Ohio Quality Model for STEM and STEAM Education

November 2025

Department of Education & Workforce

Table of Contents

Ohio Department of Education & Workforce

Introduction

The Ohio Quality Model for STEM and STEAM Education is a foundational resource designed to guide schools across the state in implementing and sustaining high-quality, student-centered STEM and STEAM education. This model aligns with the Ohio Department of Education and Workforce's core priorities: literacy achievement, accelerating learning, student wellness, and workforce readiness. These priorities reflect the Department's commitment to preparing students today for the challenges and opportunities of tomorrow by equipping every Ohio student with the skills and tools necessary to thrive in a rapidly changing world.

The development of this Quality Model is rooted in Ohio's long-standing commitment to STEM education. In 2007, the state enacted legislation to establish STEM schools, recognizing the need to align education systems with the intellectual, entrepreneurial, and technical demands of Ohio's future economy. This commitment is codified in Ohio Revised Code 3326.03, which authorizes the STEM Committee to approve proposals for STEM schools and emphasizes the importance of geographic diversity and collaborative partnerships in school design. The statute also mandates that the committee seek technical assistance and consider recommendations from the Ohio STEM Learning Network throughout the proposal evaluation process.

In 2017, to mark the 10-year anniversary of this legislation, the Ohio Department of Education and Workforce convened an informal STEM Innovation Working Group to build next steps for STEM education in Ohio. Their research and work led to the creation of this document, which was subsequently updated in 2021.

The current Quality Model was developed and refined through a collaborative process led by the Department in partnership with the Ohio STEM Learning Network. Additionally, members of the public with expertise in STEM education provided feedback on drafts of the Quality Model. This collaboration ensures that the model reflects both statewide educational priorities and the innovative practices emerging from Ohio's STEM and STEAM schools. The model serves as a guide for continuous improvement, offering a shared language and vision for excellence in STEM and STEAM education. It is intended to support schools in fostering inclusive, inquiry-driven, personalized, and career-connected learning environments that prepare students to become resilient, lifelong learners and contributors to Ohio's economic and civic life.

