



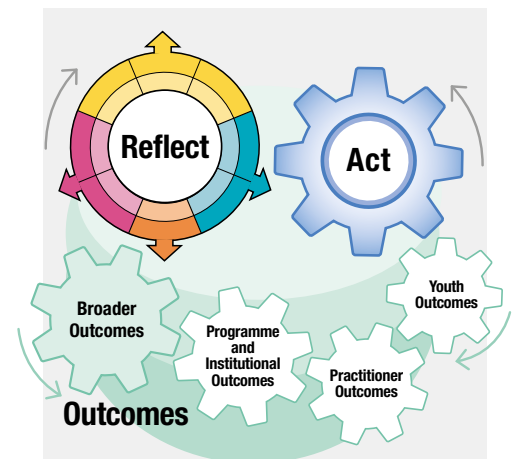
Constellations of Core Equitable Practices



YESTEM Insight

What is the issue?

- Working towards justice in informal STEM learning (ISL) is an ongoing endeavor. Justice is not achieved in a single moment, nor does it result from a single action. Because the nature of injustice in ISL is so layered and complicated, working towards justice involves many actions, enacted over time, and in relation to each other.
- Youth experience injustice in ISL in a number of ways, from how their lives are welcomed as important and integral to ISL to opportunities youth have to voice ideas and concerns about how they want their ISL learning environment to look and feel. If educators are to address the range of ways youth experience ISL, they need a range of practices that can work in coordination with one another.



YESTEM Model for equity in ISL

The Equity Compass is the basis of the Reflect component of this model. Please see yestem.org for the full model and related Insight documents detailing each component.

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Our approach: Constellations of Core Equitable Practices

Core Equitable Practices are pedagogical and institutional practices that support youth learning and engagement in STEM in equitable ways by disrupting and transforming power, and by valuing youth, families, and communities. When enacted over time, they support equitable outcomes for youth, educators, and institutions.

When Core Equitable Practices are enacted over time and in constellation with each other, they support equitable learning community and individual outcomes, such as developing STEM capital, agency and identity, having fun and developing interest along with more equitable patterns and ways of participation.

Core Equitable Practices, especially when enacted in constellations, support youth's learning and engagement in STEM in equitable ways by disrupting and transforming power, or by disrupting the exclusionary ways in which ISL is traditionally enacted. They value youth, families, and communities such that their lives, experiences, and wisdoms are integral to what it means to know, do, and become in STEM, expanding possibilities for engaging in STEM agentic lives. These practices pay attention to whose ways of knowing and discourses are valued in STEM, and why that matters. We refer to these practices as Core Equitable Practices because these practices are meant to be integrated within an educator's everyday practice.

Why constellations?

Constellations are typically thought about as a set of visible celestial objects, such as stars, that group together in patterns that can be recognized. Different cultures have identified, observed, and named different constellations, each tied to its own unique story and history.

We use the term constellation to reflect three key points:

- First, just as individual stars can be viewed together in a recognizable pattern, *constellation* refers to how Core Equitable Practices work together to create an effect stronger than any individual practice.
- Second, as educators engage Core Equitable Practices in constellation, they work with their partnering youth to create a new storyline in

STEM about who can participate in STEM, what participation looks like, and even what STEM is and can be.

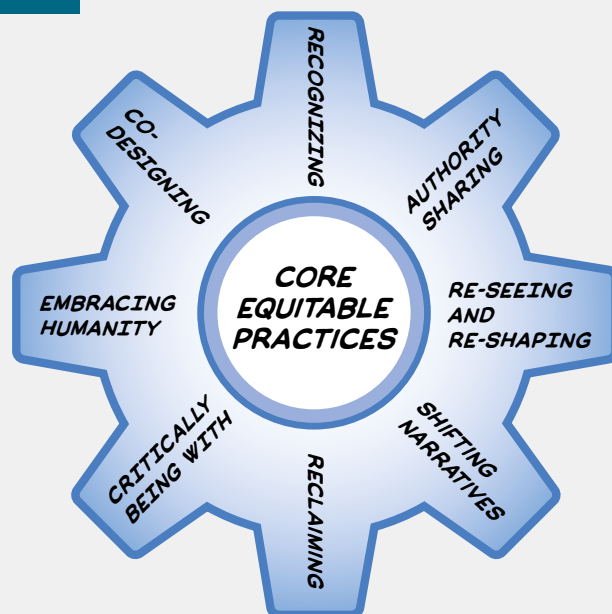
- Third, just as different cultures have observed and named different constellations involving some of the same stars and that have been recognized and shifted over time, educators, as they work in particular contexts and with particular youth, design and enact new and changing constellations of practice. In addition, when practices are enacted in constellation, they can also create space for additional Core Equitable Practices to take shape.

