STEM: A RIGHTFUL PRESENCE

THE CHALLENGE
Who has a place in STEM?

Engaging in STEM is deeply grounded in people's experiences in the world, including their families and communities' cultural practices. Students from historically non-dominant communities have powerful cultural knowledge and experience that are highly relevant to engaging with STEM. Yet, for many students, engaging in STEM can be constrained and limited. The dominant discourse and practice of STEM reflect white, western and masculine ways of knowing and doing science. The way that STEM is often taught and how students are expected to learn further projects these dominant cultural norms. Consequently, not all students are encouraged or supported in leveraging their powerful cultural expertise towards meaningful learning or engagement in STEM. We can think about this as denying students a Rightful Presence in science learning.

> **RIGHTFUL PRESENCE**
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> **It is important to teach in ways that promote a rightful presence in STEM for all students, but especially those made most vulnerable – indeed, made missing – by the practices of schooling and society.**

OUR RESPONSE
Rightful Presence

Rightful Presence calls attention to the importance of the political struggle to re-author rights—that is, the struggle for more equitable power sharing—among educators and youths towards more just outcomes. This kind of power sharing makes visible and present the whole of youths' lives, including both their individual and community strengths and the oppressions they experience. It also involves a collective disruption of what we currently understand as meaningful learning to support more expansive outcomes, such as identity work (such as who youth are and want to be), agency (such as what youth can do with STEM now in their lives) and social transformation (such as youths' imagined futures with/in STEM).

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We can extend this thinking to classrooms, where students are guests. What does it mean to have rights extended? What would it mean to engage in political struggle to re-author rights?

For one, we can think of a **rightful presence** in education as legitimate membership in a classroom community because of who one is (not because of who one should be), where the practices of that community work towards and support restructuring power dynamics towards more just ends through making both scales of injustice and social change visible.

We can also think of Rightful Presence as a critical mode for 'making present' those who have been made 'missing' by the forms of racialization and colonization manifest in schooling.

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Right to re-author rights

Collective disruption of guest-host relationalities

Making in/justices visible

The Three Tenets of Rightful Presence

1 **Right to Reauthor Rights**   There is a focus on re-authoring rights through allied political struggle as integral to STEM Learning. Teachers and students work together to challenge and transform what participation in STEM entails in ways that humanize participation and value students as cultural and whole people. We call this re-authoring rights because these disruptions and transformations change whose knowledge, practices and experiences matter.

2 **Rightfulness is Claimed through Presence: Making Justice/ Injustice Visible**   Youths' whole lives—and that which makes participation in science empowering and marginalizing—becomes a visible part of learning; it becomes the stuff upon which meaningful learning is built. Consider Amir's experience in a middle school forensics science lesson. During the final crime scene investigation of a forensics unit, Mr. A was explaining the importance of gathering and analyzing data to accurately find and convict the right criminal.

He emphasized being fair and using data as evidence. But Amir interrupted, calling out "Unless you're Black! If you're Black, you'll be convicted."

Mr. A was caught off guard and responded kindly to Amir that they should talk about "that" someplace else. Thus in the here-and-now of the science class, Amir's experiences of injustice in STEM and society, where the criminal (in)justice system systemically inflicts injustices upon Black bodies, were amplified by having his concern sidelined as not the focus of class. Amir's identity as a Black boy and his community's experiences with policing is a part of his engagement with forensics, whether it's taught that way or not. We can think about this is also making the work of justice happen in the here-and-now—as in this moment in this classroom.

3 **Collective Disruption of Guest/Host Classroom Relationalities: Amplifying the Sociopolitical**   The responsibility for disruption and transformation is borne by all members of the learning community, teachers and students alike, not just borne by those who have been marginalized. This kind of power sharing is important because it helps to create new and different spaces for making visible youths lives as we noted in tenet two.

> **Teachers care, but they do not care about the community all the time. We go outside on our time, and find places where we can go do science or engineering for our communities. School doesn't know how to do that. School doesn't know that we do that. We need to tell our teachers how we do it. We got to help them.**
>
> **SAMUEL, 14 YEARS OLD**

Table 1: Enacting Practice

Reflection questions for planning
How are students welcomed as legitimate, contributing, and fully human members of a learning community because of who they are, and not who they should be?
What forms of student knowledge and practices are valued in your classroom as a part of science learning, science practice? When are these forms of knowledge and practice most valued?
When are students' cultural knowledge and practices less visible, less human, or less welcomed in your classroom? How and why?
What classroom practices disrupt oppressive power dynamics & restructure toward humanizing opportunities?
What norms, talk and practices used in the learning environment work towards welcoming students for who they are through valuing and leveraging their knowledge, practices and experiences in the world?
Do these norms, talk and practices actively disrupt and restructure normative power relations in the local practice towardsmore equitable and consequential ends along racial, gender and class hierarchies and the intersections of these hierarchies with stances on valued knowledge and practice?
What tangible symbols of rightful presence emerge when normative power relations are disrupted in the learning community?

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