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MINUTES

Name of Organization: Advisory Council on Science, Technology, Engineering and Mathematics (STEM)

Date and Time of Meeting: Monday, September 18, 2017 at 3:00 P.M.

Place of Meeting: Nevada State Library and Archives
100 N. Stewart Street, Boardroom (1st Floor)
Carson City, NV 89701

This meeting will be video conferenced to the following location:

Grant Sawyer State Office Building
555 East Washington Ave,
Suite 5100
Las Vegas, NV 89101

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- I. Call to Order/Roll Call
Mark Newburn, Co-Chair

Chair Newburn called the meeting to order at 10:02 a.m.

Members Present: Mark Newburn, Richard Knoeppel, Shelace Shoemaker, Dave Brancamp, Dr. Carl Reiber, Christopher Sewell, Camille Stegman

Members Excused: Kelly Barber, Marcus Mason, Rob Elliot, Cory Hunt

Guests Present:

- Cindi Chang – Computer Science Subcommittee
- Aimee Allen, Chair - Integrating Arts and Culture into STEM Subcommittee
- Brandolyn Thran, Chair - Community Partnerships Subcommittee

Staff Present: Brian Mitchell, Debra Petrelli

A quorum was not present at roll-call.

- 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.)

There was no public comment.

- III. **Welcoming Remarks**
Mark Newburn, Co-Chair

Chair Newburn welcomed everyone. STEM has come a long way. It is not necessary to explain what STEM is any longer, the public has picked up the word.

- IV. **Approval of the Minutes from the July 7, 2017 meeting** (For possible action)
Mark Newburn, Co-Chair

It was determined this item will be moved to the next meeting agenda, when a quorum is present.

- V. **Continued Discussion on the Strategic Plan Matrix** (For possible action)
Mark Newburn, Co-Chair
Brian Mitchell, OSIT

Mr. Mitchell discussed the further development of the Nevada Strategic Plan Matrix. He pointed out Priority 2, and suggested adding “Increase the Quality of STEM Education within the State as well as Representing Underrepresented Groups.” The council further discussed mentorships and the STEM Ambassador program. Mr. Mitchell informed the group he had partnered with the Office of Workforce Innovation (OWINN) and together had jointly applied for a grant specifically for STEM work-based learning. The grant includes technical support from national groups to provide information and help to the state in designing a structural policy. The Council discussed applied apprenticeships, which are for gaining skills via work, as well as mentorships, which include professionals visiting classrooms and mentoring students. It was agreed there is a need to increase all apprenticeship programs, not only the STEM Ambassador program.

Mr. Mitchell, referring to the Community Partnership subcommittee, discussed their current work on a concept paper (white paper), which once complete will be distributed throughout the state. It is designed to help teachers meet the standards associated with partnerships within the state. This concept paper will explain the different levels of partnerships. It was agreed there is a need for schools, teachers and businesses to increase their understanding of the different levels of community partnerships. Mr. Mitchell requested the group to think about other areas for Priority 1: Equity and Access, for discussion at the next STEM Advisory Council meeting.

Mr. Mitchell further discussed Priority 2: Quality and Scope: Increase the percentage of high schools that require three years of science and four years of mathematics. It was discussed there is currently a proposal to make this a graduation requirement for all students. He said as a "Priority," we need to make kids aware of college STEM courses.

Mr. Mitchell referred the group to Priority 1: "Equity and Access," and a discussion ensued on whether there were elements that required immediate action. There was also discussion on the topic, "Identify schools and programs with a proven track record of engaging underrepresented demographic groups in STEM, identify best practices involved, and disseminate information across the STEM community."

VI. Discussion, Re-Evaluation, Planning, and Scheduling of the Student and STEM School Recognition Events (For possible action)
Brian Mitchell, OSIT

Mr. Mitchell gave an overview of the STEM Advisory Council's mandated requirement to put together three events each year; two events to recognize students and one event to recognize STEM schools. He pointed out last year to accomplish this requirement, a luncheon was hosted at the Governor's Mansion to recognize schools that participated in the Nevada K-12 STEM Challenge. Two Student Recognition events were held; one in the North at Truckee Meadow Community College (TMCC) and the other at University of Las Vegas, Nevada (UNLV) in southern Nevada. Mr. Mitchell further discussed the application process for the Nevada K-12 STEM Challenge. Our purpose today is to discuss how these events went and make suggestions and recommendations for the upcoming year.

