Nevada Governor's Designated STEM School - 2024 Action Guide -

GOVERNOR DESIGNATED

Nevada STEM School

OSIT

Nevada Governor's Office of Science, Innovation and Technology

Our Vision

Our **vision** is that every student in Nevada will have access and opportunities to experience a high-quality science, technology, engineering and mathematics (STEM) education, with the ultimate objective that students are prepared to thrive in the New Nevada economy. Key to realizing this vision is the effort to encourage all schools, with a particular focus on reaching groups underrepresented in STEM, to adopt practices that engage and expose students to real-world problem solving, creative design, innovation, critical thinking, and career opportunities through STEM-focused formal and informal education.

The Governor's Office of Science, Innovation and Technology is charged with identifying and awarding recognition to not more than 15 schools in Nevada each year that demonstrate exemplary performance in STEM. These schools are designated as Governor's STEM Schools and are recognized at an annual recognition event. Designation as a Governor's STEM School denotes that the school meets the highest standards of STEM instruction and is a model for schools around the state. Designations may be used to promote the school.

The **purpose** of this Action Guide is to serve as a blueprint for educators, administrators, and stakeholders to take action to integrate STEM into daily student instruction. This Guide will also **assist** in understanding the Governor's STEM School Designation process and what types of activities, pedagogy, daily structure, and supports will be evaluated during the review.

This Guide provides a **roadmap** with guidelines and criteria for Nevada schools to become a Governor Designated STEM School. It aligns with Nevada Academic Content Standards to promote the integration of STEM into daily instruction for all students. You can use this Guide as a self-assessment, as a tool to expand STEM education at your school, or as a blueprint as you prepare to apply for the Governor's STEM School Designation.

Questions?
Contact Tracey Howard
OSIT STEM Program Director
T.Howard@gov.nv.gov

Application Process

Eligibility
Any K-12 school in Nevada is eligible to apply

Deadline
Applications are due December 8th, 2023 by 5:00pm

Timeline
Applications will be reviewed upon receipt. Schools under consideration to be designated as a Governor's STEM School will be contacted to schedule a site visit to occur in January or February 2024. Designated schools will be announced in May 2024 and honored at a recognition event.

Application Instructions
Please see pages 6-18 of this document for the application.

GOVERNOR DESIGNATED
Nevada STEM School

Site Visit

Schools under consideration to be designated as a Governor's STEM School will be contacted to schedule a site visit.

Considerations When Preparing for a Site Visit

❑ The purpose of the site visit is to collect additional evidence not found in the school's application.

❑ The visit are 90 minutes.

❑ Reviewers would like to meet with an administrator and 2-4 additional, diverse representatives to discuss aspects of the school.

❑ Reviewers would like to visit classrooms to see instruction and speak with students and teachers.

❑ Be ready to discuss and demonstrate the qualities described in the Nevada STEM Framework.

❑ Avoid repeating what was shared in the application; reviewers will have read the application and will want additional evidence to use for scoring.

GOVERNOR DESIGNATED
Nevada STEM School

Nevada Governor's Designated STEM School
- 2024 Application -

Updated 2024

Application:

The application consists of five sections, which you'll find on the following pages.

1. **Introduction**
   Applicant Information
   School Information
   Student Information
   Link to Artifacts

2. **The School**
   Questions
   Self-Evaluation

3. **The Classroom**
   Questions
   Self-Evaluation

4. **The Community**
   Questions
   Self-Evaluation

5. **Closing**
   Next Steps
   Comments

For each section 2-4, you'll be asked to (1) answer questions related to the category and (2) complete a self-evaluation table using the Nevada STEM Framework.

Note: The Nevada STEM Framework should be used to answer the questions, complete the self-evaluation, and determine artifacts to include.

Find the application [here](#) and download or save a copy to complete. Email a PDF of the application to T.Howard@gov.nv.gov by December 8, 2023 at 5:00pm.

Considerations:

Applications must be submitted as a PDF. Applications submitted as a link in an email or as a Word document will not be considered.

Applications received after the deadline will not be considered.

Incomplete applications will not be considered.

We highly recommend submitting your application early.

Your application cannot exceed 30 pages, double-spaced, not including the artifacts.

Your artifacts will be submitted as a link to a Google folder you create with sub-folders for each attribute of the NV STEM Framework.

Answer all questions completely and label your answers.

Questions?
Contact Tracey Howard
OSIT STEM Program Director
T.Howard@gov.nv.gov

GOVERNOR DESIGNATED
Nevada
STEM
School

Questions

Answer the following questions about your school.

1. Applicant Information

1a) Applicant full name, job title, and email:

1b) Principal full name and email, if different than applicant:

2. School Information

2a) Full school name:

2b) Full school address:

2c) School website:

2d) Social media accounts:

2e) School phone number:

2f) What is your school's mission and vision?

