Appendix C: Nevada STEM Program Recognition Rubric K-12

Introduction

The Nevada STEM Program Recognition Rubric for K12 establishes guidelines and criteria for Nevada STEM schools to achieve model status. It aligns with Nevada Academic Content Standards in science and mathematics to promote the integration of engineering and technology across the curriculum with access for all students.

Nevada STEM Definition

Science, Technology, Engineering, and Mathematics (STEM) education focuses on active teaching and learning, centered on relevant experiences, problem-solving, and critical thinking processes. STEM education emphasizes the natural interconnectedness of science, technology, engineering, and mathematics, and their connection to other disciplines, to produce informed students that possess and apply their understanding to expand Nevada's STEM-capable workforce in order to contribute to a healthy Nevada economy and compete in a global society.

Nevada STEM Recognition Vision

Nevada schools seeking recognition will complete a reflective application utilizing the established rubric criteria. A maximum of 30 schools will be identified as finalists and asked to submit video evidence in support of the application as a Nevada Exemplary STEM School. All Nevada schools - public, private and charter schools - are eligible for this recognition. A maximum of fifteen elementary, middle and/or high schools will be recognized as Nevada Exemplary STEM Schools.

The STEM recognition rubric will be scored by the evaluators – 2 community/business partners, 2 administrators, 3 teachers - with 1-4 points per indicator within each category. There are 13 indicators to identify schools as:

Model school 48-52 points (with no indicator below a 2)
Established school 35-47 points
Developing school 22-34 points
Exploratory school less than 22 points

All schools applying for STEM recognition will receive an evaluation report that will provide recommendations for improvement and an invitation to apply in subsequent years. The rubric and application process for evaluation will be reviewed yearly.

Categories	Attribute	Exploratory *The Exploratory STEM program describes a school program that has intermittent STEM-related opportunities for students.*	Developing *The Developing STEM program describes a program that provides STEM-related experiences for students in specific classes or instructional settings as part of the daily schedule.*	Established *The Established STEM program describes a school where STEM- related experiences are provided for ALL students in the program in many instructional settings as part of the daily schedule.*	Model *The Model STEM program describes a school where STEM-related experiences are provided for ALL students within the program and are integrated in all instructional settings throughout the school day. This may be realized through a non-traditional daily schedule.*
Curriculum Practices	*Degree of integration of the scientific, technological, engineering and mathematical practices.*	STEM practices may be integrated into curricular opportunities for some students with or without technology and engineering design integration.	STEM practices are partially integrated into some instructional settings for ALL students in the program as part of daily instruction with technology integration and minimal engineering design .	STEM practices are integrated into daily instruction for ALL students in the program with technology integration and engineering design.	STEM practices are fully integrated into daily instruction for ALL students in the program throughout the school day in a scientific, technological, engineering, and mathematical learning environment.
	Students use appropriate problem solving practices to develop multiple solutions and communicate their ideas both orally and in writing, with argumentative support.	Teachers guide students through engineering processes to discover problems have multiple solutions.	Students are supported by the teacher to apply content knowledge and compare multiple solutions using evidence.	Students are persistent in applying content knowledge from multiple subject areas to implement solutions and communicate them both written and orally.	Students are persistent in applying content knowledge from multiple subject areas to implement solutions and support argumentation.
	Ethical implications are part of the decision making process.	Teachers identify that ethical implications are a part of decision making.	Teachers encourage discussion of ethical implications among students.	Students explain ethical implications associated with global problems.	Classroom operations and student work clearly consider ethical implications.
Curriculum Integration	*Degree of integration of STEM content within classroom instruction with non-STEM content areas such as Art, PE, English*	STEM and non-STEM content may be integrated into curricular opportunities for some students with	STEM and non-STEM content is partially integrated into some instructional settings for ALL students in the	STEM and non-STEM content is integrated into daily instruction for ALL students in the program with technology integration and	STEM and non-STEM content is fully integrated into daily instruction for ALL students in the program