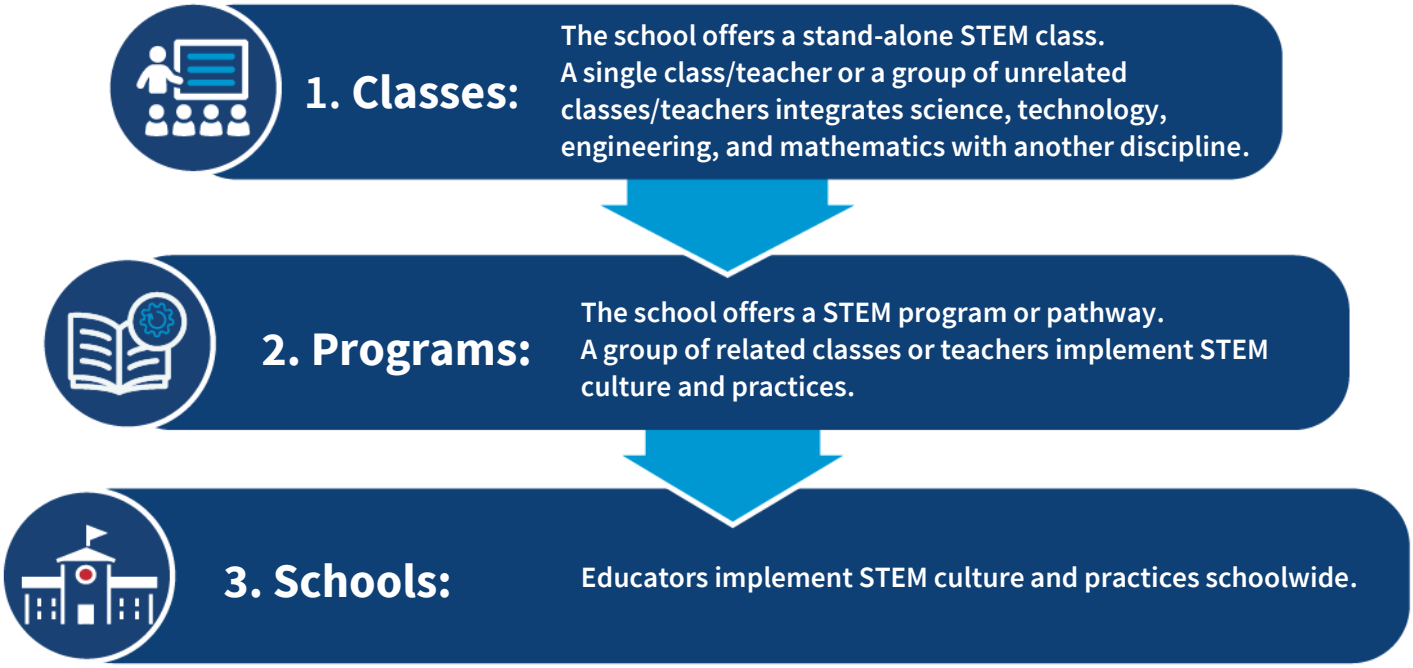
STEM Education Defined

Ohio defines STEM education as an inclusive, learner-centered, inquiry-based approach that integrates content disciplines to drive critical thinking, solution design, and evidence-based reasoning through real-world experiences, while fostering innovation and STEM career exploration through community partnerships.

STEM Progressions

The scope of implementation of STEM education can range from the classroom to a schoolwide level. The diagram below provides examples of this progression.

CLASSES, PROGRAMS, AND SCHOOLS



STEM AND STEAM SCHOOL DESIGNATION

In 2007, the Ohio General Assembly passed Ohio Revised Code 3326, providing the structure to establish STEM schools across Ohio. The law also provided funding to open **independent STEM schools**, which are schools that have been established as a distinct school type. In 2017, STEAM designation was introduced. While independent STEM or STEAM schools are always public, **STEM- or STEAM-designated schools** may be public or private schools. Independent STEM or STEAM schools and STEM- or STEAM-designated schools have met the rigorous criteria outlined in Ohio's STEM and STEAM Designation Rubric and comply with legislated requirements outlined in Ohio Revised Code 3326.03. All independent and STEM- or STEAM-designated schools must reapply for designation every five years.

The Ohio STEM Committee is responsible for STEM and STEAM designation. The designation process is supported by the Ohio STEM Learning Network through the process of reviewing and accepting proposals. Proposals for designation are reviewed according to the Ohio STEM and STEAM Designation Rubric. The STEM and STEAM Designation Rubric is anchored in statute and the Ohio Quality Model for STEM and STEAM Education.

The Ohio STEM and STEAM School Designation was created to recognize model schools that exemplify STEM education best practices. In addition, these schools have well-established partnerships with businesses, nonprofit organizations, institutions of higher education, and other entities in their communities to prepare students for post-high school success.

How to Use this Document

This document is organized by the three major domains that characterize STEM and STEAM education best practices. Each domain includes several interconnected supporting attributes. Detailed descriptions for each attribute are included in this Quality Model.

Domain 1: Culture for Learning

Emphasizes cultivating a school culture rooted in inquiry, innovation, entrepreneurial thinking, collaboration, and individual accountability, all within an inclusive environment that supports every learner's growth and success.

Domain 2: Teaching and Learning

Focuses on delivering rigorous, integrated instruction across disciplines through authentic, problem-based learning experiences that are student-centered, inquiry-driven, and aligned with real-world applications and workforce needs.

Domain 3: Pathways to Success in Careers

Highlights the importance of strategic, sustained partnerships with industry, higher education, and community organizations to enrich student learning, provide mentorship and career exposure, and ensure relevance to local and global challenges.

Schools are encouraged to use the included descriptions and bullet points, in conjunction with other resources, as the basis of local discussion and professional development around school transformation and innovation. Schools are reminded that the bullet points should not be used as a checklist but are intended to assist in visualizing what high-quality STEM and STEAM education implementation can look like.

Domain 1: Culture for Learning

Attribute 1.1: Cultural Strategies

All schools have a unique culture that is reflected in the school community values, pillars, or habits of mind. These values reflect what a school expects in a successful citizen and are explicitly taught and utilized within the school. Cultural strategies reflect a community's understanding of success. Implementation of the community values and habits of mind is responsive to community needs.