2g) What is your school known for in the community? (100-word max)

3. Student Population

3a) Grades served:

3b) Total number of students enrolled:

3c) Student population demographic breakdown:

3d) Describe your school's history and the community you serve. (250-word max)

4. Artifacts (See the next page for a list of artifacts to include.)

Link your artifacts here:

Artifacts

Please include the following artifacts:

- ❑ The school's mission and vision statements
- ❑ The school's performance plan
- ❑ The school's STEM strategic plan
- ❑ The school's STEM equity plan
- ❑ Enrollment data for STEM courses and clubs
- ❑ The school's professional learning plan
- ❑ The school's master schedule
- ❑ List of course offerings
- ❑ List of clubs and extracurriculars offered at the school
- ❑ Teacher planning forms or agendas
- ❑ The school budget
- ❑ 5+ Exemplar STEM lesson plans
- ❑ 3+ Exemplar STEM lesson plans that incorporate engineering
- ❑ 5+ Exemplar STEM assessments
- ❑ Year-long pacing guides
- ❑ Student work samples demonstrating attributes described in the Nevada STEM Framework
- ❑ Samples of teacher or student feedback
- ❑ List of all technologies at the school and how students use them
- ❑ List of family STEM events or engagement opportunities
- ❑ List of community partners and their roles
- ❑ Any other artifacts relevant to your school's application and the Nevada STEM Framework

Artifacts

Artifacts:

Artifacts will be used as evidence for the claims made in your application. Please reference the Nevada STEM Framework while identifying artifacts that best demonstrate the attributes in the Framework.

Create a Google Drive folder to collect and share your artifacts. Ensure your folders can be viewed by anyone with the link.

Organize your artifacts by the attributes in the Nevada STEM Framework. Find a template of folders [here](#).

Example:

- 2.1 Problem-Based Learning
- 2.2 Culture and Mindset
- 2.3 Technology
- 2.4 College and Career Readiness
- 2.5 Assessment

Questions

Answer the following questions about your school's systems, policies, and protocols that support STEM. Use this opportunity to prove your school is a STEM school. Refer to the Nevada STEM Framework to help you answer.

5. Describe who at your school teaches STEM and how often. (250-word max)

6. Describe when, how, and how often teachers collaborate for STEM. (250-word max)

7. Describe STEM PD that has occurred in the last two years. (250-word max)

8. Describe upcoming STEM PD. (150-word max)

9. Describe your school's strategies for engaging and retaining students from underrepresented groups in STEM. (250-word max)

10. Describe how the school's budget is used for STEM. (150-word max)

11. Describe how the school's schedule (bell and calendar) supports STEM instruction. (150-word max)

Self-Evaluation

Please complete the following table to self-evaluate your school for each sub-attribute within the Nevada STEM Framework School Category.

(50-word max per cell)

The School Category Sub-Attribute	Rating (exploratory, developing, established, or model)	Why does your school rate at this level?	What does your school need to do to reach the next rating level?
STEM Mission and Vision: 1.1.1, 1.1.2			
Leadership: 1.2.1, 1.2.2, 1.2.3			
An Explicit Focus on Equity: 1.3.1, 1.3.2, 1.3.3			
The School Budget: 1.4.1, 1.4.2			
The Schedule: 1.5.1, 1.5.2			

Questions

Answer the following questions about your school's STEM learning experiences. Use this opportunity to prove your school is a STEM school.

12. Describe 3 of the best STEM units/projects/lessons from the last two years. Use the 2.1 Problem-Based Learning Framework attributes to include pertinent details. (1,000-word max)

13. Describe a typical lesson's structure/Walk us through a typical lesson. (250-word max)

14. Describe your school's STEM mindset and culture, as well as the strategies, structures, procedures that support it. (250-word max)

15. Describe how instruction is explicitly connected to STEM post-secondary pathways, and how your school prepares students for those pathways. (350-word max)

16. Describe how your school evaluates student growth and achievement in STEM knowledge, skills, and mindset. (500-word max)

Self-Evaluation

Please complete the following table to self-evaluate your school for each sub-attribute within the Nevada STEM Framework Classroom Category.

(50-word max per cell)

The Classroom Category Sub-Attribute	Rating (exploratory, developing, established or model)	Why does your school rate at this level?	What does your school need to do to reach the next rating level?
Problem-Based Learning: 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6			
Culture and Mindset: 2.2.1, 2.2.2, 2.2.3			
Technology: 2.3.1, 2.3.2			
College and Career Readiness: 2.4.1, 2.4.2, 2.4.3, 2.4.4			
Assessment: 2.5.1, 2.5.2, 2.5.3			

Questions

Answer the following questions about your school's interactions with the community to enhance STEM learning experiences. Use this opportunity to prove your school is a STEM school.

