Nevada Governor Designated STEM School

2023

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.

How to use this Guide

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 January 30th, 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 February or March 2023. Designated schools will be announced in May and honored at a recognition event.

Application Instructions — Please see pages 13-24 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 visit will last about 90 minutes.
- ❑ Reviewers would like to meet with an administrator and 2-4 additional, diverse representatives.
- ❑ 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 STEM Framework

The Framework 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.

When completing your application and planning for your school visit you may use this Framework as a guide to highlight the STEM attributes at your site. The committee will use this Framework when reviewing your application and during school site visits.

Model

Established

Developing

Exploratory

Scoring Guide

Schools that meet the criteria of a Model, Established, or Developing School will receive the Governor's STEM School Designation.
Schools receive points for each sub-attribute in the Framework, earning more points for rating at higher tiers.
Point allocations are located at the bottom right corner of each sub-attribute descriptor box throughout the Framework.

Model Schools receive between 115-142 total points.

Established Schools receive between 80-114 total points.

Developing Schools receive between 40-79 total points.

OSIT reserves the right to adjust the scoring process as appropriate.

Model

Established

Developing

Exploratory

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 parents or STEM community partners exist.

Examples

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

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 parents but may be underdeveloped.

Examples

“STEM Days”; Standalone, supplementary project-based activities.

Established

A school where STEM- related experiences are provided for ALL students in the program 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 parental partners often support STEM-related classroom experiences.

Examples

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

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 parental 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 problem-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

Nevada Governor's Designated STEM School

2023

Application

Nevada Governor's Office of Science, Innovation and Technology

How to apply for the designation

Application:

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

1. **Introduction**
   - Applicant Information
   - School Information
   - Student Information

2. **The School Category**
   - Questions
   - Self-Evaluation Table
   - Artifacts

3. **The Classroom Category**
   - Questions
   - Self-Evaluation Table
   - Artifacts

4. **The Community Category**
   - Questions
   - Self-Evaluation Table
   - Artifacts

5. **Closing**
   - Next Steps
   - Comments

For each section 2-4, you'll be asked to (1) answer questions related to the category, (2) complete a self-evaluation table using the Nevada STEM Framework, and (3) add relevant artifacts. Note: artifacts must be embedded into the application PDF, not linked or submitted as separate attachments. The Nevada STEM Framework should be used to answer the questions, complete the self-evaluation, and determine artifacts to include.

Complete the application by copying the questions and tables into your own document. Insert relevant artifacts after the evaluation tables, then save as a single PDF and attach to an email to T.Howard@gov.nv.gov by January 30th, 2023 at 5:00pm.

How to apply for the designation

Considerations:

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 35 pages, double-spaced, including the artifacts. All components should be submitted as a single PDF.

Your application cannot include links (reviewers will not access links) or additional attachments.

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

How to apply for the designation

Formatting:

The application must be submitted as a single, double-spaced PDF with all sections and questions labeled. You may decide to format the self-evaluation table in landscape.

Sample page allocation:

Part One: 1 page total

Part Two: 8 pages total
- 5 pages for questions,
- 1 page for self-evaluation, and
- 2-3 pages for artifacts

Part Three: 17 pages total
- 10 pages for questions,
- 1 page for self-evaluation, and
- 5-6 pages for artifacts

Part Four: 8 pages total
- 4 pages for questions,
- 1 page for self-evaluation, and
- 2-3 pages for artifacts

Part Five: 1 page

Total: 35 pages, double-spaced

Note: Applications over the 35-page limit will not be considered.

You can find an application template here or by emailing T.Howard@gov.nv.gov for a copy.

Application Part 1 Introduction

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) School phone number:

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

2f) 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)

Application Part 2
The School

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.

4. What percentage of your school teaches STEM daily?
What percentage of your school teaches STEM at least weekly?
What percentage of your school teaches STEM at least monthly?
What percentage of your school teaches STEM at least quarterly?
What percentage of your school teaches STEM at least once a year?

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

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

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

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

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

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

Application Part 2
The School

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			
The School Budget: 1.4.1, 1.4.2			
The Schedule: 1.5.1, 1.5.2			

Artifacts

Please include any evidence for the School attributes. See the Nevada STEM Framework for examples of relevant artifacts.

Application Part 3
The Classroom

Questions

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

11. 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)

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

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

14. Describe how technology is used at your school. (150-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)

Application Part 3
The Classroom

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, 2.1.7, 2.1.8			
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			
Assessment: 2.5.1, 2.5.2, 2.5.3			

Artifacts

Please include any evidence for the School attributes. See the Nevada STEM Framework for examples of relevant artifacts.