In STEM and STEAM schools, the community values align with cultural strategies that reflect innovation, an entrepreneurial spirit, inquiry, and collaboration with individual accountability.

- Inquiry is exhibited through:
  - Identifying questions that drive student learning
  - Seeking new knowledge and being curious
  - Exploring and investigating multiple solutions to authentic problems
  - Engaging in constant and mutual exchange of ideas
- Innovation is exhibited through:
  - Engaging in inquiry and identifying novel solutions
  - Leveraging diversity of thought
  - Taking intellectual risks
  - Iterating and learning from failure
  - Approaching problems with creativity
- Entrepreneurial spirit is exhibited through:
  - Creative and flexible thinking
  - Recognizing opportunities
  - Taking initiative and strategic action
  - Solving problems to positively impact the lives of others
- Collaboration is exhibited through:
  - Respecting diverse perspectives
  - Contributing ideas and active listening
  - Giving and receiving constructive feedback
- Individual accountability is exhibited through:
  - Understanding that setbacks are opportunities for growth
  - Setting learning goals and persevering in accomplishing them
  - Reflecting and self-assessment

Attribute 1.2: Inclusive Mission

STEM and STEAM schools integrate an inclusive mission that supports each child. The school environment is inclusive and responsive to all students.

- Student admission is not limited based on intellectual ability, measures of achievement or aptitude, or athletic or artistic ability.
- The school attracts a diverse student body that reflects the community and recruits students from disadvantaged and underrepresented groups.
- The school ensures the demographics of students participating in school programs are representative of the school's population.
- An inclusive school environment fosters a sense of belonging where students' backgrounds, abilities, and learning styles are accepted and valued.
- The school aligns learning experiences with equitable supports around students' needs, interests, aspirations, aptitudes, and cultural backgrounds.
- Learning opportunities recognize and value student cultures, languages, and experiences.
- Students of all abilities are included in STEM/STEAM learning experiences through individual supports that are responsive to their needs.

Attribute 1.3: School Leadership

School leaders are open, agile, and driven by a vision for learning that recognizes the importance of STEM/STEAM in promoting innovation and economic progress.

- Open and agile leaders:
  - View challenges and barriers as opportunities for growth
  - Embrace shared leadership through collaboration and communication
  - Are highly adaptable to changes in the environment
- Leaders driven by a vision for learning:
  - Develop and foster a consistent understanding of STEM education and STEM culture among all stakeholders
  - Develop and implement expectations for all stakeholders related to STEM education and STEM culture
  - Engage stakeholders in creating a vision for learning that recognizes the importance of STEM/STEAM in promoting innovation and economic progress

Leaders empower teachers to implement STEM education, including but not limited to design thinking, problem-based or project-based learning, and personalized student learning. Leaders empower teachers through:

- Listening to and providing personalized support
- Creating and fostering a culture of teacher autonomy and professional accountability

- Creating school structures that sustain interdisciplinary teacher collaboration, including, but not limited to, common planning time, during professional development days, etc.
- Providing opportunities for and participating in STEM-related professional development that addresses integrated content, STEM pedagogy, and workforce readiness
- Engaging in networking that strengthens school, community, and industry partnerships, and builds connections with postsecondary institutions

Attribute 1.4: Governing Body, Advisory Group, and Curriculum Team

All schools have a governing body that oversees the operations of the school. For traditional public school districts, the school's board of education, which consists of elected members, serves as the governing body. For private, charter, and/or community schools, a governing body is a selected group that oversees the operations of the school.

In a situation in which the governing body does not have expertise in STEM or STEAM, STEM and STEAM schools should form a STEM/STEAM Advisory Group. This STEM/STEAM Advisory Group meets regularly to provide advice, recommendations, and strategic guidance on the progress of the school in STEM or STEAM practices.

STEM and STEAM schools have a curriculum team that engages in curriculum design aligned to STEM/STEAM practices. The school's curriculum team will include:

- The school's chief administrative officer,
- A teacher,
- A representative of the higher education institution that is a collaborating partner in the STEM/STEAM school or school designated as a STEM/STEAM equivalent, and
- A member of the public with expertise in the application of science, technology, engineering, or mathematics.