17. How do your school's families support and contribute to the direction of STEM at your school? (250-word max)

18. How do teachers and administrators work to communicate the value of STEM and encourage STEM learning outside of school? (250-word max)

19. How does business, industry, and the community support STEM learning at your school? (250-word max)

20. Describe how students and community members typically interact. (250-word max)

21. What opportunities do students have to apply the learning and skills learned in STEM to solve problems within their community? (500-word max)

Self-Evaluation

Please complete the following table to self-evaluate your school for each sub-attribute within the Nevada STEM Framework Community Category. (50-word max per cell)

The Community Category Sub-Attribute	Rating (exploratory, developing, established or model)	Why does your school rate at this level?	What does your school need to do to reach the next rating level?
Family Engagement: 3.1.1, 3.1.2			
Business, Industry, and Community Engagement: 3.2.1			
Student Engagement with the Community: 3.3.1, 3.3.2, 3.3.3			

Questions

Answer the following questions about your school. Use this opportunity to provide a final impression.

22. What are your school's next steps regarding progressing your STEM school? (250-word max)

23. Is there anything else we should know about your school? (250-word max)

Questions?
Contact Tracey Howard
OSIT STEM Program Director
T.Howard@gov.nv.gov

GOVERNOR DESIGNATED
Nevada
STEM
School

Nevada Governor's Designated STEM School Framework

GOVERNOR DESIGNATED
Nevada STEM School

OSIT
Nevada Governor's Office of Science, Innovation and Technology

The rubric below contains the attributes of a STEM School and is divided into 3 categories:

1. **The School**
2. **The Classroom**
3. **The Community**

The rubric describes what each attribute might look like at an Exploratory school, a Developing school, an Established school, and a Model school. The following pages summarize the characteristics of schools at each level.

Model

Established

Developing

Exploratory

GOVERNOR DESIGNATED
Nevada
STEM
School

SCORING GUIDE

Schools that meet the criteria of a Model, Established, or Developing School will receive the Governor's STEM School Designation.

Model Schools receive an overall score of 110 points or more.

Established Schools receive an overall score between 70-109 points.

Developing Schools receive an overall score between 35-69 points.

Exploratory Schools receive an overall score of 34 points or fewer.

Model

Established

Developing

Exploratory

GOVERNOR DESIGNATED
Nevada
STEM
School

Exploratory

A program that has intermittent STEM-related opportunities for some students.

Learning
STEM and non-STEM content are not regularly integrated. STEM activities are available for some students with minimal independent student learning through inquiry. Limited administrator support exists for STEM collaboration and professional learning opportunities.

Application
Student learning is not consistently linked to STEM career opportunities. Opportunities to develop teamwork and critical thinking skills are infrequent. Some participation from families or STEM community partners exist.

Examples
STEM activities, Science Fairs, after-school programs and clubs.

GOVERNOR DESIGNATED
Nevada STEM School

Developing

A **program** that provides STEM-related experiences for students in specific classes or instructional settings as part of the daily schedule.

Learning
STEM content is regularly offered in addition to the regular curriculum and is only occasionally integrated, with limited independent student learning through inquiry. Some administrator support exists for STEM collaboration and professional learning opportunities.

Application
Teachers and students understand the importance of STEM to future careers. Students work to solve teacher-developed, real-world problems. Partnerships exist with STEM businesses and families but may be underdeveloped.

Examples
"STEM Days"; Standalone, supplementary project-based activities.

GOVERNOR DESIGNATED
Nevada
STEM
School

Established

A **school** where STEM- related experiences are provided for ALL students in many instructional settings as part of the daily schedule.

Learning
STEM practices and content are regularly integrated into daily instruction across most disciplines. Teachers facilitate independent student learning through inquiry. Significant administrative support exists for STEM collaboration and professional learning opportunities.

Application
Teachers regularly link student learning to future careers. Students work in groups to solve student or teacher-developed, real-world problems. The school's STEM industry and family partners often support STEM-related classroom experiences.

Examples
Year-long STEM projects integrated across multiple subjects; School-wide STEM focus.

GOVERNOR DESIGNATED
Nevada
STEM
School

Model

A **school** where STEM-related experiences are provided for ALL students and are integrated in all instructional settings throughout the school day.

Learning
STEM practices and content are fully integrated into daily instruction across all disciplines. Teachers facilitate collaborative, independent student learning through inquiry. Administrators fully and strongly support STEM collaboration and professional learning opportunities.

Application
Students identify pathways to their STEM career goals. Student teams design and evaluate solutions to difficult, real-world problems. STEM industry and family partners actively collaborate on and participate in STEM-related experiences.

