# Indiana Department of Education STEM Certification Evaluation Rubric

**NOTE: Essential Elements are identified in gray**

| Domain 1: Culture | | | | | | | |
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| **Element** | **Investigating** | **Developing** | **Approaching** | **Innovating** | **Element Score** | **Evidenced By:** ***(Examples listed below. You may choose your own evidence to support your score).*** | **References** |
| | **0 points** | **1 point** | **2 points** | **3 points** | | | |
| **1.1 Decision-Making** | Does not yet meet minimum indicators for developing | Decision-making regarding planning and implementing the school's STEM program is the work of a school team, comprised of administrators, and teachers, and includes the opportunity for feedback on the program from at least 50 percent of the certified staff | Decision-making regarding planning and implementing the school's STEM program is the work of a school team, comprised of administrators, and teachers, and includes the opportunity for feedback on the program from at least 75 percent of the certified staff | Decision-making regarding planning and implementing the school's STEM program is the work of a school team, comprised of administrators, and teachers, and includes the opportunity for feedback on the program from at least 95 percent of the certified staff | | •Meeting schedule<br>•Detailed meeting minutes<br>•Meeting agenda(s)<br>•Roster of team members identifed by role i.e.,<br>Admin, Teacher, etc...<br>•Survey results | 8, 9, 10, 22, 23 |
| **1.2 Continuity of Learning** | Does not yet meet minimum indicators for developing | The school's plan for continuity of learning includes at least one of the following:<br>1) Integrated STEM lessons in the context<br>of solving a real world problem or challenge<br>2) Students to work in teams either synchronously or asynchronously<br>3) A variety of methods are used to assess student STEM learning | The school's plan for continuity of learning includes at least two of the following:<br>1) Integrated STEM lessons in the context<br>of solving a real world problem or challenge<br>2) Students to work in teams either synchronously or asynchronously<br>3) A variety of methods are used to assess student STEM learning | The school's continuity of learning plan includes all three of the following:<br>1) Integrated STEM lessons in the context<br>of solving a real world problem or challenge<br>2) Students to work in teams either synchronously or asynchronously<br>3) A variety of methods are used to assess student STEM learning | | •School's Continuous Learning Plan<br>•School's Continuity of Learning Plan | 20 |
| **1.3 Common Work Time** | Does not yet meet minimum indicators for developing | Common work time is provided, on a monthly basis, where teachers plan integrated STEM learning opportunities as an interdisciplinary team | Common work time is provided, on a bi-weekly basis, where teachers plan integrated STEM learning opportunities as an interdisciplinary team | Common work time is provided, on a weekly basis, where teachers plan integrated STEM learning opportunities as an interdisciplinary team | | •Meeting/master schedule<br>•Roster of participants<br>•Sample Lesson Plans<br>•Detailed meeting minutes documenting the planning | 4, 6, 8, 9, 10, 14, 15, 18, 23 |
| **1.4 Sustainability Plan** | Does not yet meet minimum indicators for developing | There is a two-year STEM certification sustainability plan in place including funding sources for both technology and STEM curriculum and training needs due to staff turnover | There is a three-year STEM certification sustainability plan in place identifying funding sources for both technology and STEM curriculum and training needs due to staff turnover | There is a five-year STEM certification sustainability plan in place identifying funding sources for both technology and STEM curriculum and training needs due to staff turnover | | •Technology plan<br>•Curriculum funding plan<br>*(STEM School Certification is valid for 5 years, documentation should indicate a plan to sustain programming/equipment/training through all 5 years)* | 8, 9, 10, 14, 23, 24 |