Application Part 4
The Community

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. List your school's partners and how they support the school's STEM experiences. (250-word max)

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

Application Part 4
The Community

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			

Artifacts

Please include any evidence for the School attributes. See the Nevada STEM Framework for examples of relevant artifacts.

Application Part 5 Closing

Questions

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

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

24. 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

Nevada Governor's Designated STEM School

Framework

GOVERNOR DESIGNATED Nevada STEM School

Nevada STEM Advisory Council

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

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	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	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	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
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	Classroom instruction is aligned to the STEM mission and vision in some classrooms. 2	Classroom instruction is aligned to the STEM mission and vision in most classrooms. 3	Classroom instruction has been aligned to the STEM mission and vision in all classrooms for at least two years. 4

**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.

Points Possible

Examples of Artifacts That Demonstrate Evidence of a STEM Mission and Vision

- The school's Mission and Vision with an obvious STEM component or focus
- Evidence of a visible articulation of the mission in the school and online
- A STEM Strategic Plan in which the STEM mission and the vision have been articulated
- Agendas and meeting minutes from staff meetings discussing, developing, and implementing or adhering to the STEM mission and vision
- Evidence of community understanding and support of the vision on social media, traditional media, school events, volunteerism

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 Team & Administrative Backing	STEM is a cause advocated for by a passionate teacher or small group of staff. The principal is permissive but uninvolved. 1	The school's leadership team, including teachers and administrators, drives small-scale or pilot STEM initiatives at the school. 2	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	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
1.2.2 Collaboration & Planning	Teachers have limited time to collaborate. 0	Administrators provide time, resources, and protocols for teachers to collaborate on STEM instruction. 1	Administration has prioritized collaboration and reflection by providing ongoing time, resources, and protocols for STEM instructional planning. 2	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
1.2.3 Professional Learning	Educators identify opportunities for and participate in STEM professional development on their own. 1	Optional school-sponsored group professional development is provided occasionally to educators that is aligned to the school's STEM mission and vision. 2	The school has provided STEM-related professional development to all educators. 3	The school has a STEM professional development plan which includes ongoing STEM professional learning for all educators. 4

Examples of Artifacts That Demonstrate Evidence of Strong STEM Leadership at the School

- School mission, vision, or school improvement plans
- Record of administrative actions in support of STEM
- Professional development plan and schedule
- Meeting agendas and minutes
- PLC schedule

Points Possible

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	The school is developing an equity and diversity plan and has begun to communicate the need to begin implementing equity strategies* to staff. 3	The school has implemented an equity plan, which includes teachers receiving equity-focused professional development that informs instruction. 5	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
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	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	Strategies* focused on supporting the achievement in STEM of females, students from underrepresented backgrounds, English Language Learners, and students in poverty exists in most classrooms. 3	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. 4

*Strategies may include, but are not limited to: positive micro-messaging, diverse students represented in the curriculum, clubs that recruit underrepresented populations, selecting partners that mirror the school's underrepresented population
Note: Providing access to STEM instruction to all learners is not a sufficient strategy.

Points Possible

Examples of Artifacts That Demonstrate Evidence of an Explicit Focus on Equity

- Mission, vision
- A strategic plan that emphasizes equity and includes specific strategies and programs to engage underrepresented groups in STEM
- Professional learning plan including work around equity
- Visual representation throughout the school of traditionally underrepresented groups
- Lesson plans with differentiated or targeted strategies

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	Funds for STEM education were acquired circumstantially or happenstance. Sustainable funds are not available. 1	Funds allocated in the school's budget for STEM education appear sustainable. The school is actively seeking additional funding. 2	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
1.4.2 Uses of Funds	Funds are not spent on STEM initiatives. 0	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	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	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 Possible

Examples of Artifacts That Demonstrate Evidence of a STEM-Focused School Budget.

- School and classroom budgets
- Funding partnerships
- Sustainability plan

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	The school schedule requires subjects to be taught in isolation. 0	The school schedule allows for sporadic STEM integration. For example, during STEM specials or on "STEM Day." 1	The school schedule allows for daily STEM integration across some subjects during part of the day. 2	The school schedule is strategically designed for integration across all subjects throughout each school day. 4
1.5.2 STEM Access	STEM instruction is infrequent and provided separately from core instruction. 1	STEM instruction is regularly provided but provided separately from core instruction. 2	All students receive daily STEM instruction. Core teachers and specialists collaborate and align instruction. 4	All students learn primarily through STEM instruction in all classes. 6

Points Possible

Examples of Artifacts That Demonstrate Evidence of STEM-Centric School Schedules

- School and class schedules
- Pacing and unit or lesson plans
- Grade level and vertical planning
- Regularly occurring and varied student presentation events