Examples
A STEM Academy: with a fully integrated program across all curriculum for all students; a project-based school environment where students are immersed in STEM teaching and learning; where faculty have expertise in STEM Fields and bring a real-world perspective to the classroom.

GOVERNOR DESIGNATED
Nevada
STEM
School

STEM or STEAM?

The Nevada Governor STEM School Designation is inclusive of schools practicing STEAM. The attributes described in the Nevada STEM Framework are applicable to STEAM as well as STEM.

As with STEM, STEAM describes a pedagogy that focuses on skill development as well as the learning process itself. Both STEM and STEAM describe discovery learning that is tied to real-world problem-solving and relies on integrated subject areas to allow authentic context and application of learning. Schools with a STEAM vision rather than a STEM vision will focus equitably on teaching STEM *and* art skills and processes. STEAM also emphasizes empathy, diverse perspectives, creativity and aesthetic design principles. At the highest ratings (Established and Model), the Nevada STEM Framework describes this type of learning. For example, schools rated as Established or Model utilize interdisciplinary or transdisciplinary learning models, which rely on empathy and understanding real-world problems through multiple lenses. The highest-quality STEM schools will embody key attributes of STEAM.

The Governor's STEM School Designation is inclusive of STEAM, STREAM, STREAMERS, STREAMLERS and so on. The STEM School Designation is not intended to celebrate schools that uphold science, technology, engineering, and mathematics above or at the expense of other subject areas. Rather, the STEM School Designation celebrates schools that value the learning process, student identity development, real-world experiences, and workforce connections, regardless of the subject area.

When reviewing the Nevada STEM Framework, STEAM is not called out specifically. However, STEAM schools can use STEAM-based evidence to demonstrate the attributes described in the Framework. For example, the School Category describes having professional learning plans that include STEM training. STEAM schools will have arts-trained educators on campus as well. Additionally, in the Community Category of the Framework, schools are evaluated on industry partnerships and how STEM professionals interact with students. A STEAM school will have formal partnerships with STEAM industry and promote careers such as graphic artists or front-end web developers. While the Framework does not specifically address STEAM, the attributes are inclusive of STEAM and were developed based on the latest research regarding STEM *and* STEAM educational experiences.

CATEGORY I: THE SCHOOL

1.1 STEM Mission and Vision

The school's **STEM** mission and vision guide decision-making at the school.

Attribute	Exploratory	Developing	Established	Model
1.1.1 Mission & Vision*	The School's mission and vision statements do not mention STEM. A few teachers or administrators have discussed increasing the school's STEM focus, but the school has not articulated anything formally. Support for STEM is concentrated among a small number of staff. **1 point**	A core group of teachers and administrators at the school have begun formally redesigning its mission and vision to include STEM. Universal staff buy-in has not occurred. **2 points**	The school's mission and vision are centered in STEM, all staff have bought in and work to achieve the STEM mission and vision, and the STEM mission and vision is beginning to be evident to outside stakeholders. **3 points**	The school's mission and vision have been centered in STEM for more than two years, and staff, students, families, and outside stakeholders understand and believe in the value of STEM. **4 points**
1.1.2 Impact on Classrooms	Administrators and some teachers have begun to think about how to align classroom instruction to a STEM mission and vision. **1 point**	Classroom instruction is aligned to the STEM mission and vision in some classrooms. **2 points**	Classroom instruction is aligned to the STEM mission and vision in the majority of classrooms. **3 points**	Classroom instruction has been aligned to the STEM mission and vision in all classrooms for at least two years. **4 points**

*Your school is strongly encouraged to develop a formal long-term STEM strategic plan that helps drive the school toward the STEM mission and vision.

CATEGORY I: THE SCHOOL

1.2 Leadership

School leadership provides opportunities for successful widespread STEM implementation.

Attribute	Exploratory	Developing	Established	Model
1.2.1 Leadership	STEM is a cause advocated for by a passionate teacher or small group of staff. The principal is permissive but uninvolved. **1 point**	The school's leadership team, including teachers and administrators, drives small-scale or pilot STEM initiatives at the school. **2 points**	The school's leadership team, including teachers and administrators, is seen by staff and the community as the school's STEM champions and are knowledgeable, involved in, and drivers of all STEM initiatives. **3 points**	The school's leadership team, including teachers and administrators, has been driving the school's STEM initiatives for more than two years, and is known by staff, family, and the community as STEM champions. **4 points**
1.2.2 Collaboration & Planning	Teachers have limited time to collaborate. **0 points**	Administrators provide time, resources, and protocols for teachers to collaborate on STEM instruction. **1 point**	Administration has prioritized collaboration and reflection by providing ongoing time, resources, and protocols for STEM instructional planning. Core teachers and specialists collaborate and align instruction. **2 points**	Administration has prioritized collaboration and reflection for STEM instructional planning, to the degree that all aspects of the school showcase a culture of collaboration and reflection. **3 points**
1.2.3 Professional Learning	Educators identify opportunities for and participate in STEM professional development on their own. **1 point**	Optional school-sponsored group professional development is provided occasionally to educators that is aligned to the school's STEM mission and vision. **2 points**	The school has provided STEM-related professional development to all educators. **3 points**	The school has a STEM professional development plan which includes ongoing STEM professional learning for all educators. **4 points**

CATEGORY I: THE SCHOOL

1.3 An Explicit Focus on Equity

A focus on equity drives decision-making at the school.

