computer Science Principals meets the majority of standards. If decided that it can count as the ½ credit course, he asked the group whether it can count as the ½ credit course and count as well as a fourth-math or third-science credit, or whether a student must choose one or the other. The subcommittee agreed that typically students are not allowed to "double-dip" in these types of courses and it would have to be one or the other. The subcommittee agreed the course can count as the ½ credit course, but only for one course.

There was further discussion on whether to keep the ½ credit as flexible as possible. Chair Newburn said flexibility is necessary, but students will have to show they are meeting the majority of the standards, for the ½ credit course, by meeting a minimum percent of the standards and with the understanding it would only be credit for one course.

Chair Newburn asked what the timeline is for the completion of the draft regulations. Mr. Brancamp replied the latest meeting of the Nevada State Board of Education they would need

to be brought to is in June 2018, otherwise the regulations will become stagnate until after the 2019 Legislative Session. He said as long there is minimal language changes for the Legislative Council Bureau (LCB), there will be two things that need to be done; 1) a workshop in front of Dr. Canavero, Superintendent of Public Instruction for the State of Nevada; and 2) go before the Nevada State Board of Education. He pointed out the close date is June 7, 2018. Chair Newburn asked whether there would be time enough if this subcommittee had a meeting in April 2018 to finalize and improve the regulations. Mr. Brancamp suggested the meeting be in early-April.

Ms. Scott pointed out the subcommittee is reviewing two regulations; NAC 389.450 and NAC 389.664, and asked whether the subcommittee was in agreement with the potential language changes as outlined as follows:

NAC 389.450 changes:
Item 7. [~~Use of computers, which may include the following courses of study:~~] "*Computer Science and Applications, which must include the following concepts:*

a. Computer applications – presentations, word processing, spreadsheets;
b. Digital citizenship;
c. Computer science and computational thinking – algorithms and programming, computing systems, data and analysis, impacts of computing, and networks and the internet;
~~d. [Accounting and computing;~~
~~e. Processing business information;~~
~~f. Word processing;~~
~~g. Introductioo to computers;~~
~~h. Application of computers; and~~
~~i. Science of computers; and]~~

The group had a discussion on NAC 389.450. The subcommittee unanimously agreed to change the name to: "Computer Science and Applications." There were no more recommended additions or deletions.

Ms. Scott asked, while working on this regulation, she is aware that the American Government and Economics piece had changed in the legislative session and will not be official until 2020, and asked whether at some point this regulation needs to reflect the change of the condition of economics. Mr. Newburn replied it will. Chair Newburn agreed this change will take place in April 2018 due to changes to the Standard Diploma, and asked how they could dovetail those changes. Mr. Brancamp said the LCB will put it together. He pointed out the subcommittee should inform Dr. Canavero that these two regulations are coming just behind those changes to the Standard Diploma, and hopefully he can combine them together at the same time when they go to the LCB. He added that approval from the Board of Education is also required.

NAC 389.664 changes:
Item 1:[~~Use of computers~~] *Computer Science and Applications*

Item 2: If a pupil satisfactorily completes a course of study in [~~the use of computers~~] *Computer Science and Applications* during the sixth, seventh, or eighth grade, the pupil is not required to take the course of study in [~~the use of computers~~] *Computer Science and Applications in high school* and must only earn a minimum of 14 ½ units of credit for required courses pursuant to

subsection 1. The course of study in [~~the use of computers~~] *Computer Science and Applications* must be for at least one semester or trimester, or the equivalent, and must be taught as part of another course of study. *The course in Computer Science and Applications must include 50% of computer science and computational thinking instruction.* This subsection authorizes, but does not require, a school district to offer a course in [~~the use of computers~~] *Computer Science and Applications* as part of the curriculum of a middle school.

The group had a discussion on NAC 389.664. The subcommittee unanimously agreed to change "the use of computers" to "Computer Science and Applications," throughout the regulation, as well as verbiage in the last paragraph, as shown above. No further changes were made.

Chair Newburn asked for a motion to recommend to the Department of Education, Regulation NAC 389.664 and NAC 389.450, with the above discussed changes. Dr. Stefik made a motion to recommend Regulations NAC 389.664 and NAC 389.450 with the discussed changes to the Department of Education. Brian Mitchell seconded the motion. The motion passed unanimously.

Chair Newburn said there is still work to be done on the guidance document that outlines the standards in detail and enumerates some of the decisions that we have made today. He asked the group if an ad-hoc subcommittee was necessary to put this together or if the entire group would rather work on it. Ms. Chang pointed out she had already prepared a draft guidance document and agreed to send a copy to all members the subcommittee for review and discussion at the next meeting. Chair Newburn asked whether they need to drop in some Ed-Tech standards in the guidance document. Mr. Brancamp replied that knowing some standards may change they should include Ed-Tech standards as well. He also suggested that Ms. Fox and Ms. De Lemos allow teachers teaching these courses within the Clark and Washoe Counties school districts also be given the opportunity to review the document for input.

VII. Consider Future Agenda Items for the Next Meeting (For possible action)
Chair Mark Newburn

Chair Newburn said agenda items at the next meeting will include an update on the Computer Science Summit, the follow up work on the guidance document, as well as another pass at the FAQ sheet to include the discussion of Computer Science Principals and whether it counts towards a fourth-math or third-science credit. He said another topic to include is a discussion on students who are taking high school math in 7th and 8th grade and allowing them to finish up their math fairly early in their high school career and the concerns of using computer science as a fourth-math credit, stemming from students taking high school math in 7th and 8th grade. He pointed out these are some questions that are arising and should be part of the FAQ sheet. Ms. Scott suggested a follow up discussion on licensing regulations at the next meeting. Chair Newburn alerted the subcommittee that at the end of April 2018, the State Board Meeting will be getting recommendations for changes to the standard diploma to include recommendations of moving the total graduation credits from 22½ to 23. He said this will drop electives down from 7½ to 6 credits. He added those two credits together will create a new category called College and Career Ready, which are two credits designed to push the students to either be more college ready or career ready. He said students are restricted in the courses they can take, which includes a fourth-math, third-science, computer science, third-social studies credit or the

second or third credit in a CTE sequence. He pointed out this item will have some impact on this subcommittee's work.

VIII. Determine Next Meeting Date (For possible action)
Chair Mark Newburn

Chair Newburn said to coordinate the next meeting, a Doodle Poll will be sent out to all members of the subcommittee to include potential dates at the end of April or first part of May, 2018.

IX. Public Comment (No action may be taken upon a matter raised under public comment period unless the matter itself has been specifically included on an agenda as an action item.)
Chair Mark Newburn

There was no public comment.

X. Adjournment
Chair Mark Newburn

Chair Newburn adjourned the meeting at 3:47 P.M.