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	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. 1	Students regularly apply grade-level knowledge and skills to explain phenomena and solve meaningful problems. 2	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. 3
2.1.2 Instructional Model	Teachers lead instruction through lecture and some hands-on activities. 0	Teachers identify and define problems, and students work to solve them. Projects are geared toward following directions and arriving at a uniform predetermined outcome. 1	Students define problems and work to solve them. Projects are open-ended with multiple possible solutions to problems. 3	Students define and solve relevant and authentic (local and global) problems. Students design empathetic and diverse solutions to the problem. 5
2.1.3 Student-Driven	Student decisions are shallow or inconsequential. For example, students decide what colors to use for a picture. 0	Students make some decisions about how they present their work, but do not make decisions related to how they engage in the learning. For example, students may be presented with a menu of options for a final presentation (essay, PSA, song, etc.) 1	With teacher support, students make decisions about how to investigate phenomena or solve problems, including what steps to take and what materials/tools to use. For example, students can decide which tools and procedures they will use to investigate a phenomenon. 3	With teacher support, and consistently across the school year, students co-develop learning goals and regularly make decisions throughout the learning process (including what steps to take, what materials/tools to use). 5
				Points Possible

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 Disciplinary Integration	Students experience disciplinary instruction, wherein content areas are learned separately, or learned within a topical theme. 0	Students occasionally experience multidisciplinary instruction that crosses two or more subjects/courses. 2	Students experience interdisciplinary instruction that crosses two or more subjects/courses throughout the year. 4	Students experience transdisciplinary instruction that crosses subject areas/courses most of the time. 6
2.1.5 Standard Alignment	STEM learning prioritizes themes or projects rather than grade-level expectations (standards, grade-appropriate rigor, NGSS 3 Dimensions). 0	Instruction is aligned to grade-level standards and has grade-appropriate rigor, but STEM learning is not yet 3Dimensional. 1	STEM instruction is aligned to grade-level standards, has grade-appropriate rigor, is 3Dimensional. 2	Comprehensive grade-level standards have been meaningfully organized into year-long pacing that ensures all students the opportunity to work toward mastery of all grade-level NGSS expectations through STEM experiences. 3
2.1.6 Student Learning Expectations	Students recall information provided by the teacher. Teacher drives the learning. 0	Students apply knowledge and skills to new situations, to answer questions, or to complete tasks. Teacher fluctuates between driving the learning and facilitating student learning. 1	Students periodically think strategically and use reasoning to justify their thinking in isolated situations. Teacher acts as facilitator. 2	Students typically engage in complex and evolving thinking over time to investigate and solve problems. Teacher acts as a facilitator. 3

Points Possible

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
2.1.7 Engineering Design Process	Engineering is absent or takes the form of construction tasks, such as building spaghetti towers or bridges. 0	Students engage in the engineering design process as a rigid process or apply the engineering design process to obscure contexts. 1	Students understand and engage in the engineering design process as a fluid and authentic problem-solving strategy. 2	Students apply learning from multiple disciplines to the engineering design process as a fluid and authentic problem-solving strategy. 3
2.1.8 Collaboration and Teamwork	Students may work in pairs or in groups, but meaningful opportunities to develop teamwork and collaboration skills are limited. 1	Students learn and work in groups with defined roles and shared responsibility to solve real-world problems. 2	Throughout the learning process, 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. *Substantive decisions include what to do, when, which tools/resources to use, team member roles/responsibilities, and product design, features and purpose. 4	Throughout the learning process, 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. *When students work interdependently, they have both individual and group accountability regarding the substantive decisions they make. 5

Examples of Artifacts That Demonstrate Evidence of Problem-Based Learning

- Unit or lesson samples
- Long-range planning documents
- Student work samples
- Instructional materials

Points Possible

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	Students are learning strategies and protocols for growth mindset, but it's not yet tied to STEM or internalized. 1	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	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
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	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	Students integrate self-reflection, new learning, and feedback from teachers, peers and guests into multiple iterations of their work. 3	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
2.2.3 Application Awareness	Students are not able to explain what they are learning or doing. 0	Students can articulate what they are learning or doing. 1	Students can articulate what they are learning and the context to which they are applying their learning. 2	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

Examples of Artifacts That Demonstrate Evidence of Culture and Mindset

- Classroom discussions and dialogue
- Feedback on student work/thinking
- Iterations of student work
- Visual messaging in the classroom

