K-8 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 in a STEM classroom 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, problem-based learning, community engagement, student-centered classrooms, and out-of-school STEM activities. Schools achieving STEM Certification 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. For schools, this 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. IDOE identifies three main levels of STEM school immersion and the components necessary to become a STEM model school in the K-8 STEM Certification Evaluation Rubric. The rubric serves as a guide for identifying and creating a STEM environment and ranges from developing to emerging to innovating. IDOE encourages schools to review the K-8 STEM Certification Evaluation Rubric to determine eligibility **before** applying for STEM Certification.

Eligible entities for K-8 STEM Certification include Indiana schools (i.e., accredited public, public charter, and accredited non-public schools) that serve students in kindergarten through grade eight. The STEM Certification application process requires that schools create a Google Site (or an approved alternative) and use the provided template to document evidence of their STEM implementation. This process is used for any new school to become certified, as well as any that need to renew their certification.

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[1] National Council of Teachers of Mathematics (2013)
[2] Organisation for Economic Co-operation and Development (2013) *PISA 2012 Problem Solving Framework*

If a school's completed application includes required evidence for all essential elements and scores a minimum of 54 points, IDOE's STEM Certification Review Team will visit the school to meet with the school's STEM leaders, observe elements outlined in the site visit rubric, and provide feedback regarding the school's certification status. STEM Certification is valid for five years. Schools and programs seeking to retain STEM Certification must reapply following this prescribed timeline and process. The current list of STEM Certified Schools and STEM Certified Programs, by cohort, can be found here.

K-8 STEM Certification Application Process

Certification Rubrics
- ☐ 2024-2025 K-8 STEM Certification Evaluation Rubric
- ☐ 2024-2025 K-8 STEM Certification Site Visit Rubric

Applications are due by 11:59 p.m. ET on Friday, December 13.

Step 1: School STEM Leadership Team completes the STEM Certification Intent to Apply Form, **due Friday, October 25**.

Step 2: IDOE STEM Certification Review Team will contact the school's 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 Elements in the 2024-2025 STEM Certification Evaluation Rubric.
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: School 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 K-8 STEM Certification Evaluation 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 54 points and a score of three on all eleven 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 54 points and/or earning less than a score of three on any of the eleven 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 54 points and attaining a required score of three on all eleven essential elements after rescoring will be contacted to schedule a site visit.
- A school earning an initial score less than 54 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.

Note: Schools that apply for ***recertification*** and earn a score of 54 or greater with a score of three on all eleven essential elements on the preliminary score report will not require a site visit.

Step 8: Members of the school's STEM Leadership Team will create a short 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 2024-2025 K-8 STEM Certification Site Visit Evaluation tool. A school must earn 30 of 30 points on Essential Site Visit Elements and at least 11 of 15 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 email a final report to school leadership within one week of the site visit.

Step 10: Applications receiving a minimum score of 54 points on the preliminary score report with a required score of three on all eleven essential elements, and points awarded for all 10 Essential Site Visit Elements from the site visit evaluation will be designated as a STEM Certified School 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)

- Executive Summary (maximum of 1,500 words)
  - School overview
  - Description of STEM Focus/Program

- **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

STEM Certification Scoring Overview

Schools must earn 54 points to achieve STEM Certification. A maximum of 54 points can be earned on the Essential Elements and Additional Elements, which are submitted on the school's Google Site.

	Total Points Possible	Minimum Points for Site Visit	Designated Developing
Essential Elements	33	33	<33
Additional Elements	30	21	<21
Total	63	54	<54

If the combined score is greater than or equal to 54, a site visit will be conducted to complete the scoring process. Submissions scoring fewer than 54 points will be designated as *Developing* and provided IDOE support to continue the development of their STEM programming and the opportunity to apply during the next application period.

	Total Points Possible	Minimum Points for Secondary STEM Certification	Designated Developing
Site Visit Essential Elements	30	30	<30
Additional Site Visit Elements	15	11	<11

The table below illustrates the total number of points needed in each part of the application to earn K-8 STEM Certification.

Essential Elements	Additional Elements	Site Visit Essential Elements	Additional Site Visit Indicators	Total Points
33	21	30	11	95

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.