



INDIANA
DEPARTMENT of
EDUCATION

Secondary STEM Certification Guide

2024-2025

Indiana Department of Education
Office of Teaching and Learning

100 N. Senate Ave.
Indianapolis, IN 46204



STEM in Indiana

[Indiana's Priorities for STEM Education](#) seeks to develop a sustainable model for preparing educators to provide high-quality STEM learning opportunities by integrating the disciplines of science, technology, engineering, and mathematics to maximize student learning and achievement. The following are Indiana's Priorities for STEM Education:

1. Refine STEM pedagogy with research-based practices.
2. Develop STEM leaders and educators.
3. Increase access to STEM courses, programs, and resources.

Through these priorities, the Indiana Department of Education (IDOE) supports schools in refining current STEM initiatives and establishing new opportunities to prepare the next generation of thinkers, creators, advocates, and entrepreneurs.

Vision

IDOE will collaborate with educators and schools across the state to implement Indiana's Priorities for STEM Education in an effort to provide access to high-quality, integrated STEM instruction and to increase student participation and achievement related to integrated STEM learning opportunities. In a constantly evolving world, STEM education will prepare all students to contribute to society through innovative problem solving as the next generation of thinkers, creators, advocates, and entrepreneurs.

Mission

Indiana's Priorities for STEM Education seeks to develop a sustainable model for preparing educators to provide high-quality, integrated STEM learning opportunities to students, as well as support and provide resources to educators during implementation. This will be achieved through a collaborative process of professional development promoting research-based practices. These priorities will ultimately result in providing students with an engaging, integrated STEM education experience that prepares them for emerging STEM careers and educational opportunities.

STEM Education Defined

Integrated STEM education is the purposeful integration of science, technology, engineering, and mathematics through an engaging and motivating student-centered pedagogy and curriculum. Students are engaged in solving real-world problems using inquiry-based learning, problem-based learning, and engineering design practices, which require critical thinking and collaboration. Highly-trained and well-supported educators are key to providing these experiences to students.

A *STEM classroom* is one that works toward the integration of science, technology, engineering, and mathematics across content areas. Students pose questions when faced with real-world situations. Investigation, productive struggle, and innovation foster a culture of collaboration and creation. Students are partners in the teaching and learning process by developing skills to reason abstractly, model with science and mathematics, and justify their reasoning to express ideas precisely.

Problem solving is the engagement in a task for which the solution method is not known in advance.¹ The definition includes the willingness to engage with such situations in order to achieve one's potential as a constructive and reflective citizen.² In the STEM classroom, methods of problem solving could include, but are not limited to, productive struggle, rich tasks, modeling, and inquiry- and project-based learning.

STEM School Certification

Since 2015, Indiana has certified more than 100 schools as leaders in integrated STEM. The STEM Certification process exemplifies the importance of inquiry-based learning (IBL), project-based learning (PBL), community engagement, student-centered classrooms, and out-of-school STEM activities. Schools receiving the distinction of an Indiana STEM Certified School have aligned their programs with the mission, vision, and three priorities outlined in Indiana's Priorities for STEM Education.

Developing a STEM school environment consists of much more than introducing a program. It requires establishing a common local agenda to significantly improve student performance, incorporating STEM education at all levels, engaging local businesses and the community, and often adopting new curriculum and implementing new instructional practices. A school's success depends on prioritizing STEM pedagogy and implementing effective models. The Secondary STEM Certification application consists of three parts: *Essential Elements*, *Additional Showcase Artifacts*, and the *Site Visit*. Requirements and guidance for each part of the application are provided in this document.

Eligible entities for Secondary STEM Certification include Indiana accredited public, public charter, accredited non-public schools, and career centers. The Secondary STEM Certification application process requires the creation of a Google Site (or an approved alternative), using the provided template, to document evidence of a school's STEM implementation. This process is used for new schools to become certified, as well as those renewing their certification.