| **1.5 Measurement of Students' Attitudes/Interests** | Does not yet meet minimum indicators for developing | Informal methods are used to measure students' attitudes toward STEM and/or interest in STEM classes/career pathways and the school's STEM program is revised, as needed, based upon analysis of this data | Formal measurement of students' attitudes toward STEM and/or interest in STEM classes/career pathways are measured on an annual basis and the school's STEM program is revised, as needed, based upon analysis of this data | Formal measurement of students' attitudes toward STEM and/or interest in STEM classes/career pathways are measured at least two times per school year and the school's STEM program is revised, as needed, based upon analysis of this data | | •Course/program enrollment/participation trends<br>•Student Attitudes toward STEM (S-STEM) Survey<br>•STEM Semantics Survey<br>•Career Interest Questionnaire<br>•Test of Science Related Attitudes (TOSRA)<br>•Locally created survey<br>•Description of revisions based upon data analysis | 23, 26 |
| **1.6 Student/Parent Feedback Data** | Does not yet meet minimum indicators for developing | Student or parent feedback regarding STEM integration is only collected on an informal basis and the school's STEM program is revised, as needed, based upon analysis of this data | There is a formal collection of student and parent feedback regarding STEM integration on an annual basis and the school's STEM program is revised, as needed, based upon analysis of this data | There is a formal collection of student and parent feedback regarding STEM integration on an annual basis and the school's STEM program is revised, as needed, based upon analysis of this data | | •Copy of survey(s)<br>•Summary of data<br>•Description of revisions based upon data analysis | 21, 23 |

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| **1.7 STEM Instructional Feedback** | Does not yet meet minimum indicators for developing | One of these indicators is documented:<br>1) Evaluation indicators have been determined, in the current local evaluation instrument or through modifying the local evaluation instrument, for identifying targeted STEM instructional practices<br>2) All evaluators are trained in observing targeted STEM instructional practices, using the local evaluation instrument<br>3) Evaluators incorporate feedback on targeted STEM instructional practices in formative and summative evaluations, using the local evaluation instrument | Two of these indicators are documented: 1) Evaluation indicators have been determined, in the current local evaluation instrument or through modifying the local evaluation instrument, for identifying targeted STEM instructional practices<br>2) All evaluators are trained in observing targeted STEM instructional practices, using the local evaluation instrument<br>3) Evaluators incorporate feedback on targeted STEM instructional practices in formative and summative evaluations, using the local evaluation instrument | All of these indicators are documented:<br>1) Evaluation indicators have been determined, in the current local evaluation instrument or through modifying the local evaluation instrument, for identifying targeted STEM instructional practices<br>2) All evaluators are trained in observing targeted STEM instructional practices, using the local evaluation instrument<br>3) Evaluators incorporate feedback on targeted STEM instructional practices in formative and summative evaluations, using the local evaluation instrument | | •Training documentation for evaluators i.e., training specific to assessing STEM instructional practices, training in school's STEM curriculum, book study, etc..<br>•Samples of feedback provided to teachers<br>•List of identified indicators targeted to STEM instructional practices from local evaluation instrument | 1, 12 |
| **1.8 Instructional Support** | Does not yet meet minimum indicators for developing | At least 75 percent of teachers experience at least one of these forms of instructional supports, related to STEM instruction, annually:<br>1) peer observation<br>2) lesson study<br>3) critical feedback<br>4) coaching<br>5) modeling<br>6) action research<br>7) mentoring<br>8) targeted professional development sessions<br>9) curriculum training | At least 75 percent of teachers experience at least one of these forms of instructional supports, related to STEM instruction, bi-annually:<br>1) peer observation<br>2) lesson study<br>3) critical feedback<br>4) coaching<br>5) modeling<br>6) action research<br>7) mentoring<br>8) targeted professional development sessions<br>9) curriculum training | At least 75 percent of teachers experience at least one of these forms of instructional supports, related to STEM instruction, on a quarterly basis:<br>1) peer observation<br>2) lesson study<br>3) critical feedback<br>4) coaching<br>5) modeling<br>6) action research<br>7) mentoring<br>8) targeted professional development sessions<br>9) curriculum training | | •Summary of supports provided using teacher roster<br>•Sample of teacher reflections (journaling) based on provided supports<br>•Summary of survey responses based upon provided supports | 5, 8, 9, 10, 11, 14, 16, 17, 18, 22 |