In short, Core Equitable Practices are meant to be enacted in constellation, with effects adding up to promote justice for youth in STEM.

Considerations: How to Enact Constellations of Practice

We recommend starting by pairing two practices that connect to your program or activity goals (one practice you might feel more familiar/comfortable with and one practice that feels new). Consider for example, how Maria paired the practice of 'critically being with' with the practice of authority sharing.

Act



Visit yestem.org for more information and resources from our international research effort.

Spotlight on practice: Enacting Constellations of Practice (US)

In seeking to critically be with youth (See [YESTEM Insight 2.6: Critically Being With](#)), during circle time one day, Maria asked, “What helps you to feel included or excluded here?” Louise immediately got up from her chair and marched to the red couch in the corner of the room, expressing that it was a comparatively more humanizing space where she felt included. Plopping down and stretching out on the couch and hugging herself, she exclaimed, “this is when I feel included,” which was “different from school” where she felt like someone “no one liked in my classroom.” Louise’s statement was immediately greeted positively by her peers. Her peers shared that the red couch was “their space,” “more like home,” and “not like school” and that “it was the kids’ idea to have a couch in here.”

Central practice: Critically Being With: We view critically being with as a deliberate choice to relate to each other ethically (Villenas, 2019). It implies that youth are continually calling on adults to join them as allies. This allyship means listening to youth experiences, considering how these individual experiences are affected by injustice or unfairness, and seeking to show up for youth by acknowledging and addressing those issues directly with youth towards improving the learning space.

Maria shared later that she had been aware that the youth loved the couch but had not previously considered how it might be important to physically include the couch “as centrally a part of our STEM activity together.” Maria embraced humanity (See [YESTEM Insight 2.7: Embracing Humanity](#)) as she further reflected on how youth might experience the space as whole people:

“I began to see the youth’s yearning for a place... that welcomed them for who they are as young people, who’ve just spent eight-plus hours in school being quiet, sitting in chairs. They were, in part, asking to be realized for their desire to just be. I think the red couch also symbolized... what it meant to fully welcome young people in our space together.”

Maria then sought to share authority (See [YESTEM Insight 2.8: Authority Sharing](#)) by asking the youth if they wanted to rearrange the room to reorient their circle time, physically, around the couch. She stood back as the youths moved the furniture around in their designed configuration, asking if they needed help and what they would like her to do. In fewer than 10 minutes, the couch was moved from the corner to the middle of the wall. Chairs were placed around the couch to complete the circle (from then on, the couch served as the organizing point of their circle time).

Louise, now back on the couch and swinging her legs back and forth, continued the conversation. She narrated a past moment in which Maria had positioned Louise as an expert, which also helped her make new friends in the STEM Club:

I remember last week when you [Maria] asked if anyone knew how to sew. I raised my hand and other kids did, too. You said, “Look around and see everyone with their hands up? They are experts at sewing and can help us today.” That made me feel included because it was important and felt good. My Auntie taught me how to sew, and when I could help others I got to know them better and make new friends.

Louise explained that it was important for educators to ask about youth’s experiences and expertise, which emphasized the importance of situating youth’s experiences and expertise as legitimate and central to ISL. She was proud to share sewing knowledge that she learned at home, and proud that it helped her build new relationships.

Supporting Practices: Embracing Humanity and Authority Sharing: In this example, the practices of **authority sharing and embracing humanity** fit together with **critically being with**. As Maria sought to critically be with youth, she tried to embrace humanity by better understanding how they felt in their club. As she learned more, she shared authority with youth by explicitly using their ideas to inform her actions.

Additional tools and resources

Our research-practice partnerships collaboratively co-authored a suite of toolkits for how each Core Equitable Practice may be implemented in context.

These tools include:

- Insights describing the Core Equitable Practices.
- Associated Youth Bids guides, with illustrative vignettes of how educators used the Core Equitable Practices to notice and respond to youth efforts.
- Talk Moves tools to support educators in planning with and enacting Core Equitable Practices.
- Practical measures for documenting impact of Core Equitable Practice implementation.

About our project

- Over four years, our project involved researchers, ISL educators and young people working in partnership to develop new understandings and insights about how ISL might better support equitable outcomes for young people aged 11-14 from minoritized communities.
- Our project partnership involved data collection in the UK and the USA with partners in two science centres, two community STEM clubs, a zoo and a digital arts centre.
- Overall, 260 young people and 30 practitioners took part.
- In the wider project we also conducted surveys with 2,783 young people.



For the full range of Insights documents summarizing the project's tools and resources, including Core Equitable Practices and Equitable Youth Outcomes Model, please see yestem.org

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