Ohio STE(A)M Designation Rubric

Ohio STEM Designation Application Rubric

Purpose:

The Ohio STEM Committee, Ohio STEM Learning Network and the Ohio Department of Education are committed to **ensuring *each child in Ohio is challenged, prepared and empowered*.** STE(A)M education provides an opportunity **for each child to discover and learn, pursue a fulfilling post-high school path and to become a resilient, lifelong learner who contributes to society.**

STE(A)M education is an integrated approach to learning where rigorous academic concepts are learned through real-world, project-based experiences. Students use science, technology, engineering, arts/humanities and mathematics concepts to make authentic connections between school, community and work experiences. The Ohio STE(A)M School Designation was created to award and recognize schools that are exemplars of this work.

STE(A)M-designated schools employ highly effective teachers and leaders who meet the needs of the **whole child**. In addition, these schools have well-established partnerships with businesses, non-profit organizations, institutes of higher education and other entities in their communities to prepare students for post-high school success.

The Ohio STEM Committee is responsible for determining STE(A)M designation. A designated school is expected to maintain its current designation level and demonstrate the continued implementation of the STE(A)M attributes.

The following rubric is aligned with *Each Child, Our Future* – Ohio's strategic plan for education, Ohio's Quality Model for STEM and STEAM Schools and section 3326.03 of Ohio law.

STEM Attributes: The Ohio Quality Model of STEM and STEAM Schools outlines the essential criteria for high-quality STEM and STEAM implementation. The criteria are used to assist schools in the innovation of a STEM culture within a school and the surrounding community.

Any reference to a STEM school or science, technology, engineering and mathematics school in the rubric shall be considered to include a STEAM school, unless the context specifically indicates a different meaning or intent.

Evaluation Criteria: All proposals will be reviewed according to the Portfolio Application Rubric found below. This rubric is aligned to the requirements in ORC 3326.03, which specifies the requirements of STE(A)M designation proposals, and the Ohio Quality Model of STEM and STEAM Schools, which outlines the essential criteria for high-quality STEM and STEAM implementation. The criteria are used to assist schools in the innovation of a STEM culture within a school and the surrounding community.

Proposal Ratings:

Initial	School will not receive designation. School is in the beginning stages of implementing STEM attributes, or school implements very few of the STEM attributes.
Approaching	School will not receive designation. School implements many but not all of the STEM attributes and/or insufficient evidence of implementation. Some attributes are present, however, there is still room for growth in implementation.
Accomplishing	School will receive designation. School is a prime example for the implementation of the STEM attributes. School implements all the STEM attributes throughout the school year to create a culture of STEM learning within the school and the surrounding community.
Model	School will receive designation. School is an exemplar in implementation of STEM attributes. School implements all the STEM attributes throughout the school year to create a culture of STEM learning within the school and the surrounding community.

Please see the grid below for a summary of the feedback on your proposal.

Feedback Summary				
School Name				
STEM or STEAM Designation			☐ STEM ☐ STEAM	
STEM Attributes	**Initial**	**Approaching**	**Accomplishing**	**Model**
A Culture for Learning- Beliefs and Disposition, Equity and Access				
1.1 Cultural Strategies	☐	☐	☐	☐
1.2 Inclusive Mission and Personalized Learning	☐	☐	☐	☐
1.3 School Leadership	☐	☐	☐	☐
1.4 Governing Body/ STEM Advisory Group	☐	☐	☐	☐
Learning and Teaching				
2.1 Disciplinary and Interdisciplinary Integrity	☐	☐	☐	☐
2.2 Instructional Design	☐	☐	☐	☐
2.3 Dynamic Assessment	☐	☐	☐	☐
2.4 Staff Expertise and Continued Learning	☐	☐	☐	☐
Pathways to Success in Careers				
3.1 Career Access/Exploration	☐	☐	☐	☐
3.2 Partnerships Extend Learning Opportunities	☐	☐	☐	☐
3.3 Relevant Community Experiences	☐	☐	☐	☐

