STEM Education
Equity Analysis Tool

Created by:
Great Lakes Equity Center

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About Great Lakes Equity Center

Great Lakes Equity Center is one of ten regional Equity Assistance Centers funded by the U.S. Department of Education under Title IV of the 1964 Civil Rights Act. The Center serves the public educational agencies in Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin by providing a wide range of technical assistance supports.

The mission of the Center is, to ensure equity in student access to and participation in high quality, research-based education by expanding states' and school systems' capacity to provide robust, effective opportunities to learn for all students, regardless of and responsive to race, sex, and national origin, and to reduce disparities in educational outcomes among and between groups.

About This Tool

Self-assessment tools offer an opportunity to pause and critically reflect on policies and practices; this tool in particular invites schools into a self-evaluation of equity in Science Technology Engineering and Mathematics (STEM) teaching and learning, with an eye toward graduating students who are prepared for and excited about engaging in STEM careers.
Instructions:
1. Assemble a group that represents school stakeholders (leadership, staff, families, students, and community partners)
2. Discuss each area in the rubric and mark your school as “Not Evident,” “Beginning,” “Developing,” or “Mature.”
3. Add criteria as needed to develop a full picture of STEM educational equity at your site.
4. Select a few areas for further inquiry. What information do you need to better assess the school’s current status?
5. Select a few areas for growth. What strategies will you use to improve?

<table>
<thead>
<tr>
<th>ORGANIZATIONAL CAPACITY</th>
<th>Not Evident</th>
<th>Beginning</th>
<th>Developing</th>
<th>Mature</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Leadership</strong></td>
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<td>Building leaders demonstrate a commitment to building organizational capacity in STEM.</td>
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<td>Building leaders regularly demonstrate a commitment to equity in STEM education.</td>
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<td>Leaders provide specific feedback to staff based on best practices in culturally responsive teaching and effective STEM instructional strategies.</td>
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<td><strong>Staffing</strong></td>
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<td>Counselor-to-student ratio is sufficiently low to allow for individualized attention.</td>
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<td>STEM teachers represent the diversity of the community they serve.</td>
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<td>STEM teachers are highly qualified in their content areas.</td>
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<td>STEM teachers are trained in highly engaging STEM pedagogical practices.</td>
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<td>Sufficient technological support is available to staff and students.</td>
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<td><strong>Professional Learning</strong></td>
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<td>Hands-on opportunities to learn are provided to teachers.</td>
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<td>Collaborative inquiry is supported.</td>
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<td><strong>Partnerships</strong></td>
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<td>Families are engaged in activities and learning about STEM subjects and careers.</td>
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<td>Families are provided information about out-of-school opportunities related to STEM.</td>
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<td>Community organizations are engaged to provide materials, experiences, and human capital.</td>
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</table>
## STEM EDUCATION EQUITY ANALYSIS TOOL

### CURRICULUM AND INSTRUCTION

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<tr>
<th>Rigor</th>
<th>Not Evident</th>
<th>Beginning</th>
<th>Developing</th>
<th>Mature</th>
<th>NOTES</th>
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</thead>
<tbody>
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<td>Highly qualified teachers are available to all students.</td>
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<td>Counselors encourage challenging course-taking.</td>
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<td>Students have <strong>EXPLICIT</strong> access to higher-level STEM courses.</td>
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<td>Courses align with local, state, and national standards in STEM education.</td>
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<td>Teachers hold high expectations for all students.</td>
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<td>All students achieve at high levels in STEM courses.</td>
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### Culturally Responsive Curriculum

- Curriculum is relevant to students’ community and culture.
- Students see themselves represented in curricular materials.
- Materials are accessible.
- Materials promote active, inquiry-based learning.
- STEM and other disciplines are integrated.
- STEM curriculum is connected to local concerns and social justice issues.

### Culturally Responsive Instructional Practices

- Instructional methods inspire interest and engagement in STEM.
- The notion that abilities are expandable is regularly reinforced.
- Activities connect STEM concepts to learners’ interests and experiences.
- Activities allow for hands-on learning.
- The teacher is a learner alongside the students.
- Opportunities for dialogue and problem-solving are frequent.
- Multiple means are used to support student learning.
- Assessments provide multiple means of demonstrating understanding.
- Efforts are made to engage underserved students.

### Assessment

- Students are provided multiple opportunities and means to demonstrate what they have learned.
- Specific feedback is given, with emphasis on effort and types of strategies used by students.

### Ongoing Engagement

- Co-curricular/ extracurricular activities are made available to all.
- Underrepresented students are actively encouraged to join co-curricular and extracurricular activities.
- STEM work-based learning experiences are made available.
- Guest presenters and field experiences demonstrate that individuals from diverse backgrounds can achieve in STEM.
- Families are engaged as guest teachers about STEM subjects and careers.
- Guidance about postsecondary and career options includes STEM opportunities, particularly for underrepresented students.
References


IMPACT:
Educate, Engage, Empower — For Equity

Disclaimer: Great Lakes Equity Center is committed to the sharing of information regarding issues of equity in education. The contents of this practitioner brief were developed under a grant from the U.S. Department of Education. However, these contents do not necessarily represent the policy of the Department of Education, and you should not assume endorsement by the federal government.