

**John D. O'Bryant High School of  
Mathematics and Science  
Boston Public Schools  
Roxbury, Massachusetts**



## *Math, Science, and Technology Inspire a Way of Thinking*

### **Suzy Drurey, Science Teacher**

We're a school of math and science so all students are required to take four years of mathematics and four years of science, so chemistry is required. Generally our sequence is freshman year biology, sophomore year chemistry, junior year physics.

### **Joseph Herrington, Science Teacher**

The stress is really on taking AP sciences and AP mathematic courses, whichever they might be or maybe as many as possible. A lot of the students that do come here because it is an exam school and they really just want to be here, a lot of those same students do end up leaving with an appreciation for math and science even though they may not have started with it.

### **Daniel Smalley, Science Teacher**

For AP physics, I start with some sort of question and sometimes they are not even sure where I'm going with this question but it's to get their prior understanding. So I start off with a question and then I let them explore. I let them do some sort of lab activity. We ask a question; I have them explore a little bit without much instruction and then now they all have an experience and afterwards I go into an explanation, I start to explain. Why did you get the results that you did? We start to go through that. So instead of traditional lecture, here's how the lab is going to look, then do the lab, let's explore a little bit so you have some direct knowledge then you go into a little bit of explanation and then we frequently go back to the explorer. That's what I love about this school. I feel I'm given that latitude to do a little bit more exploration, a little bit more hands on, a little bit more like, wow, let's see how cool this is. Get your hands dirty.

### **Suzy Drurey**

For AP chemistry we notice that students coming in even with the preparation of one full year of chemistry were not quite ready for the AP level sciences, and so we created the summer bridge program. We brought them over to Northeastern University for two weeks in the summer, familiarize them with the laboratory, had them perform college level laboratories, had them have professors lecture to them and sort of get them engaged in what it would be like to take a college level course in high school.

### **Jason Joseph, Mathematics Teacher**

It's a big boost. For the school I think it's a seriousness about high school and kids see their

friends taking classes and classes are college level classes they are earning college credit for and they get to say they passed an exam and they may have taken it junior year so now they have that confidence and they become more serious as juniors and seniors and now you have 9<sup>th</sup> graders and sophomores that are looking forward and saying “oh, these are the steps I need to take in order to prepare myself to take the AP classes.”

### **Joseph Herrington**

One of the things that the administration has really tried to do is to not just have each science class kind of on its own but have it lend itself toward something or to show some meaning between what’s covered in class and the outside world, so there is not that disconnect.

### **Sharon Hessney, Mathematics Teacher**

The content that we do during the year *is* the content they use on MCAS, and I’m very aware of that. But I don’t want to keep reminding the kids over again that you are learning this for a standardized test. We’re not learning it for a standardized test. We are not learning it for standardized test. We are teaching them the skills so they can move on in mathematics. But these students realize how far behind they are, that they are willing to voluntarily come on Wednesday afternoons from 2:00 until 4:00, being bribed by brownies, to do MCAS review and we review through each type of problem. Since I’m an inquiry-based teacher, we do a lot of open response questions and presentations so they are used to writing and speaking about their mathematics. They don’t just do multiple choice and true or false. Once they get one of those kinds of questions it’s no different than what they have been doing every week.

### **Nora Tsoutsis, English Teacher**

You are starting to teach them at a young age what happens is if you are brilliant at math but you can’t share that information what happens if you have this great discovery but you can’t communicate what needs to be done. And I think that that is one of the things that sort of unites the faculty here that we have a sense that it is for a bigger cause than just maybe teaching the subject matter although of course I always love to see my students get into chemistry, most of my work is actually having them manage their time, learning to be a better student, be successful in college, and hopefully have a better career and have options open to them and I think that in the end although we are a school of math and science and have a math and science focus, most of us are trying to achieve a better student model so that students can have a greater wide variety of choices as they exit. I do think what is here is the quality level of the teachers. I know you are touching upon having been a female in a minority. I actually was in medical school and left medical school. I recognize the fact that in upper level science there is a lack of minorities and also females and so having a lot of positive role models in the school is great because the students see, maybe I could do this.