A Culture for Learning- Beliefs and Disposition, Equity and Access			
1.1 Cultural Strategies Cultural strategies reflect a community's understanding of success. Community needs drive instructional and delivery strategies in each school. Habits of Mind reflect what a community values in a successful adult and are explicitly taught and continually utilized within the school. Habits of the Mind include the following: Innovation, Entrepreneurship, Inquiry, Collaboration and Communication, and Individual Accountability.			
Initial	**Approaching**	**Accomplished**	**Model**
Community values are not taught or utilized and there is little or no culture of STEM throughout the school.	Community values are sometimes taught and utilized when applicable. Working towards creating a culture of STEM throughout the school.	Community values are taught and utilized, creating a culture of STEM throughout the school.	Community values are explicitly taught and continually utilized, creating a culture of STEM throughout the school.
If a STEAM applicant, how do the community values reflect the integration of the arts and humanities?			
Category Selected	☐ Initial ☐ Approaching ☐ Accomplished ☐ Model		
Reasoning/Feedback:			

Explanation of Terms	
Little/no	There is no teaching of community values or culture present. If there is a culture, it is difficult to see evidence in application and/or site visit.
Sometimes	Community values are posted either in a school handbook or throughout the school, but teacher and/or student utilization is not consistent throughout the entire school.
Continually	Community values are consistently repeated and frequently throughout the school, in the classroom and out of the classroom.
Explicitly	Community values are openly and clearly utilized within the school.

A Culture for Learning- Beliefs and Disposition, Equity and Access			
1.2 Inclusive Mission and Personalized Learning **Inclusive Mission** The school environment is open and validating to all students. The school provides multiple opportunities to inspire and inform students about careers and academic pathways in STE(A)M-related fields. The school supports students beyond the school day (e.g., bridge programs, extended school day, extended school year, looping, social services, etc.). All students have access to age-appropriate interests (e.g., shadowing experiences for younger students, internships for older students, etc.). Schools design and implement interventions designed to close gaps in academic and nonacademic skill areas. **Personalized Learning** Students have ownership of their own learning, set goals and make choices about how to accomplish them. Personal learning pathways are student-driven, and students have multiple ways to show what they know. Students participate in work-based learning experiences to make connections between the content they are learning and their lives. Staff support students in developing and maintaining student-created learning plans and monitoring progress toward future goals. Instructional strategies, materials and pacing are flexible and based on needs of students. Students can earn credit based on mastery and are not penalized for taking additional time to demonstrate learning. Students have voice and choice when developing learning opportunities.			
Initial	**Approaching**	**Accomplished**	**Model**
Does not demonstrate inclusive mission that supports all students AND/OR does not demonstrate student ownership of learning and goal setting.	School's STEM mission is mostly inclusive and/or culturally responsive to all students AND/OR school's instructional practices sometimes encourage and support individualized learning with student ownership of learning.	School's STEM mission is inclusive and culturally responsive to all students AND school's instructional practices encourage and support individualized learning with student ownership of learning.	School's STEM mission is an outstanding demonstration of being inclusive and culturally responsive to all students AND school's instructional practices encourage and support individualized learning with student ownership of learning.
If a STEAM applicant, how do the community values reflect the integration of the arts and humanities?			
Category Selected	☐ Initial ☐ Approaching ☐ Accomplished ☐ Model		
Reasoning/Feedback:			

Explanation of Terms	
Mostly	School may have a STEM team or only have STEM practices active in some of the grade levels.
Sometimes	STEM instructional practices are not consistent throughout the entire building.
Outstanding	STEM instructional practices are above and beyond