STEM Certification is valid for five years. Schools and programs seeking to retain STEM Certification must reapply following this prescribed timeline and process. The list of STEM Certified Schools and STEM Certified Programs, by cohort, can be found [here](#).

¹ National Council of Teachers of Mathematics (2013)

² Organisation for Economic Co-operation and Development (2013)

Secondary STEM Certification Application Process

Certification Rubrics

- [2024-2025 Secondary Essential Elements Rubric](#)
- [2024-2025 Secondary Additional Showcase Artifacts Rubric](#)
- [2024-2025 Secondary Site Visit Rubric](#)

Completed applications due Friday, December 13.

Step 1: School STEM Leadership Team completes the [STEM Certification Intent to Apply Form](#).

Step 2: IDOE STEM Certification Review Team will contact the school STEM Leadership Team to schedule a meeting to discuss the school's Intent to Apply Form and plan a timeline for the certification process.

Step 3: After the meeting in Step 2, the STEM Leadership Team will use the provided Google Sites template (or approved alternative) to showcase evidence of the six Essential Elements, and evidence for no less than one additional item from each domain of the Additional Showcase Artifacts Rubric. (See required points for site visit).

Please note: Schools with local technology policies that prohibit the use of Google tools may be approved by IDOE to use an alternative to the Google Sites template, but they must still follow the format prescribed in the Google Sites template. Schools must provide IDOE documentation of any local policy precluding the use of the Google tools.

Step 4: Schools procure an experienced STEM professional/educator from outside their organization with knowledge of the school's mission and vision to provide feedback on their site using the STEM Certification Evaluation Rubric. This individual should ensure that all evidence links are accessible to those outside of the organization.

Step 5: STEM Leadership Team submits the Google Site (or approved alternative) using this [form](#) by 11:59 p.m. ET on Friday, December 13.

Step 6: IDOE's STEM Certification Review Team, comprised of a minimum of two IDOE staff members, will review the Google Site (or approved alternative) using the 2024-2025 Secondary STEM Certification Evaluation Rubric and Additional Showcase Artifacts Rubric.

Step 7: IDOE will issue a preliminary score report in response to each completed application. The following are possible next steps based on the preliminary score:

- A school earning an initial score greater than 41 points and a score of three on all six essential elements is not required to submit additional evidence and will be contacted to schedule a site visit.
- All schools receiving a score less than 41 points and/or earning less than a score

of three on any of the six essential elements will have the opportunity to submit additional evidence by 11:59 p.m. ET on February 21, 2025. Following the review of additional evidence, applications scoring a minimum of 41 points and attaining a required score of three on all six essential elements after rescoring will be contacted to schedule a site visit.

- A school earning an initial score less than 41 points will be designated as *Developing in STEM Certification* and will not receive a site visit. Please note that *Developing in STEM Certification* schools will be provided IDOE support to continue the application process in subsequent school year.

Step 8: Members of the school's STEM Leadership Team will create a detailed presentation highlighting their STEM journey that they will share with members of IDOE's STEM Certification Review Team during the scheduled site visit. After the presentation from the school's STEM Team, members of IDOE's STEM Certification Review Team will tour the school utilizing the Secondary STEM Certification Site Visit Evaluation Rubric. A school must earn 39 of 39 points on Essential Site Visit Elements and at least 14 of 21 points on Additional Site Visit Elements to be awarded STEM Certification. Schools not earning this minimum score will be designated as *Developing* and will be provided IDOE support to continue the application process in the subsequent school year.

Step 9: IDOE's STEM Certification Review Team will provide a final report to school leadership following the site visit.

Step 10: Applications receiving a minimum score of 94 points on the application and site visit rubric will be designated as **STEM Certified** by IDOE's STEM School Certification Review team. The designation will be embargoed until the official announcement is made via IDOE's press release.