A single group can serve as both the STEM/STEAM Advisory Group and curriculum team, provided it includes the required members, meets regularly, and focuses on guiding STEM/STEAM practices.

Schools are encouraged to include multiple stakeholders in the STEM/STEAM Advisory Group, such as representatives of the school's Business Advisory Council, students, families, and community members. Regular meetings that occur throughout the school year (monthly, quarterly, and so forth) provide opportunities for STEM/STEAM Advisory Group members to impact and inform the STEM or STEAM practices of the school.

Domain 2: Teaching and Learning

Attribute 2.1: Integration of Academic Disciplines

STEM and STEAM schools practice integrated teaching and learning that is anchored in content standards and emphasizes the role of science, technology, engineering, and mathematics in promoting innovation and economic progress. Students engage in rigorous curriculum offerings in science, technology, engineering, and mathematics courses, programs, and/or pathways. In STEAM schools, arts and design are integrated into the disciplines of science, technology, engineering, and/or mathematics.

The integration of disciplines prepares all students for post-high school learning experiences, the workforce, and citizenship. Integration is an interdisciplinary or transdisciplinary approach to teaching and learning. Integration practices evolve from disciplinary, through multidisciplinary and interdisciplinary, to transdisciplinary.

- **Disciplinary**: Students learn standards, concepts, and skills in each discipline independently, without connections to other disciplines.
- **Multidisciplinary**: Students learn standards, concepts, and skills in each discipline independently, but connect to a common theme across two or more other disciplines.
- **Interdisciplinary**: Students learn standards, concepts, and skills from two or more disciplines that are connected in a meaningful way to deepen knowledge.
- **Transdisciplinary**: Students apply standards, concepts, and skills from two or more disciplines to solve authentic problems and enhance their learning experience.

STEM and STEAM schools provide integrated curricula that are:

- Standards-based
- Vertically aligned
- Supported by the use of high-quality instructional materials
- Related to industry standards or other recognized frameworks in support of STEM career readiness
- Incorporated into real-world applications that leverage STEM cultural strategies, higher-order thinking, and inquiry-based approaches to learning

Attribute 2.2: Teaching and Learning Approaches

Students in STEM and STEAM schools participate in authentic, project-based or problem-based learning, and design thinking. Students acquire critical thinking, creative problem-solving, research, and effective communication skills that prepare them for future postsecondary, career, and life opportunities.

AUTHENTIC LEARNING

Students learn by doing and regularly engaging in activities that connect learning to real-world issues, situations, and problems.

- Classrooms and schools are designed to provide balanced opportunities for independent and collaborative work.
- Students have opportunities to engage with community partners (for example, nonprofit organizations, business and industry, postsecondary institutions, and others).
- Students develop and exhibit skills used in the workplace (for example, being problem-driven and solutions-oriented, demonstrating leadership and learning agility, being creative and adaptable, and exhibiting professionalism and work ethic).
- Focus is on broad, real-world problems that come from our increasingly connected world and are relevant to students and society.
- Authentic audiences include people, communities, and industry organizations that are directly impacted by the problem solved by students.
- Community partners interact with students as subject-matter experts, provide feedback throughout the learning process, and serve as authentic audiences.

PROJECT-BASED AND PROBLEM-BASED LEARNING

Project-based and problem-based learning are student-centered, inquiry-based, and collaborative approaches to teaching and learning, centered on an authentic problem or driving question. Project-based and problem-based learning are different from projects. Projects are activities at the end of the instruction and can be used as performance-based assessments. Project-based and problem-based learning are instructional approaches used to support students in acquiring new knowledge. These learning opportunities can be integrated or anchored in a single discipline.

- Students engage with authentic problems that are identified by community, business, and industry partners.
- Students have opportunities to identify relatable problems relevant to their lives and the local and global community.
- Teachers facilitate learning by guiding students, probing student ideas, providing feedback, and evaluating student progress.
- Students apply the design thinking process.
- Instruction is anchored in grade-level content standards.

Project-based learning provides students with a question to explore and requires them to create, test, and improve solutions while incorporating grade-level content standards. Throughout the project, students learn content knowledge and apply it to answer the question and create a solution.

