Changes in instructional practices build momentum for student success in science.
Facing many challenges, Kendrick High School in Columbus, Georgia, was designated as a school in need of improvement three years in a row. The school applied for and received a School Improvement Grant. Part of the grant was used to fund professional development for the Science Department, with the goals of changing instructional practices, adopting data-analysis processes, and instituting more collaboration among teachers and administrators. In the three years since the school improvement plan was initiated, passing rates for end-of-course tests have increased in biology and physical science.

In Kendrick High School, a Title I school, more than 85 percent of students face economic disadvantages, and many have low motivation and lack support. By the time they arrive at Kendrick, many students are struggling because of deficient math and reading skills, and they are unable to reach state-level benchmarks in all subjects, including science. Before Kendrick applied for the School Improvement Grant, students were beginning to leave the school or choosing to attend a different high school, which caused enrollment to decline 30 percent over three years. Due to these circumstances, the graduation rate dropped below 50 percent.

The Georgia Department of Education designated Kendrick as a “Needs Improvement” school three years in a row because of its poor academic performance. By 2011, school officials knew they needed to make changes and applied for a School Improvement Grant. Once the grant was approved, teachers and administrators chose to implement the High Schools That Work improvement model, a research-based transformation program established by the Southern Regional Education Board, because other schools in the district had experienced higher student achievement with this approach.

Teachers and administrators then faced the challenge of applying the approach in various departments. School leaders turned to Pearson to help implement the model’s professional development component in the Science Department, specifically in biology and physical science.
The School Improvement Grant was approved in the spring of 2011, and Kendrick began implementing the model in the fall of 2011. “We had low science scores in both our formative and end-of-course assessments,” said Carolyn Randolph, academic coach at Kendrick. “From the start, our goal was to increase overall student achievement.” Pearson’s educational consultant, Dr. Jacquelyn Walton, created a professional development plan centered on changing teachers’ instructional practices to achieve the school’s goal within the parameters of the transformation model.

“The science teachers already had a good work ethic and were very dedicated. They also had great support from their principal, department chair, and instructional coach, so it was easier to help get the teachers on target,” explained Dr. Walton. “At first we held training days with all of the science teachers going over the new standards-based teaching practices. From there I worked with teachers individually, understanding their needs and developing new instructional practices in the classroom. Plus I modeled the practices for them with their kids, so they could see what I was talking about. This made it much easier for the teachers to grasp.”

The new practices entailed analyzing student data, working collaboratively, and assessing the effectiveness of lessons and activities. Physical science teacher Lajoyce Sanders explained, “We scheduled weekly collaborative meetings by course content. One of the things we always discussed was where we were with the state standards and how our students were performing. Then we would look at some of the strategies and discuss what was modeled for us in class. The driving force, though, was the data. We would look at the types of questions we were giving the students, asking whether they were valid. We looked at what we were teaching and how it aligned to the standards, how we were assessing the students, and then how we could re-teach or re-assess them.”

Teachers also used data to meet students’ individual needs. Dr. Sheila Jones, Science Department chair, said, “One thing we did as part of our improvement plan was to increase the length of the school day. This gave us the time we needed to implement increased-learning-time classes. In these 45-minute classes, students received direct instruction or remediation on the content. This was done daily. We assessed students weekly, and from the reports we placed them into these classes based on their needs. If they needed help with biology, they were placed in a biology increased-learning-time classroom. This supplemented what teachers were already doing. There was a lot of collaboration on the part of the teachers in doing this, and the test scores showed that it did help the kids overall.”

“We feel much more prepared. Each year, we get a different crop of students, so we know how to reach those students better and to really look at data from the assessments.”

— Carolyn Randolph
Academic Coach

“The training made me look at some of my teaching practices and throw out the ones that were not effective and revamp others to be more effective.”

— Lajoyce Sanders
Physical Science Teacher

“The students, you look for them to have success, incremental success. When you see it, even a little bit, you put in more effort because you know it is working.”

— Lapolia Chaney
Physical Science Teacher

FIGURE 1: 9th-Grade Physical Science End-of-Course Test (EOCT) Passing Rates

Note: In the 2013–2014 school year, physical science was moved to 11th grade.
Results

The results reflect all of the students’ and teachers’ hard work. At the end of the 2011–2012 school year, the first year of implementation, the percent of students who passed the 9th-grade physical science end-of-course test rose from 43 to 71 percent, a 28-point increase (see Figure 1). End-of-course test passing rates for 10th-grade biology increased from 35 to 64 percent, a 29-point gain (see Figure 2).

During the 2012–2013 school year, the second year of implementation, 87 percent of 9th-grade students passed the physical science end-of-course test, an increase of 16 points from the prior year and an increase of 44 points over two years. In biology, 76 percent of 10th-grade students passed the end-of-course test, a 12-point gain from the previous year.

In the third year of using the new instructional practices, end-of-course test passing rates continued to increase. In 10th-grade biology, 81 percent of students passed the test, a gain of 5 points from the prior year and a 46 point increase since the instructional practices were implemented. Administrators decided to move physical science to 11th grade that year, and 90 percent of students passed the end-of-course test.

Kendrick has seen other indicators of success in addition to test scores. In 2013, Kendrick surpassed the state’s overall College and Career Ready Performance Index (CCRPI) for the first time, scoring 72 percent whereas the state average was 68 percent. In 2014, Kendrick’s graduation rate reached 69.4 percent, a gain of 20 points since it began implementing new instructional practices (see Figure 3). The school also exited the state’s Priority Schools list, a testament to the gains it has achieved.