A Culture for Learning- Beliefs and Disposition, Equity and Access			
1.3 School Leadership **Flexible and Autonomous Leadership** - School leaders are open, agile and driven by a vision for learning. They lead by example and create an environment of high expectations, sparking a passion for learning and preparing students both academically and socially for their futures. **Communicates a Shared Vision** - Leaders create, clearly articulate and follow a shared vision. **Supports Innovative Instruction** - Leaders empower teachers to facilitate inquiry and problem-based learning. Leaders support teacher autonomy, the creation of school structures to promote teacher collaboration, teacher professional development to ensure progressive expectations, and applied/work-based learning experiences for teachers.			
Initial	**Approaching**	**Accomplished**	**Model**
Lacking evidence of one or more of the following: Flexible and Autonomous Leadership, Shared Vision, Support for Innovative Instruction.	Some evidence of one or more of the following: Flexible and Autonomous Leadership, Shared Vision, Support for Innovative Instruction.	Enough Evidence of all the following: Flexible and Autonomous Leadership, Shared Vision, Support for Innovative Instruction.	Outstanding Evidence of all the following: Flexible and Autonomous Leadership, Shared Vision, Support for Innovative Instruction.
If a STEAM applicant, how do the community values reflect the integration of the arts and humanities?			
Category Selected	☐ Initial ☐ Approaching ☐ Accomplished ☐ Model		
Reasoning/Feedback:			

Explanation of Terms	
Lacking	No evidence is present in proposal.
Some	May have evidence for one or two of the areas but not all in proposal.
Sufficient	Evidence is present for all three areas in proposal.
Outstanding	Evidence is present and very detailed for all three areas, with extensive citing of examples and growth through years in the proposal.

A Culture for Learning- Beliefs and Disposition, Equity and Access			
1.4 Governing Body/STEM Advisory Group The school has a governing body/STEM advisory group consisting of a diverse group of individuals selected for their expertise in STEM pedagogy. The governing body/STEM Advisory meets throughout the school year to discuss the progress of the school in STEM practices. The governing body/STEM advisory group plays a pivotal role in determining and supporting the STEM practices implemented within the STEM school.			
Initial	**Approaching**	**Accomplished**	**Model**
School does not have a governing body/STEM advisory group that influences and supports STEM practices implemented by the school.	Governing body/STEM advisory group somewhat influences and supports STEM practices implemented by the school.	School has a governing body/STEM advisory group that influences and supports STEM practices implemented by the school.	School has a governing body/STEM advisory group that provides outstanding influence and support for STEM practices implemented by the school.
If a STEAM applicant, how do the community values reflect the integration of the arts and humanities?			
Category Selected	☐ Initial ☐ Approaching ☐ Accomplished ☐ Model		
Reasoning/Feedback:			

Explanation of Terms	
Somewhat	The governing board/STEM Advisory Group may assist in decisions at some point in the year, but does not play an active, consistent role in implementation and growth in STEM practices throughout the entirety of the school year.
Influences	The governing board/STEM Advisory board plays an active, consistent role in implementation and growth in STEM practices throughout the entirety of the school year.
Outstanding Influence	The governing board/STEM Advisory board is the main decision maker with diverse membership, and plays an active, consistent role in implementation and growth in STEM practices throughout the entirety of the school year.

Learning and Teaching			
2.1 Disciplinary and Interdisciplinary Integrity **Scholarship-** STEM and STEAM disciplinary practices/habits are explicitly embedded throughout the curriculum (e.g., emphasis on reasoning, problem solving, scientific reasoning, engineering design, computational thinking, design thinking, argument from evidence). **Content**- Learning experiences are content-accurate, anchored to the relevant content standards and focused on the big ideas and foundational skills critical to future learning in the discipline(s). Students engage in interdisciplinary STE(A)M content as the focus of the school curriculum. Curriculum is vertically and horizontally aligned, and is centered on educational and/or industry standards or other recognized frameworks. Learning experiences and environments are immersive and reflective. Students engage in diverse curriculum offerings that incorporate relevant technologies (e.g., research, engineering, computer science, design, digital fabrication, etc.).			
Initial	**Approaching**	**Accomplished**	**Model**
No evidence that school's learning experiences demonstrate alignment across content, skills and STEM best-practices.	Some evidence that school's learning experiences demonstrate alignment across content, skills and STEM best practices.	Sufficient evidence that school's learning experiences do demonstrate alignment across content, skills and STEM best practices.	Outstanding evidence that school's learning experiences exemplify alignment across content, skills and STEM best practices.
If a STEAM applicant, how do the community values reflect the integration of the arts and humanities?			
Category Selected	☐ Initial ☐ Approaching ☐ Accomplished ☐ Model		
Reasoning/Feedback:			

Explanation of Terms	
No	No evidence is present in proposal.
Some	May have evidence for one but not all of the areas in proposal.
Sufficient	Evidence is present for both areas in proposal.
Outstanding	Evidence is present and very detailed for both areas. Extensive citing of examples and growth through years is included in the proposal.