| **1.9 STEM Communications** | Does not yet meet minimum indicators for developing | Communication tools (e.g., website, newsletters, social media, webinars, meetings, etc.) are used two-three times per year to communicate about STEM education | Communication tools (e.g., website, newsletters, social media, webinars, meetings, etc.) are used eight-10 times per year to communicate about STEM education | Communication tools (e.g., website, newsletters, social media, webinars, meetings, etc.) are used two-three times per month to communicate about STEM education | | •Links to communications<br>•Calendar of communications<br>•Samples of social media posts<br>(Choose one month to document) | 8, 9, 10, 14, 17, 23 |
| **1.10 Equity** | Does not yet meet minimum indicators for developing | Elementary: At least 50 percent of students participate in integrated STEM instruction/programming<br><br>Middle School and High School: STEM elective enrollment, including AP/dual credit, is within 50% of school demographics | Elementary: At least 75 percent of students participate in integrated STEM instruction/programming<br><br>Middle School and High School: STEM elective enrollment, including AP/dual credit, is within 25% of school demographics | Elementary: 100 percent of students participate in integrated STEM instruction/programming<br><br>Middle School and High School: STEM elective enrollment, including AP/dual credit, mirrors school demographics | | •Curriculum maps<br>•Course offerings<br>•School schedule<br>•STEM enrollments with demographic breakdown (Special Ed Status, Gender, Minorities, etc...)<br>•Description of how STEM time is "protected" from pull-outs for special programming (Title I, Resource, Remediation, etc...)<br>•MS/HS STEM programming promotion plan | 1, 8, 9, 10, 14, 17, 18, 19, 25 |
| **Culture Score:** | | | | | **0** | | |
| **Domain 2: Curriculum** | | | | | | | |
| **Element** | **Investigating**<br>**0 points** | **Developing**<br>**1 point** | **Approaching**<br>**2 points** | **Innovating**<br>**3 points** | **Element Score** | **Evidenced By:**<br>***(Examples listed below. You may choose your own evidence to support your score).*** | **References** |
| **2.1 Curriculum Integration** | Does not yet meet minimum indicators for developing | At least 10 percent of planned, integrated STEM curriculum is evidence-based | At least 25 percent of planned, integrated STEM curriculum is evidence-based | At least 50 percent of planned, integrated STEM curriculum is evidence-based | | .<br>•Curriculum from IDOE approved list<br>•Description of model that is basis for teacher-created units and/or other providers i.e., 5-E, PBL Gold Standard, etc... | 1, 7, 8, 9, 10, 14, 18, 23 |
| **2.2 Computer Science** | Does not yet meet minimum indicators for developing | A computer science implementation plan has been developed that complies with IC 20-30-5-23 | Elementary and Middle School: Standards-based computer science content is incorporated into the school curriculum for at least 50 percent of students<br><br>High School: One computer science course is available to all students | Elementary and Middle School: Standards-based computer science content is incorporated into the school curriculum for 100 percent of students<br><br>High School: Multiple computer science courses are available to all students | | •Implementation plan<br>•Course list/guide | 1, 8, 9, 10 |

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| **2.3 Employability Skills** | Does not yet meet minimum indicators for developing | Employability Skills Standards, based upon the appropriate grade band, are integrated into the school curriculum for at least 50 percent of students | Employability Skills Standards, based upon the appropriate grade band, are integrated into the school curriculum for at least 75 percent of students. | Employability Skills Standards, based upon the appropriate grade band, are integrated into the school curriculum for 100 percent of students | | •Curriculum/program summary<br>•Samples of unit/lesson plans<br>•Samples of student products<br>•Samples of rubrics | 1, 6, 8, 9, 10, 11, 14 |