- Driving questions guide the learning and student experiences.
- Students have voice and choice in process and product.

- Assessments are teacher-driven and often rubric-based.

Problem-based learning is a student-centered approach where learners actively engage with real-world, open-ended problems in collaborative groups, integrating content knowledge with practical applications.

- Students actively resolve complex problems in realistic situations that drive the content that is integrated into instruction.
- Student voice and choice are evident in content, process, and product.
- Flexible and dynamic assessments are integrated throughout the learning experiences.

DESIGN THINKING

Design thinking engages students in developing critical thinking, creative problem-solving, and collaborative communication skills while fostering empathy, resilience, and systems thinking as they navigate complex, human-centered challenges.

- Students practice iterative problem-solving by creating multiple prototypes, testing solutions with real users, gathering feedback, and refining their designs based on evidence and the input of authentic audiences.
- Schools partner with community organizations, local businesses, and higher education partners to provide real challenges that require student-designed solutions.
- School community models curiosity and continuous learning by engaging in their own design thinking projects, sharing their process with students, and demonstrating how to ask meaningful questions that drive innovation.
- Students apply design thinking to address problems relevant to their personal, school, and local communities.

Attribute 2.3: Computer Science, Computational Thinking, and Technology

STEM and STEAM schools provide opportunities for students to engage in applications of computer science, relevant modern technology, and computational thinking to promote creativity and innovation.

COMPUTER SCIENCE

Computer science encompasses logical reasoning, the study of computing systems, networks, and the internet, and the analysis of data. It involves algorithms and programming as well as understanding the impacts of computing. Essentially, it is about developing structured problem-solving skills that are useful across a wide range of fields, from science and engineering to the humanities and business.

COMPUTATIONAL THINKING

Computational thinking is a problem-solving approach that involves breaking down complex problems into smaller, manageable parts, recognizing patterns, and developing step-by-step solutions that can be executed by a computer. This approach is integrated into the curriculum to help students develop critical thinking skills and apply them to real-world scenarios. Key elements of computational thinking, based on the International Society for Technology in Education (2018) definition, include:

- Decomposition: Breaking down tasks into smaller, manageable parts
- Pattern recognition: Recognizing and identifying patterns in data or information
- Abstraction: Reducing complexity to define the main idea
- Algorithms: A series of ordered steps taken to solve a problem or complete a task

MODERN TECHNOLOGY

Modern technologies are digital innovations and systems that have recently emerged or significantly advanced and are actively shaping how people live, work, and interact. Modern technologies enhance learning through experiences that are interactive and engaging, fostering critical thinking and creativity. These technologies prepare students for future learning and provide the essential skills utilized in STEM careers. Key features of modern technology use in STEM and STEAM schools include:

- Students identify and use the modern technology tools they need to solve problems.
- Students use technology responsibly and ethically to contribute to their digital communities.
- Students leverage modern technology tools to identify novel problems and innovative solutions.
- Students communicate their thought processes and solutions to problems using technology.

Attribute 2.4: Personalized Learning

Personalized learning is a learner-driven approach to education that empowers students to take ownership of their learning. Using this flexible approach, educators help learners overcome obstacles to their learning, prepare them for future success, and accelerate their learning. Personalized learning is designed for core instruction for all learners and differs from individualized learning and differentiated instruction.

LEARNER-DRIVEN

- Students learn how to set goals, make choices about appropriate actions to achieve their goals, and reflect on their progress.
- Students develop personal agency and have ownership of their learning.

FLEXIBLE LEARNING ENVIRONMENT

- Learning environments amplify student voice and are responsive to individual student needs.
- Students have opportunities to leverage available resources and accessible learning spaces, including physical and virtual environments.

AUTHENTIC LEARNING

- School structures provide personal learning pathways and programs, including career-technical education pathways, electives, and course rotations.
- Classroom learning incorporates student voice and choice based on their interests and aspirations.
- Learning experiences require students to develop and demonstrate workforce readiness skills associated with in-demand STEM careers.

OPTIMAL PATH AND PACE

- Students are provided with flexible choices among multiple learning pathways in order to reach mastery of content standards.
- Students have opportunities to progress at a pace that is appropriate to their needs.