	Language Arts, Social Studies, and Health.	or without technology and engineering design integration.	program as part of daily instruction with technology integration and minimal engineering design .	engineering design.	throughout the school day in a scientific, technological, engineering, and mathematical learning environment.
Learning Environment	*Degree of fair and equitable access to a STEM-related experience for ALL students in a culture that is welcoming, stimulating, and nurturing.*	STEM-related experiences are equitable, accessible and are partially integrated into instruction for ALL students in a welcoming environment.	STEM-related experiences are equitable, accessible and are integrated into instruction for ALL students in a welcoming and stimulating environment.	STEM-related experiences are equitable, accessible and are integrated into instruction for ALL students in a welcoming, stimulating and nurturing environment.	STEM-related experiences are equitable, accessible and are fully integrated into instruction for ALL students in a welcoming, stimulating and nurturing environment.
STEM Instruction	*Degree in which teachers are facilitators of independent student learning, providing high quality cognitive tasks and higher-level questioning during a STEM-related experience.*	Teachers guide STEM-related learning opportunities offered to students with minimal independent and interdependent student learning that include a small number of high-level cognitive tasks and multi-level questioning.	Teachers guide STEM-related learning opportunities offered to students in group situations with limited independent and interdependent student learning that includes some high-level cognitive tasks and questioning.	Teachers facilitate STEM-related learning opportunities offered to students in group situations with greater independent and interdependent student learning that includes high-level cognitive tasks and multi-level questioning.	Teachers are facilitators of collaborative groups in STEM-related learning experiences with independent and interdependent student learning that includes high-level cognitive tasks and multi-level questioning.
	Students work collaboratively to solve engineering problems.	Teamwork in the classroom takes place weekly, team roles are not defined.	Teams exhibit evidence of defined roles.	Students exemplify cooperative teamwork daily.	Student teams design and evaluate solutions to age appropriate difficult and unfamiliar problems.
	Students will participate in a STEM program that is recognized and assessed at the local/state/national	Students are not evaluated through varied assessment in specific STEM-learning	Some students are evaluated through varied assessment in specific STEM-learning	A majority of students show some growth through varied assessment in STEM-learning	All students show significant growth through varied assessment in STEM-learning

	levels	environments on school / state / nationwide level.	environments on school / state / nationwide level.	environments on school / state / nationwide level.	environments on school / state / nationwide level.
STEM Integration	*Teachers and students recognize the Importance of curriculum (curricular) choices to future STEM career development and preparation.*	Teachers and students understand appropriate course selection will help prepare students for opportunities in a STEM career.	Students recognize a need for educational and STEM career goals.	Teachers help students identify STEM courses of study as possible routes for their own educational development.	Students identify possible STEM career goals and possible educational pathways to reach the goals.
	Students understand and find solutions to local and global problems within the community.	Teachers identify local and global problems and their relationship to the community.	Teachers explain how local and global problems impact the community.	Students understand how the community can solve local and global problems.	Students explain multiple-solution approaches to a variety of local and global problems.
Leadership	*Degree in which administrators support STEM-related experiences within the school such as scheduling, funding, teacher time for collaboration, and opportunities for professional learning.*	Administrators minimally support STEM-related experiences within the school to include collaborative time for teachers and STEM related professional learning opportunities.	Administrators partially support STEM-related experiences within the school to include collaborative time for teachers and STEM related professional learning opportunities.	Administrators mostly support STEM-related experiences within the school to include collaborative time for teachers and STEM related professional learning opportunities.	Administrators strongly support fully integrated STEM related practices in daily instruction within the school that includes collaborative time for teachers and STEM related professional learning opportunities.
	Administration and teachers provide experiences for STEM related career awareness.	Administration and teachers identify opportunities to collaborate with the local industry and community.	Administration and teachers collaborate with the local industry and community to provide interactions with students	Administration and teachers apply collaborative principles to form industry and community partnerships.	Administration and teachers encourage experiences for students both outside the classroom and in the classroom to develop STEM practices and related career awareness opportunities.