| **2.4 Equity** | Does not yet meet minimum indicators for developing | General education teachers create materials for diverse learners based upon their understanding of students' academic needs | Special education teachers and support services teachers (ENL, Interpreters, etc...) provide accommodations and/or adaptations for diverse learners based upon their understanding of students' academic needs | General education teachers are connected with appropriate special education teachers and support services teachers (ENL, Interpreters, etc...) for necessary material development and refinement for diverse learners based upon their understanding of students' academic needs | | •Samples of lesson plans with planned supports<br>•Meeting agenda(s)<br>•Guidance documents | 2 |
| **2.5 Assessments** | Does not yet meet minimum indicators for developing | At least 25 percent of teachers use a variety of assessment methods for students to demonstrate STEM learning | At least 50 percent of teachers use a variety of assessment methods for students to demonstrate STEM learning | At least 75 percent of teachers use a variety of assessment methods for students to demonstrate STEM learning | | •Samples of assessments<br>•Samples of feedback provided to students<br>•Samples of student products<br>•Samples of rubrics | 8, 9, 10, 17, 23 |
| **Curriculum Score:** | | | | | **0** | | |
| **Domain 3: Instruction** | | | | | | | |
| **Element** | **Investigating** | **Developing** | **Approaching** | **Innovating** | **Element Score** | **Evidenced By:** ***(Examples listed below. You may choose your own evidence to support your score).*** | **References** |
| | **0 points** | **1 point** | **2 points** | **3 points** | | | |
| **3.1 STEM Instructional Approach Training** | Does not yet meet minimum indicators for developing | At least 10 percent of teachers have been trained in implementing a STEM instructional approach in the context of solving a real-world problem or challenge | At least 25 percent of teachers have been trained in implementing a STEM instructional approach in the context of solving a real-world problem or challenge | At least 50 percent of teachers have been trained in implementing a STEM instructional approach in the context of solving a real-world problem or challenge | | •PD/training plan for PBL and/or IBL<br>•Agenda(s) from PD/training session(s)<br>•Roster of participants | 8, 9, 10, 14, 17, 21, 22 |
| **3.2 STEM Instructional Approach Implementation** | Does not yet meet minimum indicators for developing | At least 10 percent of teachers use a STEM instructional approach in the context of solving a real-world problem or challenge | At least 25 percent of teachers use a STEM instructional approach in the context of solving a real-world problem or challenge | At least 50 percent of teachers use a STEM instructional approach in the context of solving a real-world problem or challenge | | •Samples of unit/lesson plans<br>•Samples of student products | 1, 3, 6, 7, 8, 9, 10, 14, 17, 23 |
| **3.3 Student Instructional Work Groups** | Does not yet meet minimum indicators for developing | At least two times per month and in at least 50 percent of classes, students work in groups as follows:<br>1) Students collaborate with peers based upon project/intended outcomes<br>2) Each group member has at least one assigned role that is critical to successful project/goal completion<br>3) Accountability is measured and recorded for each individual as well as the entire group | At least one time per week and in at least 50 percent of classes, students work in groups as follows:<br>1) Students collaborate with peers based upon project/intended outcomes<br>2) Each group member has at least one assigned role that is critical to successful project/goal completion<br>3) Accountability is measured and recorded for each individual as well as the entire group | At least two times per week and in at least 50 percent of classes, students work in groups as follows:<br>1) Students collaborate with peers based upon project/intended outcomes<br>2) Each group member has at least one assigned role that is critical to successful project/goal completion<br>3) Accountability is measured and recorded for each individual as well as the entire group | | •Group assignment processes<br>•Defined roles/responsibilities plans<br>•Accountability plans<br>•Samples of unit/lesson plans<br>•Samples of rubrics | 3, 8, 9, 10, 13, 14, 23 |