EVIDENCE OF LEARNING AND FEEDBACK

- Assessments are ongoing, adaptable, and include a variety of techniques.
- Feedback from the learning community (such as teachers, peers, family, and business and industry partners) helps students understand their progress and develop a plan for future learning.
- Mastery-based learning or competency-based learning is practiced.

MASTERY-BASED LEARNING

An instructional approach where students must demonstrate understanding of a content, topic, or skill before advancing to the next step on a learning path. Key elements of mastery-based learning include:

- Standards-based instruction
- Goal setting and monitoring
- Different learning paths
- Individualized learning pace
- Opportunities for student voice and choice in assessment
- A variety of adaptable assessments

COMPETENCY-BASED LEARNING

An instructional approach where students demonstrate the learning of skills and knowledge and application of skills and knowledge to progress at a flexible pace. Competency-based learning is an approach that measures what students have learned independent of time spent in a course or grade level. Key elements of competency-based learning include:

- Competencies that are explicit and measurable learning objectives which include knowledge creation, skills, and dispositions
- Student progression at their own pace and just-in-time supports
- Orientation toward outcomes rather than completing a set curriculum
- Performance-based tasks and projects for assessments
- Preparation of students for future workforce by developing practical, transferable competencies as well as essential skills

Attribute 2.5: STEM/STEAM Professional Learning

STEM and STEAM schools cultivate a culture of professional learning among staff. This professional learning is high-quality and includes content focused on STEM culture, pedagogy, and/or leveraging partnerships in teaching and learning.

HIGH-QUALITY PROFESSIONAL LEARNING

- **Personalized**: Staff are actively involved in identifying topics and format for professional learning that focuses on their personal learning goals. Professional learning experiences are flexible and accommodate diverse learning needs and preferences
- **Relevant**: A focus on STEM pedagogy, such as inquiry-based learning, design thinking, problem-based or project-based learning, personalized learning, building community partnerships, and connecting learning to careers through the lens of disciplinary content
- **Ongoing**: Takes place throughout the year, with multiple opportunities for learning that build upon existing knowledge and experiences
- **Job-embedded**: Integrated into daily work, supports collaboration among peers, incorporates non-evaluative feedback and reflection, and when possible, leverages instructional coaching for continuous improvement

FOCUSED CONTENT

- Establishing a schoolwide culture that supports STEM learning through innovation, entrepreneurial spirit, inquiry, and collaboration with individual accountability
- Emphasizing inquiry-based learning, discovery learning, and hands-on learning
- Collaborating across disciplines to create and implement integrated lessons
- Creating and implementing discipline-based or integrated project-based or problem-based learning experiences that leverage authentic problems
- Applying design thinking to solve relevant, content-specific, or integrated problems
- Creating and implementing problem-based, project-based, and design thinking opportunities that are accessible to students of all abilities, aptitudes, and learning styles
- Focusing on elements of personalized learning, including learner-driven, flexible learning environment, authentic learning, optimal path and pace, and evidence of learning and feedback

- Engaging with community, business and industry, and higher education partners to create learning experiences that include authentic problems
- Connecting disciplinary content to STEM and STEAM careers
- Cultivating workforce readiness skills that position students to contribute to the future STEM workforce

Domain 3: Pathways to Success in Careers

Attribute 3.1: Career Access and Exploration

STEM and STEAM schools exhibit curricular connections with business and industry, providing opportunities and access for workforce readiness and success in college and career.

CAREER-CONNECTED LEARNING

- The school integrates standards-based content with related STEM and STEAM careers to support career exploration and planning.
- The school incorporates real-world learning experiences into the curriculum to help students understand how their learning is relevant to professional careers.
- The school includes career-themed content in classroom discussions and activities.

CAREER EXPLORATION

- The school collaborates with local businesses and industry professionals to provide students with insights into various STEM and STEAM careers.
- The school offers programs specifically designed to help students explore different STEM and STEAM careers. These programs might include career exploration courses, Career-Technical Student Organizations, and work-based learning opportunities such as career fairs and job shadowing opportunities.
- Student career interests are developed through active student involvement in STEM and STEAM activities such as researching, shadowing, mentorships, and (for older students) apprenticeships.
- High schools provide access for students to earn certifications, credentials and/or credit completion at career-technical planning districts, community colleges, colleges, and/or universities.
- As appropriate for the grade level, schools provide student access to course credit opportunities (Advanced Placement courses, International Baccalaureate courses, early college, College Credit Plus, and others).
- Schools promote awareness of postsecondary preparation (development of effective study skills and self-regulation skills) and (for older students) college tours and assistance with the application process.