Attribute	Exploratory	Developing	Established	Model
1.3.1 Equity Plan	The school does not have an explicit, stated equity focus. Some staff may have started the work of developing an equity focus for the school. **1 point**	The school is developing an equity and diversity plan and has begun to communicate the need to begin implementing equity strategies* to staff. **3 points**	The school has implemented an equity plan, which includes teachers receiving equity-focused professional development that informs instruction. **5 points**	A focus on equity drives decision-making at the school for at least two years, including budgeting, instruction, scheduling, and communication to families and other stakeholders. **6 points**
1.3.2 Equity Strategies in Use	Strategies* focused on supporting the achievement in STEM of females, students from underrepresented backgrounds, English Language Learners, and students in poverty is absent. **0 points**	Strategies* focused on supporting the achievement in STEM of females, students from underrepresented backgrounds, English Language Learners, and students in poverty exists in some classrooms. **1 point**	Strategies* focused on supporting the achievement in STEM of females, students from underrepresented backgrounds, English Language Learners, and students in poverty exists in the majority of classrooms. **2 points**	Strategies* focused on supporting the achievement in STEM of females, students from underrepresented backgrounds, English Language Learners, and students in poverty exists in all classrooms. **3 points**
1.3.3 STEM Access	STEM is available to some student groups (for example, only students enrolled in the STEM program access STEM). **0 points**	All students have access to STEM opportunities, but there are not yet targeted recruitment efforts by the school to reflect the school's demographics. **1 point**	All students have access to STEM opportunities and the school has target recruitment efforts in place, but enrollment in STEM is not yet reflective of the school's demographics. **2 points**	All students have access to STEM opportunities and enrollment in STEM is reflective of the school's demographics. **3 points**

*Strategies may include: working alongside professionals, student voice and choice, positive micro-messaging, diverse students represented in the curriculum, clubs that recruit underrepresented populations, selecting partners that mirror the school's underrepresented population.

CATEGORY I: THE SCHOOL

1.4 The School Budget

Sustained funding for STEM enriches inquiry and learning.

Attribute	Exploratory	Developing	Established	Model
1.4.1 Funding Allocation	There is no sustainable funding plan for STEM education. **0 points**	Funds for STEM education were acquired circumstantially or happenstance. Sustainable funds are not available. **1 point**	Funds allocated in the school's budget for STEM education appear sustainable. The school is actively seeking additional funding. **2 points**	The school has a history of funding STEM education that goes beyond the previous school year and a long-term budget plan that prioritizes funds for high-quality STEM resources and programming. **3 points**
1.4.2 Uses of Funds	Funds are not spent on STEM initiatives. **0 points**	Funds for STEM education are targeted to small-scale specific initiatives (ex: new laptops). Only some classrooms or students benefit from STEM funding (ex: updated chemistry labs). **1 point**	The majority of funds for STEM are allocated for professional learning, high quality STEM programs on OSIT's STEMList, experiential learning, and/or hands-on materials. The majority of students benefit from the STEM funds. **2 points**	All funds for STEM are allocated for professional learning, high-quality STEM programs on OSIT's STEMList, experiential learning, and/or hands-on materials. All students benefit from the STEM funds. **3 points**

CATEGORY I: THE SCHOOL

1.5 The Schedule

The school schedule supports daily STEM for all students.

Attribute	Exploratory	Developing	Established	Model
1.5.1 Schedule	Elementary:			
	The school schedule requires subjects to be taught in isolation. **0 points**	The school schedule allows for sporadic STEM integration. For example, during STEM specials or on "STEM Day." **1 point**	The school schedule allows for daily STEM integration across some subjects during part of the day. **3 points**	The schedule allows for daily STEM, and teachers have flexibility to adjust their schedule to enhance STEM learning experiences. **5 points**
	Middle and High School:			
	The schedule does not allow all students to enroll in STEM. **0 points**	The schedule is designed so that every student can enroll in a STEM course, but it is not required. **1 point**	The schedule is designed so that all students are enrolled in at least one STEM course while at the school (for example, a one semester STEM exploration course). **3 points**	All students are enrolled in at least one STEM course each year (for example, a STEM elective, CTE course, or integrated STEM core subject class). **5 points**
1.5.2 STEM Access	STEM instruction is infrequent or inaccessible and provided separately from core instruction. **1 point**	STEM instruction is regularly provided but provided separately from core instruction. **2 points**	All students receive daily STEM instruction, either in core subjects/courses <u>or</u> STEM specific units/courses/specials. **4 points**	Students experience STEM in a variety of settings, including core subjects/classes <u>and</u> STEM-specific units/courses. **6 points**

CATEGORY II: THE CLASSROOM

2.1 Problem-Based Learning

Students apply their learning in authentic, age-appropriate problem-solving contexts.