Student Recognition Events: Mr. Mitchell referred the group to the Nevada K-12 STEM Challenge handout with the listed ten topics, asking for any additions or deletions. He explained the with the student recognition event, there were no winners, nor judges. Industry professionals were recruited to meet and talk with the students and every student that participated received a certificate signed by the Governor. No projects were reviewed, and as once discussed, no projects were chosen to present to members of the Governor's

cabinet for further study. For both events, the student participation totaled approximately 200. The event in Northern Nevada was at TMCC, in which we partnered with a similar event, the Project Based Learning (PBL) Showcase. Mr. Mitchell suggested for the upcoming year, we have better coordination with the school districts. The group discussed dates and timeframes and some changes that need to be made. There was discussion on awards and the requirement of judges, which would go beyond the Council's mandate and ability to deliver. They further discussed monetary awards and plaques for students or schools. Mr. Mitchell pointed out they cannot award money. There was discussion on a trophy that could rotate each year. The group talked in length about project topics and possibly making the event more tiered in the application process, and possibly tightening up the entire application process. Mr. Mitchell pointed out the events are constrained by size of room or space. Spaces must be reserved as soon as possible. The group discussed problems with attendance last year and the option of getting a key-note speaker for the upcoming year. Another idea would be to nominate a STEM teacher of the month or year, which could include elementary school, middle school and high school teachers, who could be awarded at the event. Principals could nominate teachers.

Mr. Mitchell suggested the timeframe of early in May 2018 for the Northern Nevada event and a time between February and April 2018 for Southern Nevada. A poll will be sent out to all members for feedback. Dr. Reiber pointed out they will need an estimate of attendance to match room size for space at UNLV. It was concluded that with more publicity this year we could expect 25% -50% more growth than last year. The group discussed awards and possibly engaging CTE programs to assist in making medallion or medal designs by having a competition for students to engage in the process. They discussed possibly taking out the video component of the presentations.

In summing up the conversation, Mr. Mitchell pointed out the need for changes in the next year and doing better in reaching out to schools, especially in Northern Nevada. It was suggested to reach out to schools from last year and have them get involved. It was also suggested to have more STEM mentors present at each of the student recognition events.

School Recognition Event: Mr. Mitchell updated the group on last year's event. The luncheon and presentation of banners took place at the Governor's Mansion in Carson City. The addition of pictures with the Governor was a plus. Mr. Mitchell suggested changes be made with lead-up to this year's event and getting the word out to more schools. It is expected to have additional reviewers at the site visits this year. It was suggested that this year a 'blue-print' of what a STEM school looks like should be provided to all schools participating to give a better understanding of what the reviewers are looking for. The group discussed the difficulties of the reviewing teams last year. It was suggested to require each school to include a video of what

they do in STEM, to go along with the site visits. It was agreed that a video would be a great way to show students in action, and could include interviews with teachers. It was mentioned this would make the application process even lengthier. There was discussion it might be a better idea to make a video component optional for schools.

- VII. Update and Discussion on K-12 STEM Grants (For possible action)
Brian Mitchell, OSIT
Dave Brancamp, NDE

Mr. Brancamp updated the council on the K-12 STEM grants. He said the College and Career Readiness Grant closes on Friday, September 22, 2017, to include Dual-Enrollment, AP and STEM. A big change in the 2017 legislature is the requirement that it must be directed out of the district or a school site. Non-profits can now partner with the district, but the district has to be the lead on these grants. The structure of the grant was agreed to by Dr. Steve Canavero, Superintendent of Public Instruction, that the three areas for STEM have funding for evidence-based professional learning, funding for informal STEM and Learning Experience and Opportunities and funding targeted at STEM classroom supplies and corresponding curriculum. These three areas are for middle and high schools that districts will be applying for. The STEM team will review the applications on October 4, 2017 from 12:00 noon until 4:00 pm at the Carson City Department of Education. Mr. Mitchell commented we are trying to align priorities established in the Nevada State Strategic Plan in working with the Department of Education on how this funding should be spent. Priorities have been changed around since previous funding. The College & Career Readiness Grant only covers middle schools and high schools. He added that OSIT recently solicited private funding and was awarded a \$150,000 grant to mirror some of those same categories in a grant for elementary schools.