Required Components of Google Site Application

- School information
- Superintendent information
- Principal information
- STEM School Leadership Team Chair contact information
- STEM Mission and Vision Statements
 - Mission statement
 - Vision statement
 - Connection between mission/vision and Indiana's Priorities for STEM Education
- STEM School Leadership Team Biographies
- Letter of support from the principal
- Letter of support from the superintendent

- Letter of support from community partner(s)
- Essential Element 1 (maximum of 1,500 words)
 - School Overview
 - Detailed narrative describing how the vision for identified STEM programming connects to the mission of the STEM Leadership Team
- **Domain 1: Culture**
 - Domain summary (maximum of 500 words)
 - Short summary and description of each piece of evidence
 - Corresponding, uploaded documentation
- **Domain 2: Curriculum**
 - Domain summary (maximum of 500 words)
 - Short summary and description of each piece of evidence
 - Corresponding, uploaded documentation
- **Domain 3: Instruction**
 - Domain summary (maximum of 500 words)
 - Short summary and description of each piece of evidence
 - Corresponding, uploaded documentation
- **Domain 4: Partnerships**
 - Domain summary (maximum of 500 words)
 - Short summary and description of each piece of evidence
 - Corresponding, uploaded documentation

Description of Essential Elements

The Essential Elements listed below are required for Secondary STEM Certification. While each of the Essential Elements represents one aspect of the STEM program, the required evidence submitted should convey a connected, integrated, and collaborative picture of STEM in your school. Reference the following goals and the Essential Elements Rubric when completing and submitting your school's application. These six Essential Elements are worth a total of 21 points. Schools that do not earn 21 points in this category will receive the designation of **Developing**.

Please contact IDOE's [Office of Teaching and Learning](#) to request further clarification on any required element.

Essential Element 1 (6 points)

This element is double weighted.

The goal of **Essential Element 1: Mission and Vision** is to give secondary schools and career centers the opportunity to define the scope of STEM Certification at their school. IDOE recognizes many different configurations of grade levels and programming at the secondary

level and has developed the **Requirements Checklist** to support the **Mission and Vision** narrative developed in collaboration with the STEM Leadership Team.

Essential Element 2 (3 points)

The goal of **Essential Element 2: Interdisciplinary STEM Projects** is to provide evidence of the scope of implementation of refined STEM pedagogy within the defined STEM program. Interdisciplinary projects can include a variety of disciplines but should at minimum include at least two STEM disciplines from the defined STEM program.

Essential Element 3 (3 points)

The goal of **Essential Element 3: Computer Science Implementation** is to provide an opportunity to describe efforts to expand access to computer science courses in the defined STEM program.

Essential Element 4 (3 points)

The goal of **Essential Element 4: STEM Instructional Feedback** is to allow teachers and administrators the tools needed to evaluate STEM instruction in the classroom. IDOE recognizes that many different evaluation models are used in secondary schools, but the STEM leadership team can work to align current indicators with STEM instructional best practices or support the development of a separate walkthrough tool.

Essential Element 5 (3 points)

The goal of **Essential Element 5: Technology Tools** is to promote effective and productive use of technology supports in the classroom. Thoughtful technology integration helps in producing meaningful student work and multiple tool use promotes diversification among disciplines.

Essential Element 6 (3 points)

The goal of **Essential Element 6: Program Feedback** is to provide evidence of community engagement, continuous improvement, and strategic planning based on input from local STEM community partners. The STEM Advisory Board can work alongside the building-level STEM Leadership Team but should analyze data from the defined STEM program and offer assistance and suggestions for improvement.

Additional Showcase Artifacts

These elements represent a menu of options to provide additional evidence related to the applicant school's defined STEM program. **Schools are required to select at least one option from each domain (column) when providing additional support for the application.** Each

of the 17 Additional Showcase Artifacts is worth three points. To achieve a total minimum score of 20 points for this section of the application, a combination of the remaining options can be selected, as represented on the 2024-2025 Secondary Additional Showcase Artifacts Rubric. Schools that do not earn 20 points in this category will receive the designation of *Developing*.