Attribute	Exploratory	Developing	Established	Model
2.1.1 Context	Learning is not connected to real-world contexts, and/or students do not apply grade-level knowledge or skills to explain phenomena or solve problems. **0 points**	Teachers help students make connections between their learning and the real-world. Students occasionally apply grade-level knowledge or skills to explain phenomena or solve problems. **2 points**	Students regularly apply grade-level knowledge and skills to explain phenomena and solve meaningful problems. **4 points**	Students have regularly applied grade-level knowledge and skills to explain phenomena and solve meaningful problems in most classrooms for at least the last two school years. **6 points**
2.1.2 Instructional Model	Teachers lead instruction through lecture and some hands-on activities. **0 points**	Teacher provides opportunities for students to apply knowledge and skills to new situations, to answer questions, or to complete tasks. **2 points**	Students (with teacher guidance) identify, define and solve problems with multiple possible solutions. **4 points**	Students engage in complex and evolving thinking over time* to identify, define and solve relevant and authentic (local and global) problems. Students design empathetic and diverse solutions to the problem. Teacher acts as facilitator. **6 points**
2.1.3 Disciplinary Integration	Students experience disciplinary instruction**, wherein content areas are learned separately, or learned within a topical theme. **0 points**	Students occasionally experience multidisciplinary instruction** that crosses two or more subjects/courses. **1 point**	Students experience interdisciplinary instruction** that crosses two or more subjects/courses throughout the year. **2 points**	Students experience transdisciplinary instruction** that crosses subject areas/courses several times across the year. **3 points**

2.1.1 and 2.1.2 describe the "STEM shift."
*Visit nextgenstorylines.org for more information.
**For more information regarding integration, see pages 14-23 in a [Guide for Transdisciplinary STEM Learning and Teaching](#).

Category II: The Classroom

2.1 Problem-Based Learning

Students apply their learning in authentic, age-appropriate problem-solving contexts.

Attribute	Exploratory	Developing	Established	Model
2.1.4 Standard Alignment	STEM learning prioritizes themes or projects rather than grade-level expectations (standards, grade-appropriate rigor, NGSS 3 Dimensions). **0 points**	Instruction is aligned to grade-level standards and has grade-appropriate rigor and student choice*, but STEM learning is not yet Three Dimensional**. **1 point**	STEM instruction is aligned to grade-level standards, has grade-appropriate rigor and student choice*, and is Three Dimensional**. **3 points**	Comprehensive grade-level standards have been meaningfully organized into year-long pacing that ensures all students work toward mastery of all grade-level NGSS expectations through STEM experiences. **5 points**
2.1.5 Engineering Design Process	Engineering is absent or takes the form of construction tasks, such as building spaghetti towers or bridges. **0 points**	Students engage in the engineering design process as a rigid process or apply the engineering design process to obscure contexts. **1 point**	Students understand and engage in the engineering design process as a fluid and authentic problem-solving strategy. **2 points**	Students apply learning from multiple disciplines to the engineering design process as a fluid and authentic problem-solving strategy. **3 points**
2.1.6 Collaboration and Teamwork	Students may work in pairs or in groups, but meaningful opportunities to develop teamwork and collaboration skills are limited. **0 points**	Students learn and work in groups with defined roles and shared responsibility to solve real-world problems. **2 points**	Students learn and work in teams with roles, which mimic real-world STEM roles, to make substantive decisions while solving real-world problems. Students work collaboratively and synchronously throughout the process. **4 points**	Students learn and work interdependently with roles which mimic real-world STEM roles to solve real-world problem. Students make substantive decisions collaboratively but may work asynchronously on assigned parts and come back together to finish the product. **5 points**

*Student choice includes presentation of learning, steps to take during investigations, use of tools, team member roles, learning goals, and more.

**Visit https://www.nextgenscience.org/three-dimensional-learning for more information about Three Dimensional Learning.

CATEGORY II: THE CLASSROOM

2.2 Culture and Mindset

Classrooms and students value innovation, creativity, critical thinking, flexibility, and adaptability.