Attribute 3.2: Partnerships Extend Learning Opportunities

STEM and STEAM schools exhibit collaborative partnerships with business, industry, the arts, and higher education to provide and enhance opportunities for practical and real-world experiences that help students transition to college and careers. Collaborative partnerships offer benefits to both the school and partnering organization.

COLLABORATIVE PARTNERSHIPS

The school collaborates with business, industry, arts, and higher education partners to ensure alignment to intended STEM and STEAM pathways and local business and industry needs. Partners are part of the decision-making process through engagement with the school's STEM/STEAM Advisory Group and/or Curriculum Team or Business Advisory Council. In collaborative partnerships:

- Partners support learning experiences by providing ideas for design challenges and problem-based learning.
- Partners share resources (lab/design space, mentors, speakers, equipment, current industry information, expertise, meeting facilities, and others).
- Schools establish career-aligned curriculum and resources through inviting business partners to inform school culture and habits of mind, review course materials, and share career pathway information.
- Partners assist in providing ongoing, active work-based learning experiences, either during or outside of the school day (shadowing, internships, apprenticeships, and others) so that students have direct experiences with STEM/STEAM professionals in authentic environments.
- Schools create opportunities to help students earn industry-recognized credentials by inviting feedback from industries to learn which credentials are most valued, and exploring opportunities such as pre-apprenticeship programs where students can earn the credentials.
- Schools support dual-enrollment opportunities for students through partnering with local community colleges or four-year universities.
- Schools and partners explore options for integration of work-based learning experiences with curriculum and course work.

OPPORTUNITIES FOR PRACTICAL AND REAL-WORLD EXPERIENCE

Students and teachers have opportunities for contextualized learning, comparable to what they would find in business, industry, or other professions.

- Students have frequent interactions with STEM/STEAM professionals.
- Students engage with partners for mentorship, shadowing, internship, pre-apprenticeship, and feedback opportunities that enhance learning experiences.
- The school creates and supports opportunities for STEM/STEAM work-based learning experiences for students and teachers.

- Students actively work with employers in realistic problem-solving situations, relevant to students and the community.
- Teachers engage with partners to create ongoing, authentic, career-connected learning experiences for students.
- School leverages partners to provide externship opportunities for teachers.

Attribute 3.3: Relevant Community Learning Experiences

STEM and STEAM schools anchor student learning in issues relevant to students, their classrooms or schools, and local and/or global communities. These learning experiences are anchored in grade-level content standards. Service learning includes the application of content standards to address a community need. Both schools and community partners benefit from collaborative engagement.

RELEVANT TO STUDENTS

- Learning experiences draw on student languages, experiences, and cultures.
- Students are empowered to identify and solve problems that impact their lives.
- Students have opportunities to engage with members of their local and global community.

RELEVANT TO COMMUNITY

- Students seek and incorporate feedback on their work from a variety of authentic audiences in their community (for example, community members who have knowledge of the problem/issue and others).
- School provides opportunities for service learning within the community.
- Students have opportunities to engage in STEM- or STEAM-related community activities and events.

Acknowledgements

We extend our sincere gratitude to the many members of Ohio's STEM community who generously contributed their time, expertise, and thoughtful input to the development of the new Ohio Quality Model for STEM and STEAM Education. This updated model builds upon the foundation of the original Quality Model for STEM and STEAM Schools, and we are especially grateful to the original committee of more than 40 dedicated STEM community members whose insights shaped that foundational work.

We also thank the school leaders, business leaders, industry experts, educators, and professionals from the Ohio Department of Education and Workforce who reviewed early drafts and provided invaluable feedback. This document was authored by Dr. Sarah Redick and Dr. Sandra Wilder as part of the ongoing partnership between the Department and the Ohio STEM Learning Network (OSLN).