



# 2018 Learning Pathway Details

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## **Re-engineering the STEM Pipeline to Create a more Diverse Workforce**

*Catalysis Education Solutions LLC*

Science, Technology, Engineering, and Math (STEM)-related jobs are growing rapidly but still a disproportionately small percentage of students graduating with STEM degrees come from underrepresented populations. According to the Center for American Progress, more than half of America's K-12 population is comprised of students of color whereas the teachers that look like them make up only 17% of the teaching workforce. To begin to tackle this issue, pathway participants will address implicit bias, gaps in equitable services, and issues of access. Attendees will share experiences, learn about strategies for improving equity, review effective programs, and identify possible next steps. This strand is developed to specifically support schools need to address increasingly diverse student populations and communities. Traditional approaches to instructional planning and delivery often do not address the social and cultural contexts of schooling and therefore leave a significant portion of students behind. This approach looks at STEM education as an enterprise that is fully integrated a region's workforce and economy, thereby plugging the leaky pipeline.

### **Block 1:**

Using research on Culture and Cognition in STEM to analyze Practice: The realization that schools and systems must contextualize the education they provide based on the communities they serve is necessary in order to improve STEM engagement and outcomes. Whether a system truly believes that all students have the capacity to pursue STEM careers is evidenced in district policy and practice. Participants will be challenged to examine the culture of their educational system, the role that cognitive science has in decision making, and whether implicit bias might play a role in their institutions.

### **Block 2:**

Removing Barriers to Access and Equity: Access means that everyone gets a coat. Equity means that everyone gets a coat that fits. A teacher once said in a public forum, "This is science. We don't have to worry about that equity stuff." The degree to which that statement is embraced by STEM educators can be debated, but the tendency to focus on content without context is evident. Barriers to access and equity that occur at the K-12 level are ultimately observed in the STEM workforce. Participants will examine how to organize and structure STEM programs in such a way as to promote the ideas of equity and access.

### **Block 3:**

Promoting Professional Growth through PLCs and Authentic Experiences: The most vulnerable populations in this country are still taught by those who are least experienced and have the least professional preparation. Additionally, the majority of STEM teachers come to the classroom without any industry or rigorous research experiences and are therefore limited in their ability to teach beyond the textbook. In recognition of those realities, schools must organize their professional learning programs to be purposeful, growth oriented, reflective, and responsive. Three important practices that will be explored though this session are: the development of high functioning STEM Professional Learning Communities (PLCs); thoughtfully addressing the Science and Engineering Practices from NGSS; and the creation of educator externships and research programs.



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**Block 4:**

Engaging the Community and Region for Sustained Change: Education is not a school enterprise; it is a community effort in which the schools are central to the health of the ecosystem. The solutions for increasing participation of underrepresented populations in the STEM industries begin with making that goal a community imperative. In this session, participants will learn how to move collaborations with community stakeholders from relationships of convenience and proximity to partnerships of purpose and strength.

**Block 5:**

Leveraging K-16 Data to promote Inclusive Competitiveness: The current practice of separating K-12 data from postsecondary and workforce data continues to promote the disconnect of schools from the economic viability of the community. Since No Child Left Behind, schools are flush with data but most still struggle in how to make those data meaningful in everyday practice. This session will examine how to focus on growing a strong, diverse innovation workforce by building better opportunities for underserved groups to have full participation at every level of the K to career spectrum.