Attribute	Exploratory	Developing	Established	Model
2.2.1 Mindset	Students are driven by grades and external motivators, rather than by innovation and risk-taking as an opportunity for personal/academic growth. **0 points**	Students are learning strategies and protocols for growth mindset, but it's not yet tied to STEM or internalized. **1 point**	Students and teachers work together to celebrate diverse thinking, view both conflict and failure as opportunities for growth, and utilize the iterative process as a means for creativity and risk-taking. **3 points**	Students have internalized and taken ownership of celebrating diverse thinking, viewing both conflict and failure as opportunities for growth, and utilizing the iterative process as a means for creativity and risk-taking. **5 points**
2.2.2 Focus on Process Over Product	Students receive final grades and scores on their work, but do not regularly receive meaningful feedback from teachers. Students do not have opportunities to revise or iterate their work based on feedback. **0 points**	Students receive and reflect on meaningful feedback from teachers or peers, but don't typically integrate reflections and feedback into new iterations of thinking or work. **1 point**	Students integrate self-reflection, new learning, and feedback from teachers, peers and guests into multiple iterations of their work. **3 points**	Students integrate self-reflection, new learning, and feedback from teachers, peers and guests into multiple iterations of their work during sustained inquiry and can articulate the evolution of their thinking. **5 points**
2.2.3 Application Awareness	Students are not able to explain what they are learning or doing. **0 points**	Students can articulate what they are learning or doing. **1 point**	Students can articulate what they are learning and the context to which they are applying their learning. **2 points**	Students can articulate what they are learning, how they are applying their learning, and why it's important to their future or the community. **3 points**

CATEGORY II: THE CLASSROOM

2.3 Technology

Classrooms and students value technology as integral tools for meaning-making.

Attribute	Exploratory	Developing	Established	Model
2.3.1 Digital Citizenship	Students and educators have not considered digital citizenship yet. **0 points**	Students and educators know what digital citizenship means but have little opportunity to develop it. **1 point**	Students develop digital citizenship in authentic ways. **2 points**	Students have opportunities to develop digital citizenship and practice responsible use of technology in multiple settings. **3 points**
2.3.2 Technology for Learning	Students use teacher-selected technology as a substitute for traditional tools. For example, taking notes online rather than in a paper notebook. **0 points**	Students learn how to use teacher-selected technology, such as PowerPoint. The technology is used to demonstrate understanding, rather than for knowledge construction. **1 point**	Students select technology (such as online communication, simulations, or spreadsheets) for analysis, synthesis, evaluation and/or interpretation during knowledge construction. **2 points**	Students select and use technology to manage tasks and create new technology products, such as podcasts or apps. Students consider and engage an intended audience. **3 points**

Reference the [Nevada State Standards for Computer Science and Integrated Technology](#) for more information about these attributes.

CATEGORY II: THE CLASSROOM

2.4 College and Career Readiness

Instruction is tied to future career development.

Attribute	Exploratory	Developing	Established	Model
2.4.1 Career Connections	Student learning is not linked to STEM career opportunities. **0 points**	Student learning is linked to STEM career opportunities on occasion or during special events career days. **1 point**	Teachers link student learning to future STEM careers through classroom instruction. **2 points**	Students understand how learning relates to future STEM careers. **3 points**
2.4.2 STEM Extra-Curriculars	Elementary and middle school only:			
	Teachers and students are generally unaware of STEM career opportunities or their educational requirements. **0 points**	Teachers understand multiple exposures in high-quality STEM experiences will help develop interest in STEM careers and seek ways to offer students a variety of such experiences. **1 point**	The school offers equitable STEM extracurricular activities and helps students enroll in those opportunities. **2 points**	School staff help students enroll in STEM courses or extracurricular STEM opportunities on and off campus. **3 points**
2.4.3 STEM Pathways	High school only:			
	School staff understand appropriate course selection will help prepare students for opportunities in a STEM career, but STEM pathways have not yet been identified. **0 points**	The school offers stand alone STEM courses, communicates post-secondary STEM options to students, and is developing STEM pathways at the school. **1 point**	The school offers a variety of courses to support students in meeting college and career prerequisites, including AP, IB, DE, and CTE programs and helps students identify secondary and post-secondary pathways. **3 points**	The pathways available at the school support students in advancing their STEM career goals and enrollment in STEM AP, IB, DE and CTE programs reflects the school's demographics. **5 points**
2.4.4 STEM/STEAM Seals	The school does not promote the STEM or STEAM seals. **0 points**	The school advises students regarding the STEM and STEAM seal requirements. **1 point**	The school's STEM pathways result in a STEM or STEAM seal upon graduation. **3 points**	The majority of graduating seniors receive a STEM or STEAM seal. **5 points**
	Visit https://osit.nv.gov/STEM/SB_241/ for more information about the STEM and STEAM seals.			