Learning and Teaching

2.2 Instructional Design

Authentic Problem Based Learning

Problem-based learning (PBL) requires a process of inquiry (often interdisciplinary) that builds knowledge through immersive projects. Students experience research, problem-solving and project documentation, and participate in presentations of learning to an authentic audience multiple times throughout the academic year. Problem-based learning drives instruction and curriculum. Authentic PBL is student-directed, open-ended inquiry, that results in the development of a solution or product that contributes to the larger community. PBL units include a culminating project that integrates content areas. Students design solutions with, and incorporate feedback from, a variety of authentic audiences (e.g., community members, peers, higher education, experts, industry, teachers, families, etc.).

Integrated, Innovative

Integrated - Students are regularly engaged in units that articulate interdisciplinary connections. Students can identify ways that disciplines are interrelated and reinforced and complement one another. Learning experiences are planned and aligned by all grade levels and content areas, spiraling in increased complexity and rigor. Learning experiences require students to connect one or more disciplines and includes instructional support for quality performance.

Innovative - Technology connects students with information systems, databases and research, mentors, and social networking resources for ideas during and beyond the school day. The school's structure and use of technology has the potential to change relationships between students, teachers and knowledge. Learning is supported and enhanced with authentic, relevant use of technology. Technology is integrated to promote creativity and innovation. Students identify and use the tools they need to solve problems. Technology is used to engage students in community, state and global learning opportunities that extend beyond the classroom.

Initial	Approaching	Accomplished	Model
Problem-based learning is rare or infrequent within instruction and curriculum of the school AND/OR the school rarely implements a curriculum with interdisciplinary connections and infrequently uses technology to enhance students' learning.	Problem-based learning sometimes occurs within instruction and curriculum of the school AND/OR the school implements a curriculum with some interdisciplinary connections and occasionally uses technology to enhance students' learning.	Problem-based learning consistently occurs within instruction and curriculum of the school AND the school implements a curriculum with interdisciplinary connections and frequently uses technology to enhance students' learning.	Problem-based learning routinely drives the instruction and curriculum of the school AND the school implements a curriculum with in-depth, interdisciplinary connections and frequently uses technology to enhance students' learning and community connections.

If a STEAM applicant, how do the community values reflect the integration of the arts and humanities?	
Category Selected	☐ Initial ☐ Approaching ☐ Accomplished ☐ Model
Reasoning/Feedback:	

Explanation of Terms	
Rare or infrequent	Instructional design elements are not implemented throughout the school, only in select teachers' classrooms, but no schoolwide efforts.
Sometimes	Instructional design elements are implemented in some classrooms or teamwide, with maybe one schoolwide or gradewide PBL.
Consistently	Instructional design elements are implemented frequently throughout the school in all classrooms and in an interdisciplinary manner.
Routinely drives	Instructional design elements are central part of all instruction throughout the school and all year long.

Learning and Teaching
2.3 Dynamic Assessment **Dynamic Assessment Systems** - Teachers augment traditional assessment with a variety of techniques, including authentic, performance-based assessments. Assessment recognizes teachable moments. It is active, ongoing, flexible and adaptable. Teachers use information on current student understanding to inform and plan future instruction. Formative assessment informs summative assessment and teaching efforts. Qualitative assessments, student self-assessments, reflection, peer observation, portfolios, practica and dialogue (e.g., student interviews, TED talks, classroom conversations, etc.) are included. Assessment may be supported and enhanced with authentic, relevant use of technology. Students have opportunities to choose how to demonstrate their learning and its relevance to society. **Authentic Performance-based Assessments** - Assessment practices require students to make a meaningful connection between course content and the world around them. Assessments may be ongoing, cross-curricular and/or project-focused. Assessments allow students to demonstrate understanding of content, entrepreneurial thinking and employability skills. Assessments are linked to desired outcomes of authentic, problem-based learning and design thinking activities. Student expressions of learning (artifacts) reflect the importance and impact of interactions with groups or individuals outside of the classroom (e.g., informal STE(A)M organizations, non-profit agencies, other students, museums, universities, business and industry partners, etc.). Students portray their learning process through collections of personal work and reflections.