Stakeholders	*Degree of parent/guardian engagement and STEM partnerships ' collaboration, in support of the STEM related experience within the school and/or classroom.*	Parents/ Guardians minimally participate in some STEM related experiences and/or a STEM partner occasionally collaborates with teachers concerning STEM related experiences.	Parents/ Guardians sometimes participate in some STEM related experiences and/or a STEM partner collaborates with teachers concerning some STEM related experiences.	Parents/ Guardians usually participate in STEM related experiences and/or STEM partner(s)usually collaborate with teachers concerning STEM related experiences.	Parents/ Guardians actively participate in STEM related experiences and STEM partner(s) actively collaborate with teachers in STEM related experiences
	Degree of STEM partnerships with community, industry, business, higher education, informal education, outdoor education, or afterschool programs.	School has a STEM partner that occasionally assists with some STEM related activities.	The school has STEM partner(s) that sometimes support STEM related activities in specific classrooms.	The school has STEM partner(s) that often support STEM related classroom experiences.	The school has STEM partner(s) that actively support a STEM-centered school setting.

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Appendix D: Nevada STEM Student Recognition Program and Application

Nevada's STEM Student Recognition Program is designed to bring students to a Nevada STEM Symposium, featuring professionals from the fields of science, technology, engineering and mathematics. The Symposium enables every school to select only one student to attend either the live event or via teleconference, in order to recognize and develop a broad interest in STEM careers across the state. This will expose all schools to the opportunities that exist and foster relationships with individuals, institutions and corporations within the STEM fields.

The Symposium will have two components – a student poster session and community professional presentations. This experience will enable students to share their interest and knowledge as well as learn more about careers and 21st Century developments within Nevada.

Students selected will participate in a poster session which describes the process and the STEM project they have been investigating, enabling a wide range of students and community members to see the plethora of quality work produced in Nevada. This will allow elementary, middle, and high school students to mentor each other in a collegial atmosphere while interacting with professionals in STEM fields.

The Symposium will close with presentations from leaders in STEM fields. Students will be able to interact with professionals that have taken their passion and made it a career.

Student Selection Process

Principals from elementary, middle, and high schools will be invited to select one Symposium participant. It is recommended that the student selected from the elementary and middle schools be from the final grade at that school. High schools should select an eleventh grade student. The requirements for participation will be distributed in September and completed student packets must be submitted by March 1st. The Symposium will be held in late April or early May. The University of Nevada, Las Vegas and Reno should be considered for the Symposium to promote higher education opportunities in Nevada.

Student Application Process

Students are eligible applicants upon completion of a STEM project during the current school year. The STEM project may include, but is not limited to: programming, technological design, an invention or innovation, mathematical application or proof, observational study, or experiment. Projects must communicate the impact and possible benefit for the community and include consultation with a professional expert in the field of study. Completed applications are submitted to the principal for selection to the STEM Symposium.

STEM Symposium Student Recognition Application

Name_____

School_____

Grade_____

STEM Project Title_____

_____ (60 points) **Student Submission**
Abstract
Project artifacts photographed
Project Reflection – including successes, surprises, and changes to consider in the future

_____ (30 points) **Teacher Recommendation**
Must include:
Verification of project completion and presentation
Statements addressing student presentation skills, collaboration, and leadership qualities

_____ (10 points) **Required Signature Statements**

Applicant

I, _____ acknowledge that this STEM project is my work. If selected for the STEM Symposium I will create a poster (Maximum 48 inches wide, 38 inches tall) displaying my findings and attend the Symposium.

Parent/Guardian

I, _____ acknowledge that this STEM project is my child's work. If selected for the STEM Symposium I will transport my child to the Symposium.

Professional Expert

I, _____ acknowledge my involvement and support for this STEM project.

Principal

I, _____ approve this STEM project for submission to the Nevada STEM Symposium.