

Primer: How race operates in science and STEM fields

Becoming an anti-racist educator requires examination of how race and racism intersect with every dimension of our professional, personal, and civic lives. Race has a long history of operating within science and STEM research more generally.

Science educators need to be proactive in creating just learning environments through the life-long process of developing an anti-racist stance and pedagogy, particularly one that recognizes and disrupts the legacies of oppression and violence that STEM fields created and continue to perpetuate.

Race is a system of categorization that was invented by humans in positions of power for reasons of sociopolitical oppression, not biological explanation. Race is a social construct that has no biological basis. For example, there are no genetic variants found only in some race groups and not in others.

However, racial categorizations have real world consequences and the history of science is deeply intertwined with histories of racial classification and oppression, from the [initial creation of racial categories to justify colonialism and enslavement](#) to the long histories of scientific racism's [arguments for racial separation, group differences, and deficits](#), including practices of [phrenology](#), [eugenics](#), and racially-biased IQ testing. These oppressive categorizations [persist in present-day STEM research](#) and limit the accuracy and nuance of research findings.

Dominant forms of science and engineering have also disproportionately exposed BIPOC and low-income communities to the negative impacts of research and resource extraction, including the [U.S. Public Health Service syphilis study](#) in Tuskegee, the placement of [nuclear facilities](#), the [ongoing construction of pipelines](#), and the [pervasive impacts](#) of [environmental racism](#).

Reflection: How can you identify and counteract the impacts of systemic racism in your curriculum selection and design, instructional practices, and assessment and grading practices?