STEM Magnet at Annie Fisher School
Hartford, Connecticut
Hartford Public Schools

Learning by Inquiry

In 2005, Hartford Public Schools (HPS) redesigned its system. The result: a portfolio of community-based and magnet schools of choice.

Melony Brady-Shanley, Principal: Over the past four years, we came to see the benefits of bringing STEM into early education and early experience. So we partnered with Connecticut Science Center to be able to say how are we going to be able to teach science, math, literacy, engineering, and writing and have them meld all together.

Rachel Manzer, STEM Coach: What's nice about our school is that it's a random lottery. Who we get there are no prerequisites. And that's exciting. Because every child comes in with different strengths. It's our job to capitalize on them, to build them. Show them what stars they are.

Melony Brady-Shanley: We have the inquiry process of our philosophical core of how we teach here.

INQUIRY BASED LEARNING— Observe and Ask. Investigate. Communicate.

Rachel Manzer: All our inquiry starts with inquiry starters. Inquiry starters are designed by teachers to help students make observations and generate questions. Those questions are always related to the content we are teaching. The second phase of inquiry is the focused investigation. That's where students are really taking their questions, designing their investigations, which could be science experiments, but they could be research, they could be literacy, they could be of many ways mathematical investigations and finding the answer. And that's where learning becomes powerful because the students are finding the answer to their

own question. The third phase of inquiry is the shared understanding. That is when the students are able to communicate what they found.
If they can answer, if they can teach others, then they have that concept. And they have a deep understanding of that concept.

Melony Brady-Shanley: We were the first school within the state of Connecticut and the Northeast region to say we're so committed to this effort that for the next three years 100% of our certified staff, from our social worker to our kindergartener, our phys. ed. teacher to our eighth grade science teacher, everyone was going to speak the same language.

Rachel Manzer: The magic happened because of the professional development.

Melony Brady-Shanley: Our staff relies strongly on the coaching and being able to go back and ask questions and have guidance and being co-taught with, not model taught. And there's a big difference A model taught classroom is where I go in and I teach your lesson and you watch me and then I leave. A co-taught classroom like we do here is where I am your partner I'm going to stand next to you. We are going to lesson plan together, we are going to co-teach this class together, co-experience what the kids got out of the class, and then we're going to co-reflect on what that experience was like, where we need to tweak, and what we need to do better going forward, and what really worked phenomenally.

Rachel Manzer: I am very fortunate to work with the most amazing staff, and we work together in developing really innovative units, units that take learning beyond classroom walls, take learning to new—new areas where the students may not have gone to. For example, we are learning about ecosystems. Let's go camping in an ecosystem. If we're learning about watersheds, let's take the students down to a watershed and have them investigate and look into water quality. If we're learning about life cycles, well, we've raised brown trout and we're going to be releasing them into the clean rivers. That's what my role is: to generate excitement, to generate confidence, and to work with the teachers in creating these innovative STEM units.

Student: We just recently came back from a field trip… it's not an ordinary field trip. It was for three days… camping, and we got to learn, like, since we were learning about ecosystems, we got to do like hands on activities like a pond study. We got to scoop up, like creatures, different water bugs and look at them in a magnifying glass to see what animals live in a pond.

Melony Brady-Shanley: Our school has broken many traditional barriers to education. We teach science every day. We teach engineering every day. And we definitely have data that can prove, that we're moving in that right direction, we can show all populations, minority

populations, any population a pathway to a STEM career, and that is what is so unique about having a magnet elementary, a magnet high school, and a university together. Because we are providing a pathway into a STEM career, not a one-shot experience. And that's exciting.