INNOVATING SUCCESS

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> – Sonya Simon

Andy Dekaney High School
Spring ISD
Houston, Texas

School Statistics

2,700 students

Grades 9-12

Urban

http://schools.springisd.org/default.aspx?name=27.home

Student Population

3% White

2% Asian/Pacific Islander

34% American Indian/Alaskan Native

61% African-American

5% Limited English proficiency

10% Special education

67% Economically disadvantaged

adaptive curriculum™

Dekaney High School Saves Money While Providing Hands-On Learning with AC Science Texas

Challenge

Dekaney High School is part of Spring Independent School District (ISD), a diverse and growing district located 20 miles north of downtown Houston in an urban area of Harris County, Texas. Following the State Board of Education's July 2011 Supplemental Science Materials adoption — the first time an entire adoption consisted only of online materials — the urban high school seized the opportunity to bring the latest science and technology into its classrooms.

"In 2011, we didn't get an allotment from the state for science textbooks. Instead, it was for supplemental materials," Sonya Simon said, science department chair at Dekaney High School and a teacher for 13 years. "We chose Adaptive Curriculum because we wanted something innovative that would provide students with hands-on activities, individualization, and real-time feedback and assessment."

Implementation

Dekaney High School began using Adaptive Curriculum (AC) Science Texas™ during the 2011-12 school year. AC Science Texas, which was approved in the July 2011 Supplemental Science Materials adoption, is an innovative concept mastery solution that covers the Texas Essential Knowledge and Skills (TEKS) for Science in grades 5-8, biology, chemistry, integrated physics and chemistry (IPC), and physics.

"Adaptive Curriculum definitely helps us address the new TEKS for Science," Simon said. "It's difficult to find material in our textbooks or activities on the web to support the new TEKS, but Adaptive Curriculum has activities and animations and questions that help students develop the knowledge and skills they need to meet the new curriculum standards and prepare for End-of-Course assessments."

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Implementation Continued

At Dekaney High School, students work on AC Science Texas™ in courses including biology, chemistry, IPC, and physics. Teachers use the program's instructional units, called Activity Objects, to provide whole-group instruction, as well as individualized instruction using mobile laptop carts in the classroom or computers in school computer labs. Built-in standards alignment and search capabilities allow teachers to quickly choose Activity Objects that address their specific curriculum and standards requirements.

"Teachers will often project an Activity Object for the whole class, and lead a discussion and ask questions as they move through the unit," Simon said. "It's a really good teaching tool because it supplements what we already do. It makes it easier to teach abstract concepts, which are often difficult for students to understand."

In addition, teachers frequently use AC Science Texas™ to provide individualized interventions to struggling learners in grades 9-12. These students visit the computer lab twice a week, spending at least 90 minutes on the program.

"Because students can work on the program individually at their own pace, they can take as long as they need to complete a lesson and get one-on-one feedback and help. They can even re-do experiments if they need to, without having to worry about getting more materials since everything is online," Simon said.

To improve students' mastery of science concepts, AC Science Texas™ integrates real-world content from across the curriculum with challenging problem-solving situations. By tapping students' prior knowledge, the program takes conceptual development to a higher level and helps students make real-life connections between themselves and the science concepts in their environments.

"Students love the real-world scenarios," Simon said. "They really drive the point home in a student-friendly way. They give students something tangible to make a connection with, which may be different from what they hear from their teacher or see in a textbook."

With AC Science Texas™, realistic visualizations, interactive simulations, 3-D models, and virtual labs and manipulatives provide opportunities for hands-on learning. The immersive, differentiated learning environment encourages students to explore, make hypotheses, manipulate items, and see the impact of their decisions.

"The program's active learning approach supports inquiry-based learning, and the activities and virtual lab experiments allow students to accurately learn the material. For example, if a student is conducting a lab and doesn't use the tools appropriately — like if they don't use the right measurement or the right substance — the program won't allow them to continue.

With other programs, if they miss something, they miss it. Adaptive Curriculum makes the lab fool proof and gives students the help they need when they need it. If they have a question, they can simply click on or roll over that spot on the lab activity and it will give them the background information they need to move forward. That really increases students' understanding," Simon said.

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>
> – Sonya Simon

Teachers also appreciate that Adaptive Curriculum's multimedia and multisensory lessons help them address diverse learning styles. Activity Objects are auditory, visual and kinesthetic, with multiple language supports, to ensure students receive instruction that matches their individual learning preferences.

"Adaptive Curriculum takes care of all the different learning styles and presents lessons in modalities students may or may not get in a classroom setting," Simon said. "When they can see and hear and manipulate an object, they have a greater chance of mastering the concept."

Each Activity Object also includes a final assessment that tests student mastery, and provides progress monitoring for teachers and students.

"The online assessments and reports allow us to easily monitor student progress and keep them on task," Simon said.

Results

According to Sonya Simon, AC Science Texas™ helps Dekaney High School save money while providing engaging, hands-on learning experiences in science.

"With Adaptive Curriculum, we get the benefit of having a lab, but without having to spend a lot of money. It's more cost-effective and it allows students to do experiments that would otherwise be too expensive or too dangerous or take too long to set up in a traditional lab," she said.

Further, AC Science Texas™ helps teachers engage digital-age learners while deepening their understanding of the science TEKS.

"The engagement piece of this program is huge," Simon said. "When I start a whole-group lesson, students will often ask if they can go to the lab and continue work in the lesson on their own," Simon said. "They love watching the videos and working with the manipulatives. It's very hands-on for students, which really boosts their learning."

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