CATEGORY II: THE CLASSROOM

2.5 Assessment

Assessment* is relevant, performance-based, and provides students with real-time feedback.

Attribute	Exploratory	Developing	Established	Model
2.5.1 STEM Data	Data regarding student interest and achievement in STEM is not collected or is collected but not consistently or strategically. **1 point**	Data regarding student interest and achievement in STEM is collected consistently and strategically. **2 points**	Data regarding student interest and achievement in STEM is collected consistently and strategically and used to drive instruction. **3 points**	Data regarding student interest and achievement in STEM is collected consistently and strategically and used to drive and differentiate instruction. **4 points**
2.5.2 Assessment Format	Student assessments are tied to completing an activity versus demonstrating foundational skills or explaining big ideas. **1 point**	Students are assessed in a vacuum (i.e. individual skills and understandings are assessed without application). **2 points**	Assessment includes real-world and appropriate application of learning. **3 points**	Assessment relies on application of learning to related real-world problem-solving situations. **4 points**
2.5.3 Growth in STEM	Assessments measure achievement in science. **1 point**	Pre- and post-assessments measure students' academic growth in STEM. **2 points**	Students' knowledge and understanding of STEM is evaluated through assessment, and students show growth in STEM. **3 points**	Students' knowledge and understanding of STEM is evaluated through assessment, and a majority of students show significant growth in STEM. **5 points**

*For the purposes of this framework, STEM assessment includes integrated content understanding as well as skills and practices. Examples include, but are not limited to, assessing students' ability to: design investigations, collaborate, explain phenomena, design solutions, use mathematics to identify a problem. Assessments such as MAP or SBAC are not STEM assessments.

CATEGORY III: THE COMMUNITY

3.1 Family Engagement

Families and schools work together to further STEM education.

Attribute	Exploratory	Developing	Established	Model
3.1.1 Family Participation	The school's family engagement opportunities do not have a STEM focus. **0 points**	The school offers an annual opportunity for families to learn about STEM and participate in STEM activities. **1 point**	The school offers multiple STEM experiences for families. **2 points**	The school offers multiple ways for families to engage in STEM both on and off campus (for example take home kits, STEM committee seats, or events). **3 points**
3.1.2 Communicate with Families	The school is developing a communications and outreach plan to families encouraging support of STEM. **1 point**	The school has a plan to encourage families to support STEM, but communication is infrequent or not effective. **2 points**	The school communicates with families regularly throughout the school year with frequent updates about STEM initiatives. **3 points**	The school makes concerted efforts to ensure all families receive information about STEM initiatives. The school differentiates communication to ensure that all families are reached. **4 points**

CATEGORY III: THE COMMUNITY

3.2 Business, Industry, and Community Engagement

Business, industry, community, and the school collaborate to further STEM education.

Attribute	Exploratory	Developing	Established	Model
3.2.1 Industry Participation	Business and community members visit the school a few times per year. The school understands there is a need to recruit new partners. Some staff are starting to utilize partners. **1 point**	Business and community members have been identified and participate in the school's activities in some way, including as a STEM expert to present information to the students or staff. Some students benefit from partnerships. **2 points**	Business and community members officially partner with the school to regularly offer two or more of the following: funding, resources, expertise during a lesson, learning experiences, connections. All students benefit from partnerships. **3 points**	Business and community members partner with the school to drive the development of the school's STEM curriculum and experiences. **5 points**

CATEGORY III: THE COMMUNITY

3.3 Student Engagement with the Community

Students and the community work together to develop STEM relationships and interests.

Attribute	Exploratory	Developing	Established	Model
3.3.1 Student Participation	Students engage with the community via field trips. **1 point**	Students engage with the community while learning about local problems. **2 points**	Students engage with the community by learning about how to solve local or global problems and developing proposals or potential solutions through project-based learning. **4 points**	Students bring about change by partnering with the community to solve local or global problems. **6 points**
3.3.2 Community Collaboration	The community is invited to view student work at a showcase or other event. **1 point**	Students present the results of their work to the community and receive feedback and answer questions. **2 points**	Students present the results of their work to the community and receive feedback and answer questions. Students revise work based on feedback. **3 points**	The community advises students during the planning, creation, and presentation of their work. **4 points**
3.3.3 Work-Based Learning	High school only:			
	Students do not have work-based learning opportunities. **0 points**	The school is developing a plan to incorporate work-based learning opportunities. Some students may have special opportunities to experience work-based learning. **1 point**	All STEM courses include age-appropriate work-based learning experiences. **4 points**	Students engage in age-appropriate work-based learning experiences on and off campus. **6 points**
	Work-based learning experiences include job shadowing, simulated workplaces, clinicals, internships, industry tours, guest speakers and mentorships. Visit https://doe.nv.gov/CTE/Work_based_Learning/ for more information about work-based learning.			