

Roseburg Public Schools approves digital science curriculum for middle school students

Starting in fall, students at Fremont and Joseph Lane middle schools will be studying science with computers.

Middle school science is the first core subject within the Roseburg school district to adopt a digital curriculum instead of one that uses textbook.

“Science makes sense for a digital adoption because it’s a field that changes frequently,” said Robert Emerson, the Roseburg Public Schools director of teaching and learning. “A digital curriculum means whenever there are changes in the science content, the curriculum can be updated immediately.”

With textbooks, a school district might have to wait from seven to 10 years to update a core subject curriculum, depending upon budget constraints.

Although the RPS school board adopted the digital science curriculum called STEMscopes in April, it just approved a technology purchase last week so the science curriculum would be ready by the next school year.

The entire middle school science curriculum cost the district about \$135,000 for both the curriculum and 256 Chromebook laptop computers, which is comparable to the amount traditional textbooks would cost. This cost also includes the required lab materials for classroom science experiments.

The digital science curriculum itself cost about \$72,000, with the Chromebook computers costing about \$50,000, plus the cost for computer storage carts and teacher training.

All 14 middle school science teachers made the decision to adopt a digital science curriculum after carefully weighing all the options.

Although digital tools like Chromebooks are already used within the district as curriculum supplements, this is the first time an entire core subject is relying on digital technology.

According to Emerson, the digital science curriculum does not vary much from the traditional curriculum in that the students still participate in laboratory work and hands-on activities that have nothing to do with technology. Only materials like books and teachers’ guides would be accessible online.

For students who do not have digital access at home, materials could be printed out by teachers to provide students with hard copies to read. Students would also

have the ability to turn in assignments online and to participate with some activities online, but not all activities.

Students are not required to own a computer to participate with a digital curriculum, since they can be accessed through a cellphone or an iPad. But because the digital curriculum itself is less expensive, the district was able to provide more computers to science teachers.

That's why the school board approved the purchase of 128 Chromebooks for each of the two middle school science departments last week. Each middle school will now get four carts, with each cart holding 32 Chromebooks. The Chromebooks are stored on a cart that can be brought into a classroom when needed. Students do not take the computers home.

"We're not to the point of every student having a Chromebook full time," Emerson said. Each of the two middle schools has a student population of about 600 students in sixth, seventh and eighth grades.

Besides being easy to update, another advantage of digital curricula is that they are easy to replace compared with traditional textbooks that cost a significant amount of money when lost or damaged by students each year. The digital curricula might also be more interesting for students.

"Hopefully the curriculum is more engaging for students because it has some digital components to it, like simulations of science concepts on the computer, which is more engaging than reading about it," Emerson said.

Bringing new technology into schools would also prepare students to employ new technology for academic reasons and for careers.

After high school, "there's an expectation that students actually know how to use technology to do their job or to learn," Emerson said. "It's important that we provide those same kinds of experiences when they go through the educational system."

The adoption of this digital curriculum is no indication that the district plans to entirely replace all the books in the district. When the time comes to adopt a new curriculum for another subject, which typically occurs every seven years, each subject curriculum will be reviewed by its teachers.

"We want the teachers to make the determination about which resources they feel are the best to teach their subject," Emerson said.

Complete digital capability for a school is not a simple process because it involves many considerations, like providing a computer for each student along with a reliable internet connection and a wireless network. Technicians are also needed for technical support and teachers must undergo training.

"There are all these costs, and things must be done behind the scenes to make it work," Emerson said. "There's a lot to it. But this is a first step."