Points Possible

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	Students know what digital citizenship means but have little opportunity to develop it. 1	Students are developing digital citizenship in authentic ways. 2	Students have developed digital citizenship and have frequent opportunities to practice responsible use of technology in multiple settings. 3
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. 1	Students learn how to use teacher-selected technology, such as PowerPoint. The technology is used to demonstrate understanding, rather than for knowledge construction. 2	Students select technology (such as online communication, simulations, or spreadsheets) for analysis, synthesis, evaluation and/or interpretation during knowledge construction. 3	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. 4

Points Possible

Examples of Artifacts That Demonstrate Evidence of Technology

- Student products, including work created with technology and technology created by students
- Lesson plans
- Availability of technology resources (supply lists)
- Classroom/student websites, including blogs or platforms such as Google Classroom or Canva

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	Student learning is linked to STEM career opportunities on occasion or during special events or STEM career days. 1	Teachers link student learning to future STEM careers through classroom instruction. 2	Students and families understand how learning relates to future careers and actively identify pathways to their STEM career goals. 3
2.4.2 STEM Extra-Curriculars	Elementary and middle school only:			
	Students are generally unaware of STEM career opportunities or their educational requirements. 0	Teachers and students understand appropriate content exposure will help develop interest in STEM careers. 1	School staff provide information regarding elective courses or extracurricular STEM interests to students and families. 2	School staff help students identify and pursue STEM interests in and out of the classroom. 3
2.4.3 STEM Pathways	High school only:			
	Students are generally unaware of STEM career opportunities or their educational requirements. 0	Teachers and students understand appropriate course selection will help prepare students for opportunities in a STEM career. 1	School staff make information about STEM courses, secondary and postsecondary programs of study, and financial aid options available to students and families. 2	School staff help students identify STEM courses, secondary and postsecondary programs of study, and financial aid options as possible routes for their own educational development. 3

Examples of Artifacts That Demonstrate Evidence of College and Career Readiness

- Career connections embedded in lesson plans
- Career, pathway, and activity information, fliers, advertisements, etc.
- College and career goals crafted by students and staff
- Students willingly and openly discuss career options in a way that reflects STEM practices

Points Possible

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

*For the purposes of this framework, STEM assessment includes integrated content understanding as well as skills and practice s. 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.

Points Possible

Examples of Artifacts That Demonstrate Evidence of STEM Assessment

- Formative and summative assessments aligned to the standards
- Data analysis structures in place (may be Student Learning Objectives, NEPF Goal Setting Tool, Plan-Do-Study-Act, etc.)
- Student assessments, including iterations of student work
- Analysis of student assessment data

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	Families have low attendance at the school's STEM experiences. Engagement of families to support STEM learning in and out of the classroom occurs only by a few teachers. 1	Families regularly attend the school's STEM experiences. The school has some families that actively participate in planning STEM experiences. 2	Family engagement is high throughout the year. Families are given tools to reinforce STEM learning at home. 3	Families actively participate in driving the development or implementation of the school's STEM experiences. 4
3.1.2 Communicate with Families	The school is developing a communications and outreach plan to families encouraging support of STEM. 1	The school has a plan to encourage families to support STEM but communication is infrequent or not effective. 2	The school communicates with families regularly throughout the schoolyear with frequent updates about STEM initiatives. 3	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 Possible

Examples of Artifacts That Demonstrate Evidence of Family Engagement

- Family event outcomes and data
- Communications to families
- Regularly occurring communication/outreach materials regarding STEM
- Social media posts and interactions
- Agendas and minutes of STEM planning meetings involving families

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. 1	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. 2	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. 3	Business and community members partner with the school to drive the development of the school's STEM curriculum and experiences. 5

Points Possible

Examples of Artifacts That Demonstrate Evidence of Business, Industry and Community Engagement

- Letters of commitment or Letters of Partnership
- Community engagement plan
- Official partners lists
- Outcomes of partnerships
- Testimonials from students or partners about their experiences working together

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	Students engage with the community by learning about problems they find in the community. 2	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	Students bring about change by partnering with the community to solve local or global problems. 6
3.3.2 Community Collaboration	The community is invited to view student work at a showcase or other event. 1	Students present the results of their work to the community and receive feedback and answer questions. 2	Students present the results of their work to the community and receive feedback and answer questions. Students revise work based on feedback. 3	The community advises students during the planning, creation, and presentation of their work. 4
3.3.3 Internships	High school only:			
	Students do not have mentors or internships. 0	A few students have mentors or internships with the help of a classroom teacher, but they were not established through a formal program at the school. 1	The school has a mentor or internship program, and up to half of eligible students participate. 2	The school has a mentor or internship program, and the majority of eligible students participate. 3

Examples of Artifacts That Demonstrate Evidence of Student Engagement with the Community

- Mentorship or internship program plans, fliers, rosters, etc.
- Showcase or presentation fliers
- Student work resulting from community partnerships

Points Possible