

A Practice-Based Approach to Professional Development in Science

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A Practice-Based Approach to Professional Development in Science (PBA) addresses an enduring challenge in U.S. education: providing students from historically non-dominant communities (e.g., students of African descent, students from low-income households, students for whom English is a second language) with high-quality, intellectually-engaging learning experiences in science. This collaboration between the Chèche Konnen Center (CKC) at TERC, the Boston Teacher Residency (BTR), and the Boston Public Schools (BPS) is designing, developing and evaluating a practice-based inquiry approach to professional development that prepares early career teachers in urban schools to move K-5 science teaching toward more rigorous, engaged and equitable learning for students. This approach will be realized in a school-based seminar designed to engage early career teachers in investigations of everyday classroom practice structured around cases that highlight a) generative intersections between students' diverse sense-making repertoires and those valued in the sciences; b) pedagogical practices designed to mobilize those intersections toward deep and complex learning; and c) adaptive planning of curriculum that is responsive to students and responsible to scientific disciplines.

The seminar will be school-based, ten-sessions long, and conducted after school. In the seminar, participating teachers will reason through a series of multimedia classroom cases focusing on plant growth and development drawn from the Chèche Konnen Center archive. For each case, participants will engage in a cycle of inquiry organized around three key professional learning practices: a) analysis of their students' ideas and sense-making resources and how these intersect with science; b) experimenting with innovative pedagogies that build on these intersections; and c) adapting curriculum in ways that are responsive to their students and responsible to science. In these cycles of inquiry, teachers will also document investigations they undertake into their own practice for analysis within the seminar.

The project is structured as two single-year design experiments to iteratively design, implement, critique, and revise the seminar. A design team will review seminar sessions to guide ongoing design and development of the seminar.