Schools earning less than a total of 41 points on the Google Site portion of the application will be designated as *Developing in STEM Certification* and provided support to continue the development of their STEM program and the opportunity to reapply in the 2025-2026 school year.

Additional Showcase Artifacts			
D1: Culture	D2: Curriculum	D3: Instruction	D4: Partnerships
D1.1: Sustainability Plan	D2.1: Student Portfolio Option	D3.1: STEM Instructional Approach Implementation	D4.1: Student Recognition
D1.2: Measurement of Students' Attitudes/Interests	D2.2: Employability Skills	D3.2: Student Instructional Work Groups	D4.2: STEM Career Exploration
D1.3: Access to STEM Courses and Programs	D2.3: Access and Opportunity for All Learners	D3.3: Common Language	D4.3: Community Engagement
D1.4: STEM Program Analysis	D2.4: Assessments	D3.4: Regional Programming	D4.4: Additional STEM learning opportunities
	D2.5: Student Voice		

Site Visit

Schools earning the required points on the Essential Elements and Additional Showcase Artifacts portion of the application will earn a site visit. Points earned during the site visit count towards total points needed for STEM Certification. Please prepare for the site visit using the checklist in the evaluation tool.

Additionally, the site visit contains Essential Elements. Schools must earn a score of three on all 13 Essential Elements for the site visit. Schools should reference the language within the 2024-2025 Secondary Site Visit Rubric when planning for their site visit.

Schools earning less than 41 points on the Google Site portion of the application will be designated as *Developing* in STEM Certification and provided support to continue the development of their STEM program and the opportunity to apply in the 2025-2026 school year. STEM Certification is valid for five years. Schools and programs seeking to retain STEM Certification must reapply following the published STEM Certification guidance.

STEM Certification Scoring Overview

Schools must earn 94 points to achieve STEM Certification. A maximum of 45 points can be earned on the Essential Elements and Additional Showcase Artifacts, which are submitted on the Google Site.

	Total Points Possible	Minimum Points for Site Visit	Designated Developing
Essential Elements	21	21	<21
Additional Showcase Artifacts	51	20	<20

If the combined score is greater than or equal to 41, a site visit will be conducted to complete the scoring process. Submissions scoring fewer than 41 points will be designated as *Developing* and provided support to continue the development of their STEM program and the opportunity to apply in the 2025-2026 school year.

	Total Points Possible	Minimum Points for Secondary STEM Certification	Designated Developing
Site Visit Essential Elements	39	39	<39
Additional Site Visit Indicators	21	14	<14

The table below illustrates the total number of points needed in each part of the application to earn Secondary STEM Certification.

Essential Elements	Additional Showcase Artifacts	Site Visit Essential Elements	Additional Site Visit Indicators	Total Points
21	20	39	14	94

STEM Certification Timeline

2024-2025 STEM Certification/Recertification Timeline	
Friday, August 9	IDOE publishes the 2024-2025 STEM Certification application materials for elementary and middle schools.
Friday, August 9, through Friday, October 25	Intent to Apply form open/due
Rolling basis August through October	Schedule meeting with IDOE to discuss Intent to Apply and receive Google Site access.
Friday, December 13	STEM Certification applications are due to IDOE.
January, 2025	IDOE reviews applications.
January 17, 2025	IDOE provides application feedback to schools.
February 21, 2025	Schools respond to IDOE with additional application evidence, as needed.
March 14, 2025	IDOE provides second round feedback to schools.
March through May, 2025	IDOE STEM Certification Review Team completes site visits.
June 13, 2025*	IDOE formally announces the list of 2024-2025 STEM Certified Schools.

*This date remains tentative.

Please contact IDOE's Office of Teaching and Learning with any questions regarding the STEM Certification process via email at stemcertification@doe.in.gov.