# Georgia Department of Education: STEAM Certification for Middle School

## Middle School STEAM Certification Continuum

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<td><strong>1. STEAM Vision and Culture</strong></td>
<td>No vision for STEAM education is in place and a STEAM culture is not evident in the school.</td>
<td>The vision for STEAM is clearly defined and an arts and design-focused culture has been established within the school. Students articulate and live this vision and culture through their actions, passions, and perceptions.</td>
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### Required
- The STEAM vision for the program is written. Fine arts* are included in the vision for the program.
  *Note- In Georgia, “Fine arts” is defined as Dance, Media Arts, Music, Theatre, and Visual Arts. Schools are not required to implement all five areas, but must utilize Georgia Standards of Excellence for selected areas.
- Middle schools can choose between a whole-school model or program only certification. Program Certification is a school-within-a-school model, must be at least 10% of the school population, and represent the demographics of the student body. STEAM Program Certification cannot be a program exclusively for gifted and magnet students.
- The school provides evidence that a STEAM culture has been established. Schools will decide how to showcase the STEAM culture.

| 2. Required for Program Certification: Identified STEAM Students | No students are identified as STEAM. | STEAM students are identified, and a selection process is described. | STEAM students are identified by a school designed selection process that has been vetted with successful longitudinal evidence. |

### Required
- Documentation of how students are selected based upon specific criteria such as interest, lottery, random selection, etc.
- A copy of the application for student entrance into the STEAM program.

| 3. Non-Traditional Student Participation (Not applicable for whole school certification) | The non-traditional student participation does not reflect the diversity (gender, race, ethnicity, and special populations) of the student population. | A plan is being developed for outreach, support, and focus on non-traditional student populations. | A plan is in place for outreach, support, and focus on non-traditional student populations. | The student participation in the program reflects the diversity of the school in terms of gender, race, ethnicity, special populations, and academic levels. |

### Required
Documentation of **non-traditional student participation**.
4. Characteristics of the STEAM Curriculum

| There is no plan for a unique and explicit STEAM curriculum. There is no evidence of arts integration across the curriculum. | A plan is being developed for an explicit and unique STEAM curriculum. An arts-integrated STEAM curriculum is currently implemented only in some of the school’s grade levels. | Students are regularly exposed to a unique and explicit arts-integrated STEAM curriculum and there is evidence of its sustainability (three plus years). |

**Required**
Written description of the unique characteristics of the STEAM curriculum, which must include CTAE and fine arts courses that support the STEAM curriculum.

**Example Artifacts**
Documented opportunities for:
- arts-based research and student presentations of investigations and findings.
- students to engage in regular “arguments from evidence” during classroom instruction
- students to interact with STEAM professionals and community partners to support curriculum
- students to participate in [Career Technical Student Organizations](https://www.ctso.org) (CTSO’s example: FFA, TSA…) and fine arts student organizations

5. Student Rigor & Relevance and Instructional Quality

| Most of the learning occurs at the acquisition level. Content knowledge is taught in a silo by discipline and instruction focuses on knowledge awareness and comprehension of information. Classroom instruction is predominantly teacher centered. | Most of the learning occurs at the acquisition and application levels. Classroom instruction is predominantly teacher centered. Students design solutions to problems centered on one discipline at a time by applying knowledge to new situations. | Most of the learning occurs at the assimilation levels. Classroom instruction is predominantly student centered and students extend and refine their acquired knowledge to routinely analyze and solve problems, as well as create unique solutions. |

**Required**
Submission of at least two examples of student work that has occurred at the Adaptation level of the [Rigor and Relevance Framework](https://www.ctso.org)

**Example Artifacts**
Projects examples that demonstrate culture of inquiry, creativity, and innovation exists among students, teachers, and administrators.

6. Professional Learning: Teacher Content Knowledge

| None of the teachers, instructional coaches, or administrators are working toward increasing content knowledge. | Teachers, instructional coaches, and administrators are increasing content knowledge through multiple means such as PSC approved endorsements with an emphasis on fine arts, math, and science, content |

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Required
- Documentation of method/procedures for increasing content knowledge for all teachers.
- Documentation of the plan for sustaining content knowledge and induction of new teachers including the fine arts teachers.
- Documentation of method/procedures for increasing the fine arts teachers content knowledge.
- All educators receive fine arts specific professional development in order to support arts integration in all classrooms.

7. Professional Learning: Instructional Practices

There is no STEAM or arts integration related professional development currently planned and none has been offered in the last year.