Initial	Approaching	Accomplished	Model
School provides no variety in assessment techniques to provide data to drive instruction to guide students to mastery.	School provides a limited variety of assessment techniques to provide data to drive instruction to guide students to mastery.	School provides a variety of assessment techniques to provide data to drive instruction to guide students to mastery.	School provides a vast variety of assessment techniques to provide data to drive instruction to guide students to mastery.

If a STEAM applicant, how do the community values reflect the integration of the arts and humanities?	
Category Selected	☐ Initial ☐ Approaching ☐ Accomplished ☐ Model
Reasoning/Feedback:	

Explanation of Terms	
Limited	Few options of assessments for students to demonstrate mastery are available.
Vast	Extensive options of assessments for students to demonstrate mastery are available.

Learning and Teaching			
2.4 Staff Expertise and Continued Learning **Well-prepared Teaching Staff** - Teachers effectively and consistently use best practices in STE(A)M pedagogy. Teachers are well prepared either through education or work experience. Teachers facilitate authentic application of STE(A)M content and skills. Teachers design curricula that demonstrate real-world connections, with learning experiences that stimulate curiosity and creativity, and that facilitate transfer of knowledge and skills to new situations. **Ongoing and Personalized Professional Learning**- Professional development is ongoing, aligns with STEM initiatives and includes support across the school year.			
Initial	**Approaching**	**Accomplished**	**Model**
Insufficient evidence that teachers effectively and consistently use best practices AND/OR PD does not support continued professional growth.	Some evidence that teachers effectively and consistently use best practices AND/OR PD does not support continued professional growth.	Sufficient evidence that teachers effectively and consistently use best practices AND PD supports continued professional growth.	Outstanding evidence that teachers effectively and consistently use best practices AND PD supports continued professional growth. School offers and leads year-round STEM focused professional development for teachers within their building and the community.
If a STEAM applicant, how do the community values reflect the integration of the arts and humanities?			
Category Selected	☐ Initial ☐ Approaching ☐ Accomplished ☐ Model		
Reasoning/Feedback:			

Explanation of Terms	
Insufficient	No evidence is present in proposal.
Some	The proposal may have evidence for one of the areas but not all in proposal
Sufficient	Evidence is present for both areas in proposal.
Outstanding	Evidence is present and very detailed for both areas. There is extensive citing of examples and growth through years in the proposal.

Pathways to Success in Careers			
3.1 Career Access/Exploration Learning experiences, during and outside of the school day, provide business and industry awareness and exploration, leading to career preparation, planning and training. **Opportunities** -The school facilitates opportunities for students to be prepared to enter the workforce or college in STE(A)M. The school provides opportunities for applied learning in professional STE(A)M workplaces. Students have opportunities to learn about the pervasiveness of STE(A)M in society and careers. **Access** - Student career interests are developed through active student involvement in STE(A)M activities such as researching, shadowing and mentorships and (for older students) apprenticeships and internships. High schools provide access for students to complete certifications, credentials and/or credit completion at community colleges, colleges and/or universities. As appropriate for the grade level, schools provide access to students for course credit opportunities (e.g., advanced placement courses, international baccalaureate courses, early college, college credit plus, etc.). Schools promote awareness of postsecondary preparation (e.g., development of effective study skills and self-regulation skills, and (for older students) college tours and assistance with the application process, etc.).			
Initial	**Approaching**	**Accomplished**	**Model**
School offers no opportunities and access to community business and industry for student career exploration.	School offers limited opportunities and access to community business and industry for student career exploration.	School offers a variety of opportunities and access to community business and industry for student career exploration leading to possible college credits or credentials.	School offers exemplary opportunities access to community business and industry for student career exploration leading to possible college credits or credentials.
If a STEAM applicant, how do the community values reflect the integration of the arts and humanities?			
Category Selected	☐ Initial ☐ Approaching ☐ Accomplished ☐ Model		
Reasoning/Feedback:			

Explanation of Terms	
Limited	The school offers few options for opportunities.
Exemplary	The school offers vast (extended) options for opportunities.