Mr. Mitchell referred the council to the K-5 STEM Education Proposal prepared by OSIT. He pointed out it is specifically for classroom equipment for evidence based STEM programs whether formal or informal. This funding is only secured in Northern Nevada and will only be available to those school districts in the north. He is currently looking at grants and awards that will match this same grant that are located in Southern Nevada. Hopefully, with the evidence we accumulate from these funds we can demonstrate the outcomes to the legislature there is a need at the elementary school level as well as middle and high school levels.

- VIII. Updates from Subcommittees (For possible action)
Brian Mitchell, OSIT

Computer Science Subcommittee: Mark Newburn, Chair; Cindi Chang

Chair Newburn commented The Computer Science Writing Team convened August 23 – 25, 2017 in Las Vegas, along with help from CODE.org personnel. He pointed out the team was in a good position because the Computer Science Teachers Association had just received approval of their national set of standards. We became the first state to work off of those standards, which became the team's framework for Nevada. We had approximately 30 people working for three days on the standards, with teams broken out by elementary school, middle school and high school. The standards are currently under internal review. After which, they will go out for public review. The process to approve the Computer Science Standards with the Academic Standards Council and the State Board of Education will follow.

Integrating Arts and Culture into STEM Subcommittee: Aimee Allen, Chair
Ms. Allen recapped events for the first annual STEAM Conference taking place February 24, 2018 at the Nevada Museum of Art with the theme of "Nevada Nuclear History." She pointed out the subcommittee is almost entirely made up of informal educators. We are the leading group in Nevada for integrating arts and culture into STEM. She commented on the subcommittee advocating for STEAM and the Council's efforts in integrated learning. Our next goal is to come up with an appropriate way to communicate the shared ideas of our committee in a paper that we endorse that fundamentally encourages teachers to take integration to the next level in their teaching practices and in their schools. Also, to understand fundamentally, integrated teaching and what it looks like. Our third goal is to involve ourselves with what the council is doing in terms of metrics. We are interested in filling the gaps in arts education that have not yet produced some of the research data; how STEM and STEAM are able to produce different learning outcomes and be quantitatively tracked. She mentioned their next meeting is September 26, 2017 at 9:00 A.M.

Community Partnerships Subcommittee: Camille Stegman on behalf of Brandolyn Thran, Chair
Ms. Stegman presented on Chair Thran's behalf. She pointed out the next meeting is October 24, 2017. The subcommittee is compiling a white paper which defines their work product in order to help establish community partnerships with teachers, business partners, K-12 schools and higher education. The subcommittee is currently taking under advisement; getting current IT information on computer science standards and working to revamp their first draft of that document by adding more math and technology.

Informal STEM Learning Environments Subcommittee: Brian Mitchell on behalf of Aaron Leifheit, Co-Chair and Amy Page, Co-Chair
Mr. Mitchell presented on Co-Chair Leifheit's behalf. Their last meeting was on Friday, September 15, 2017. They are currently working on and defining the components of an ideal informal STEM education program. This is important because there are so many informal STEM programs out there.

They hope to use this as an opportunity for further STEM outreach by making it similar to this Council's rubric, which identifies the elements of successful programs. They are preparing a white paper (concept paper) to be presented to this Council for ratification. The paper is currently being circulating internally.

STEMworks Subcommittee: Brian Mitchell, OSIT

Mr. Mitchell said the STEMworks subcommittee is currently reviewing programs, anticipating finalizing their reviews this month and making a formal announcement on how programs that applied have placed. We would like to do this same review process on an annual basis and invite different programs each year. He further commented on the STEMworks process. He said 21 applications with different programs throughout the country were received. The STEMworks Subcommittee Review Team is currently analyzing those proposals, which should be done by the first week of October. He said next year when preparing the College and Career Readiness Grant we should have that list of approved STEMworks programs, which can become a category for school districts to apply for funding with one of these Nevada-specific programs. Mr. Mitchell pointed out that all programs approved are not only ranked on the state level but also on the national level. This is a great way for those programs making the STEMworks approved list to expand what they are doing. Ultimately this list will assist in finding quality programs for schools to choose from, and will help to raise the quality of STEM education. Some are strictly curriculum, some are strictly professional development. The intent is this process will improve the quality of STEM education.

- IX. Consider Agenda Items for the Next Meeting (For possible action)
Mark Newburn, Co-Chair

Co-chair Newburn suggested continued work on the Strategic Plan Matrix. Will still need further discussion and need to come up with a strategy.

- X. 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.)

There was no public comment.

- XI. Adjournment

The meeting was adjourned at 5:21 P.M.