Teachers, instructional coaches, and administrators attended at least one STEAM or arts integration professional learning event.

Teachers, instructional coaches, and administrators have on-going STEAM and arts integration specific professional learning and there is evidence of its implementation in classroom instruction.

Teachers, instructional coaches, and administrators have on-going STEAM learning and STEAM and arts integrated specific strategies relating to the school’s identified STEAM focus area. There is evidence of implementation in classroom instruction.

Required
Documentation of STEAM specific professional learning for all teachers, instructional coaches, and administrators that incorporates the following:
- Project/problem/place-based learning
- Interdisciplinary instruction
- Investigative research-based practices
- Collaborative planning practices
- 21st Century thinking skills and school-wide use of process-based thinking (Example: Engineering Design Process, Design Thinking, etc)
- Arts Integration

Documentation of visits to other STEAM Certified Schools including the school staff that visited and the school location of the visit.

Example Artifacts
Documentation of teacher and administrator participation in district, GADOE, and national STEAM professional learning. Examples: GA Department of Education STEAM/STEAM Teacher Academies, GA Department of Education STEAM/STEAM Forum, GA Department of Education STEAM/STEAM Leadership Cohort

8. Teacher Collaboration

There is no collaboration or collaboration is not structured or planned.

Teachers collaborate quarterly using Georgia Standards of Excellence to identify learning targets, plan interdisciplinary units, and day-to-day instruction that use process-based thinking.

Teachers collaborate monthly using Georgia Standards of Excellence to identify learning targets, plan interdisciplinary units, and day-to-day instruction that use process-based thinking.

Teachers collaborate at least weekly using Georgia Standards of Excellence to identify learning targets, plan interdisciplinary units, and day-to-day instruction that use process-based thinking.
**Required**
- The school administration must provide collaborative planning time at a minimum of once a week.
- Business and community partners participate in teacher planning. This should also include arts or design partners.
- CTAE teachers and fine arts teachers are involved in collaborative planning time on a regular basis.
- Documented evidence of weekly STEAM collaborative planning time including meeting agendas/minutes and artifacts generated.
- Georgia Standards of Excellence, including Fine Arts standards, are used to create lessons during collaborative planning.

| 9. High School Level Instruction | Students do not take high level math and science course work. | 25% of 8th grade STEAM students are enrolled in high school math and science. Additional supports are instituted to assist students in meeting these expectations | 50% of 8th grade STEAM students are enrolled in high school math and science. Additional supports are instituted to assist students in meeting these expectations | 75% of 8th grade STEAM students are enrolled in high school math and science. Schools may offer high school CTAE and fine arts courses. Additional supports are instituted to assist students in meeting these expectations. |

**Required**
Documentation of the number of students enrolled and passing high school CTAE courses or fine arts courses, if offered, high school physical science, and high school mathematics.

| 10. Business, Community, and Post-Secondary Partnerships | There are no business, community, and post-secondary partnerships. | Plans are being developed to provide student opportunities to meet STEAM partners and to participate in STEAM learning environments directly connected to in-class learning. | Business, community, and post-secondary partnerships are involved in the STEAM instructional program 1-4 times/school year and are directly connected to in-class learning. | Multiple business, community, and post-secondary partnerships are ongoing and are involved by directly connecting to in-class instruction, project/problem-based learning, and exposing students to STEAM careers. Arts partnerships are in place. |

**Required**
- Documentation of partnership involvement at all three levels based upon the [STEM/ STEAM Georgia Partnership Involvement Levels](#)
- Documentation of older students working with middle school students, for example: CTSOs or arts student organizations
- Documentation of partnerships with local artist, arts organizations, teaching artists, or professionals who utilize arts and design in their work.
**11. STEAM Competitions, Exhibits, Clubs, and/or Career Tech Student Organizations**

| No students participate in STEAM competitions, STEAM or arts exhibits, performances, arts student organizations, CTSOs, and/or in state and national STEAM forums or clubs. |
| Some of the students participate in STEAM competitions, STEAM or arts exhibits, performances, arts student organizations, CTSOs, and/or in state and national STEAM forums or clubs. |
| A majority of the students participate in STEAM competitions, STEAM or arts exhibits, performances, arts student organizations, CTSOs, and/or in state and national STEAM forums or clubs. |

**Required**

Documentation that shows how many students participate in STEAM competition, exhibits, club, arts student organizations, or CTSOs.