| **3.4 Technology in Instruction** | Does not yet meet minimum indicators for developing | Students use a variety of technologies to enhance their learning in investigations and problem solving e. g., data collection/analysis, design, creation, virtual simulations, research and communication at least 10 percent of the time | Students use a variety of technologies to enhance their learning in investigations and problem solving e.g., data collection/analysis, design, creation, virtual simulations, research and communication at least 25 percent of the time | Students use a variety of technologies to enhance their learning in investigations and problem solving e. g., data collection/analysis, design, creation, virtual simulations, research and communication at least 50 percent of the time | | •Samples of unit/lesson plans<br>•Samples of student products | 1, 8, 9, 10, 14, 17, 23 |
| **3.5 STEM Integration** | Does not yet meet minimum indicators for developing | At least 10 percent of teachers are implementing the planned integrated STEM learning opportunities on a quarterly basis (see 1.3) | At least 25 percent of teachers are implementing the planned integrated STEM learning opportunities on a quarterly basis (see 1.3) | At least 50 percent of teachers are implementing the planned integrated STEM learning opportunities on a quarterly basis (see 1.3) | | •Samples of unit/lesson plans<br>•Samples of student products | 1, 3, 7, 8, 9, 10, 11, 17 |
| **Instruction Score:** | | | | | **0** | | |
| **Domain 4: Partnerships** | | | | | | | |
| **Element** | **Investigating** | **Developing** | **Approaching** | **Innovating** | **Element Score** | **Evidenced By:** ***(Examples listed below. You may choose your own evidence to support your score).*** | **References** |
| | **0 points** | **1 point** | **2 points** | **3 points** | | | |
| **4.1 Community Partner Feedback** | Does not yet meet minimum indicators for developing | At least one community partner provides feedback on the school's STEM program | At least two community partners, from different sectors, provide feedback on the school's STEM program | At least three community partners, from different sectors, provide feedback on the school's STEM program | | •Detailed meeting minutes<br>•Agenda(s)<br>•Roster of participants<br>•Copy of survey(s)<br>•Summary of data<br>*(This element is about planning support)* | 1, 4, 11, 23 |

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| **4.2 STEM Career Exploration** | Does not yet meet minimum indicators for developing | Elementary and Middle School: At least 10 percent of STEM units have career exploration/information as a part of the curriculum<br>High School: At least 10 percent of students have direct experiences with STEM professionals and/or professional STEM work environments quarterly | Elementary and Middle School: At least 25 percent of STEM units have career exploration/information as a part of the curriculum<br>High School: At least 25 percent of students have direct experiences with STEM professionals and/or professional STEM work environments quarterly | Elementary and Middle School: At least 50 percent of STEM units have career exploration/information as a part of the curriculum<br>High School: At least 50 percent of students have direct experiences with STEM professionals and/or professional STEM work environments quarterly | | •Curriculum summary<br>•Samples of unit/lesson plans<br>•Samples of student products<br>•Documentation of participation | 1, 4, 8, 9, 10, 11, 23 |
| **4.3 Community Engagement** | Does not yet meet minimum indicators for developing | One to two established community partners are actively engaged in the STEM program | Three to four established community partners are actively engaged in the STEM program | Five or more established community partners are actively engaged in the STEM program | | •List of partners with description of participation/support provided by each partner<br>*(This element is about implementation of supports)* | 1, 4, 8, 9, 10, 11, 14, 22, 23 |
| **4.4 Extended Learning** | Does not yet meet minimum indicators for developing | STEM activities such as robotics and engineering clubs, internships, and apprenticeships are available and accessible by at least 10 percent of students in an on-going basis | STEM activities such as robotics and engineering clubs, internships, and apprenticeships are available and accessible by at least 25 percent of students in an on-going basis | STEM activities such as robotics and engineering clubs, internships, and apprenticeships are available and accessible by at least 50 percent of students in an on-going basis | | •Summary of opportunities<br>•Calendar of events<br>•Transportation options<br>•Latchkey options | 1, 11, 17, 18 |
