



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.

STEM EDUCATION EQUITY ANALYSIS TOOL

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?

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

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CURRICULUM AND INSTRUCTION	Not Evident	Beginning	Developing	Mature	NOTES
Rigor					
Highly qualified teachers are available to all students.					
Counselors encourage challenging course-taking.					
Students have EXPLICIT access to higher-level STEM courses.					
Courses align with local, state, and national standards in STEM education.					
Teachers hold high expectations for all students.					
All students achieve at high levels in STEM courses.					
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

- CAST (2012). Universal design for learning. Retrieved May 15, 2013 from http://www.udlcenter.org/resource_library/articles
- Institute of Education Sciences (2007). Encouraging girls in math and science. What Works Clearinghouse. Retrieved May 15, 2013 from <http://ies.ed.gov/ncee/wwc/PracticeGuide.aspx?sid=5>
- Institute of Engineering and Technology (2008). Studying STEM? What are the barriers? Retrieved May 15, 2013 from <http://www.theiet.org/factfiles>
- North Carolina STEM Learning Network (2012). STEM attributes and rubric. Retrieved May 15, 2013 from <https://www.ncstem.org/stem-strategy/attributes-rubric.html>

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Educate, Engage, Empower — For Equity



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