Pathways to Success in Careers			
3.2 Partnerships Extend Learning Opportunities **Collaborative Partnerships** - The school collaborates with business, industry, arts and higher education partners to ensure alignment to intended pathways and local business and industry needs. Partners are part of the decision-making process. There is a business/industry and educator working advisory group. Partners support instruction (e.g., ideas for design challenges and problem-based learning, learning standards evaluation (industry), work-based learning development, credential alignment, etc.). Partners assist in providing ongoing, active work-based learning experiences each year, either during or outside of the school day (e.g., quality shadowing, internships, apprenticeships, etc.), so that students have direct experiences with STE(A)M professionals in authentic environments. Partners share resources (e.g., lab/design space, mentors, speakers, equipment, current industry information, expertise, meeting facilities, etc.). **Opportunities for Practical and Real-World Experience** - Students and teachers have opportunities for contextualized learning, comparable to what they would find in business, industry and other professions. Students have frequent interactions with STE(A)M professionals outside the regular school day. Students and teachers collaborate with partners for mentorship, shadowing, consultation and feedback opportunities that enhance learning experiences. The school creates and supports opportunities for STE(A)M work-based learning experiences for students and teachers. Students actively work with employers in realistic problem-solving situations, relevant to students and the community. Students have opportunities to participate in STE(A)M-related competitions, on-site/online STE(A)M exhibits, and/or in local, state and national STE(A)M forums.			
Initial	**Approaching**	**Accomplished**	**Model**
Partners are not present, AND/OR do not actively support curriculum development, or provide work-based learning experiences, resources or support for students.	There are few partners AND/OR partners do not actively support curriculum development, or provide work-based learning experiences or resources to support students	School has many collaborative partners who are actively involved with curriculum development, providing work-based learning experiences, sharing resources and interacting with students.	School has numerous collaborative partners who are actively involved with curriculum development, providing work-based learning experiences, sharing resources and interacting with students
If a STEAM applicant, how do the community values reflect the integration of the arts and humanities?			
Category Selected	☐ Initial ☐ Approaching ☐ Accomplished ☐ Model		
Reasoning/Feedback:			

Explanation of Terms	
Actively Involved	Partners help to determine curriculum maps, content, PBLs and extended learning opportunities

Pathways to Success in Careers			
3.3 Relevant Community Experiences STEM and STEAM schools exhibit STEM-rich formal and informal experiences with the community that are personally relevant to the student. Students have opportunities to engage in STE(A)M-related activities that have relevance to the community. Students and teachers partner with community members and families to take on service roles for students, classrooms or teachers, to enhance learning experiences. Students seek and incorporate feedback on their work from a variety of authentic audiences in their community (e.g., community members who have knowledge of the problem/issue, etc.). The learning environment is student-driven and designed to challenge the minds and stimulate the imaginations of learners.			
Initial	**Approaching**	**Accomplished**	**Model**
School does not provide students with personally relevant, STEM focused community learning experiences.	School sometimes provides students with personally relevant, STEM-focused community learning experiences.	School provides students with frequent, personally relevant, STEM-focused community learning experiences.	School provides students continual, personally relevant, STEM-focused community learning experiences.
If a STEAM applicant, how do the community values reflect the integration of the arts and humanities?			
Category Selected	☐ Initial ☐ Approaching ☐ Accomplished ☐ Model		
Reasoning/Feedback:			

Explanation of Terms	
Sometimes	Community learning experiences are experienced 1-2 times a year.
Frequent	Community learning experiences happen throughout the year.
Continual	Community learning experiences happen throughout the year and within all disciplines.