| **4.5 Equity** | Does not yet meet minimum indicators for developing | Provides at least one opportunity/mode to inspire and inform under-represented students about careers in STEM fields | Provides at least two opportunities/modes to inspire and inform under-represented students about careers in STEM fields | Provides at least three opportunities/modes to inspire and inform under-represented students about careers in STEM fields | | •Summary of opportunities<br>•School-wide interaction with STEM professionals from under-represented groups<br>•Pictures of displays/posters in school common areas depicting under-represented groups | 1, 8, 9, 10, 19 |
| **Partnerships Score:** | | | | | **0** | | |

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| Total Score | 0 (out of 75) |

| **Key Terminology** | | |
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| **Term** | **Definition** | **Resources** |
| Computer Science | Computer science is defined by the content found in Indiana's Computer Science Standards | IC 20-30-5-23 |
| Continuity of Learning | The continuation of education in the event of a prolonged school closure or student absence. | PBLWorks<br>Developing a Community of Inquiry in Your Blended Classroom |
| Culture | The way teachers and other staff members work together and the set of beliefs, values, and assumptions they share. | WestED |
| Curriculum | The lessons and academic content taught in a school or in a specific course or program. | IDOE STEM |
| Curriculum Integration | The materials and pedagogical strategies used by multidisciplinary teams of teachers collaborate to plan and present related lessons that center around a central theme, issue or problem. | ConnectEd |
| Employability Skills | A group of essential abilities that involve the development of a knowledge base, expertise level and mindset that is increasingly necessary for success in the modern workplace. IC 20-30-5-14 states that, not later than July 1, 2019, each school within a school corporation shall include interdisciplinary employability skills | IDOE Resources |

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| | standards established by the department, in conjunction with the department of workforce development, and approved by the state board in the school's curriculum. | IC 20-30-5-23 | | | | | | |
| Inquiry-Based Instruction | A pedagogy that can be used to deliver lessons on a daily basis in the primary disciplines and beyond. It begins with the teacher presenting the students with a question to explore or having students develop their own questions. As the students investigate the question, they give priority to evidence that is gathered through research and exploring and formulate explanations to describe their findings based on evidence or data collected. Students connect explanations to their knowledge and current understandings in the discipline and then communicate and justify their explanations. | American Association for the Advancement of Science Resource | | | | | | |
| Problem-Based and/or Project-Based Curriculum | Generally spans one to several weeks of instruction that should be delivered in an integrated manner including science, mathematics, and other disciplines to show authentic connections. | IDOE Approved List | | | | | | |
| Problem-Based and/or Project-Based Learning (PBL) | A pedagogy that anchors the teaching of disciplinary content in the context of solving a real-world problem or challenge. | Ford NGL | | | | | | |
| | | PBLWorks | | | | | | |
| | | Magnify Learning | | | | | | |
| Community Partners | Business, higher-education, community organizations | Georgia STEM/STEAM Model | | | | | | |
| STEM Education | STEM education is the integration of the science, technology, engineering and math disciplines with the goal of deploying problem/project/inquiry-based approaches to teaching and learning in the classroom, while developing critical thinking skills and creating pathways to postsecondary and career opportunities. | Six-Year Indiana STEM Strategic Plan | | | | | | |
| STEM Instruction | The integration of the science, technology, engineering and math disciplines with the goal of deploying problem/project/inquiry-based approaches to teaching and learning in the classroom, while developing critical thinking skills and creating pathways to postsecondary readiness and career opportunities. | Six-Year Indiana STEM Strategic Plan | | | | | | |
| | | NRC Resource | | | | | | |
| STEM Instructional Approach | Accepted STEM instructional approaches referenced in the Six-Year Indiana STEM Strategic Plan are:<br>-Problem-based approaches<br>-Project-based approaches<br>-Inquiry-based approaches | Six-Year Indiana STEM Strategic Plan | | | | | | |
| Under-Represented Students | Females, minorities, and students with disabilities | NSF Report | | | | | | |