



Everyday Settings & Family Activities

Supporting STEM Through a Critical Lens

Why use culturally responsive pedagogy in STEM education?

The improvement of science education has become critical within schools. As marginalized groups of Black and Brown people within the United States are underrepresented in STEM, school leaders must champion around increasing science education by implementing effective ways to engage students from diverse backgrounds. Creating a culturally responsive community is developed in collaboration with community partners, school staff, students, parents and administration, giving a 360-degree view/voice of the necessary supports needed to ensure student success.

How do administrators support culturally responsive pedagogy in STEM education?

Research shows that administrators can inspire teachers' own learning, instruction and student achievement.¹ Creating a culturally responsive school community consists of multiple stakeholders, collaborative discussions and reflective plans supporting the vision of success for all students.

Below you will find suggested steps to begin developing culturally responsive communities within schools. The implementation process is described in the diagram below.

1 PLAN WITH INSTRUCTIONAL LEADERSHIP TEAM

Collaborate with members of the instructional leadership team and discuss the effectiveness of meeting the needs of diverse learners. Provide discourse opportunities with community partners and parents.



2 PROVIDE CULTURALLY RESPONSIVE PROFESSIONAL DEVELOPMENT

Provide professional learning that will support and elicit strategies addressing the needs of diverse student populations.



3 PROVIDE ISE/OST STUDENT EXPERIENCES IN STEM

Connect with mentorship programs supporting student achievement and create after-school STEM experiences. Incorporate STEM-supported field trips throughout the school year.

¹ Khalifa, M.A., Gooden, M.A., & Davis, J.E. (2016). Culturally responsive school leadership: A synthesis of the literature. *Review of Educational Research*, 86(4), 1272-1311.

Resources

Step 1: Teaching for Tolerance Guidance for Planning

[Critical Practices for Anti-bias Education: Teacher Leadership](#)

[Critical Practices for Anti-bias Education: Teacher Leadership \(Materials\)](#)

Step 2: Videos for Professional Learning



[Dr. Gloria Ladson-Billings](#) provides a renewed sense of urgency to create more culturally relevant lesson plans and learning environments to connect with your students.



[Dr. Rema Reynolds](#) explores asset mapping and the power of the teacher.



[Dr. Tyrone Howard](#) discusses steps schools can take to demonstrate that Black Lives and Black Students Matter.



[Teacher provides insight](#) on creating a culturally responsive classroom.

Step 3: Examples of informal science education/out-of-school time student experiences in STEM using mentor programs, after-school programs and school field trips

CITY YEAR (DETROIT)

Grounded in an evolving research base, City Year focuses on supporting the development, growth and success of students in systemically under-resourced schools, while preparing AmeriCorps members to be leaders in their communities and careers.

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DETROIT PUBLIC SCHOOLS CULTURAL PASSPORT INITIATIVE

Cultural Passport will give students the opportunity to experience fine arts education that will increase each individual student's expression skills, visual thinking skills, observational skills, problem-solving and analytical skills that build autonomy in children.

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BLACK GIRLS CODE

To increase the number of women of color in the digital space by empowering girls of color ages 7 to 17 to become innovators in STEM fields, leaders in their communities and builders of their own futures through exposure to computer science and technology. To provide African-American youth with the skills to occupy some of the 1.4 million computing job openings expected to be available in the U.S. by 2020, and to train 1 million girls by 2040.

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C2 PIPELINE

C2 Pipeline is a program sponsored by Wayne State University's College of Nursing. We are funded through the Michigan Department of Education's 21st Century Community Learning Center funds. Our program focuses on increasing graduation rates, improving academics and helping to ensure students are college and career ready. It currently operates in 24 metro Detroit high schools, serving grades 9-12. C2 Pipeline consists of three main components: 24 after-school programming centers, annual summer programs and the Innovation & Curiosity Center.

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