**12. STEAM Curriculum: Project/Problem-Based Learning**

| Students are not engaged in solving authentic, real-world problems. |
| Students are engaged in solving authentic, real-world problems, but they are not tied to the local community. |
| Long-term projects/problems are implemented throughout the school year that are standards-based, interdisciplinary, and engage students with real-world problems in their community. Students utilize arts and design skills as tools to solve problems, articulate solutions, and to positively impact their local community. |

**Required**

- Students can articulate the relationship between math, science, and arts concepts in their interdisciplinary projects.
- Written summary of grade level specific, interdisciplinary, problem/project-based learning opportunities that have occurred throughout the school year (curriculum map, timeline, calendar, etc).
- Documentation of how project and problem-based learning connects to Georgia Standards of Excellence.
- Students have documentation of long-term project-based learning in their STEAM journals. This documentation includes the use of a school-wide process-based thinking.
- Student work created in collaboration with a business/community/post-secondary partner. Partners provide coaching and feedback throughout the project.

**13. STEAM Curriculum: Day-to-Day Interdisciplinary Instruction**

| Content areas are taught in isolation. STEAM instruction has replaced fine arts instruction. |
| Students are engaged in interdisciplinary instruction 1-3 times a month. |
| Students are engaged in interdisciplinary instruction 1-3 times a week. |
| Students are engaged in daily interdisciplinary instruction that supports Georgia Standards of Excellence mastery. Students receive fine-arts specific instruction in addition to the arts-integrated STEAM Curriculum. |

**Required**

- Students can clearly articulate an understanding of connections between math, science, and arts concepts from grade-level Georgia Standards of Excellence and provide evidence of learning using their STEAM journals.
- If applicable, teachers review district pacing guides to determine connection between disciplines and standards.
### 14. Technology Integration

| There is little or no technology integration in the classroom. | A technology plan is in place to integrate a variety of technology tools supporting mastery of Georgia Standards of Excellence. | A school-wide technology plan is implemented. Classrooms include a variety of technology tools that are integrated at least weekly that support mastery of Georgia Standards of Excellence. | Technology use is ubiquitous throughout STEAM classrooms and students are producers and not just consumers of digital content that support mastery of Georgia Standards of Excellence. |

**Required**
- Submission of at least two student-produced products using technology.

**Example Artifacts**
- Students are regular producers of websites, blogs, computer programs, videos, classroom digital products, apps etc. Additional emphasis should be added to arts and design concepts driven by Fine Arts Georgia Standards of Excellence.
- Instructional technology equipment is rarely inoperable.
- Teachers and students receive on-going access and opportunity to expand their proficiency in technology use.

### 15. Investigative Research

| There is no investigative research occurring in classes. | STEAM students are conducting investigative research, but it is not connected to the grade-level appropriate Georgia Standards of Excellence. | STEAM students conduct investigative research to make claims, collect evidence, analyze data, and argue from evidence that connect to the grade-level appropriate Georgia Standards of Excellence. Students use various art forms to communicate findings. |

**Required**
- Students can communicate results via written, oral, and digital presentations.
- Submission of at least two student investigative research topics and their findings.

**Example Artifacts**
- Documentation of student analysis and data interpretation, explanations and design solutions, and engagement in argument from evidence
- Documentation of student use of Claim-Evidence-Reasoning model
- Documentation of how investigative research is used to improve student solutions in both day-to-day instruction and long-term project.
- Students present findings to a public audience that includes business and community partners
- Student research is posted in hallways and classroom walls

### 16. STEAM Journals

| Students do not use written journals to document interdisciplinary learning | STEAM journals are being used in some, but not all grade levels or are not used consistently | Students document long-term projects-based learning, day-to-day interdisciplinary learning, and investigative research in STEAM journals. Digital portfolios may document student products; however, written journals are in place to demonstrate |

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### Required

- Students utilize school-identified problem-solving process (i.e. Engineering Design Process, Design Thinking, or school-created version) or Claim, Evidence, Reasoning framework. This is guided by teacher to ensure standards mastery.
- Submission of at least two examples of student journal use
- Documentation of how teachers plan for student journal usage during weekly collaboration

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<tr>
<th>17. Accountability / Sustainability</th>
<th>There is no evidence or plan in place to sustain the STEAM culture.</th>
<th>Schools determine the evidence that students are increasing in academic growth. There is a plan in place to sustain the STEAM culture.</th>
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