STEMscopes™
THE LEADER IN STEM EDUCATION

CASE STUDY

Cascade School District–Turner, Oregon

BACKGROUND

During the 2017-18 school year, 27 Oregon school districts used the STEMscopes NGSS digital science curriculum in their elementary schools. The 2018 Oregon Science Assessment results show that these districts had a fifth grade proficiency rate 4 percentage points higher than districts that did not use STEMscopes, even after controlling for important demographic variables and previous year achievement. This translates to an additional 371 fifth grade students considered proficient in science. In addition, the districts that used STEMscopes improved their fifth grade proficiency rates by 2 percentage points from 2017 to 2018, while proficiency rates in districts that did not use STEMscopes decreased by 2 points.

One of the 27 Oregon districts that used STEMscopes NGSS was Cascade School District...

MAY 2019

Fifth Grade Proficiency Rate Increases 6+ Percentage Points in One Year

CHALLENGES

"We had not adopted a district-wide science curriculum in several years," said Dawn Moorefield, assistant superintendent of Cascade School District. "We want our students to be well-rounded and college and career ready when they graduate, and science is an important part of that. We needed a curriculum that would be aligned to the standards and prepare students for our state assessment. We wanted to give teachers the curriculum materials they needed so they wouldn't have to research and come up with their own materials, investigations, and experiments. We were also looking at how we could improve our science courses so students would enjoy them more."

SOLUTION

Cascade School District began using STEMscopes NGSS as its core science curriculum in grades K-12 in fall 2017. The rural district serves 2,300 students living in Aumsville, Turner, and Marion, Oregon.

STEMscopes NGSS is 100 percent aligned to the Next Generation Science Standards (NGSS). It combines a comprehensive digital STEM curriculum, supplemental print materials, and ready-made exploration kits with embedded professional development to support both student and teacher success. It can be used as a core or supplementary science curriculum in traditional, blended, and 1:1 classrooms.

"Teachers across all grades were interested in STEMscopes," said Moorefield. "They felt that they'd be able to easily implement it in their classrooms and they really liked that it came with hands-on kits."

Supporting teachers

The curriculum design and embedded professional development in STEMscopes NGSS make it easy for new and veteran teachers alike to teach to the rigor and depth of the standards. In addition, tools such as professional development videos, on-demand webinars, and how-to guides help teachers continuously improve their teaching.

"When a new curriculum gets adopted, teachers worry that they'll need a lot of professional development and that they'll have to spend hours planning to implement it. They didn't do that with STEMscopes. They jumped in really quickly," said Cyndi Ganfield, principal of Aumsville Elementary. "STEMscopes is very intuitive and simple to use. I have many brand-new teachers in my building, and it made it easy for teachers to work together and plan lessons as a team."

"We do a lot of science at Turner Elementary, including all-day science days that involve the whole school," said Dan Petersen, principal of Turner Elementary. "Our goal was to find a curriculum that would support what we were already doing, and give us the flexibility to mix and match and move around. When we looked at STEMscopes, it struck us that teachers with any level of science background could find something useful within this program."

"STEMscopes NGSS enables teachers to really dig in and understand what our students are being asked to know and do, instead of having to try and figure all of that out on their own," said Moorefield.

Creating connections across grade levels

In addition, strong vertical alignment in STEMscopes NGSS makes it easy to develop student expectations across grade levels with a spiraled curriculum.

"Even before STEMscopes, science was a big emphasis at Cloverdale. Some teachers did really well with science and some struggled a bit. The vertical alignment in STEMscopes has been a big benefit. It standardized science so everyone is now speaking the same language, and I'm seeing more conversations between teachers in different grade levels. It also filled in the gaps we used to see when everyone was doing their own thing," said Bryan Dyer, principal of Cloverdale Elementary.

"Previously in my school, it wasn't that science wasn't being taught, but that it wasn't being taught in a systematic way," said Ganfield. "With STEMscopes NGSS, teachers now say we have a cohesive curriculum. As a result, I see them doing more team teaching and integrating science into cross-curricular areas."

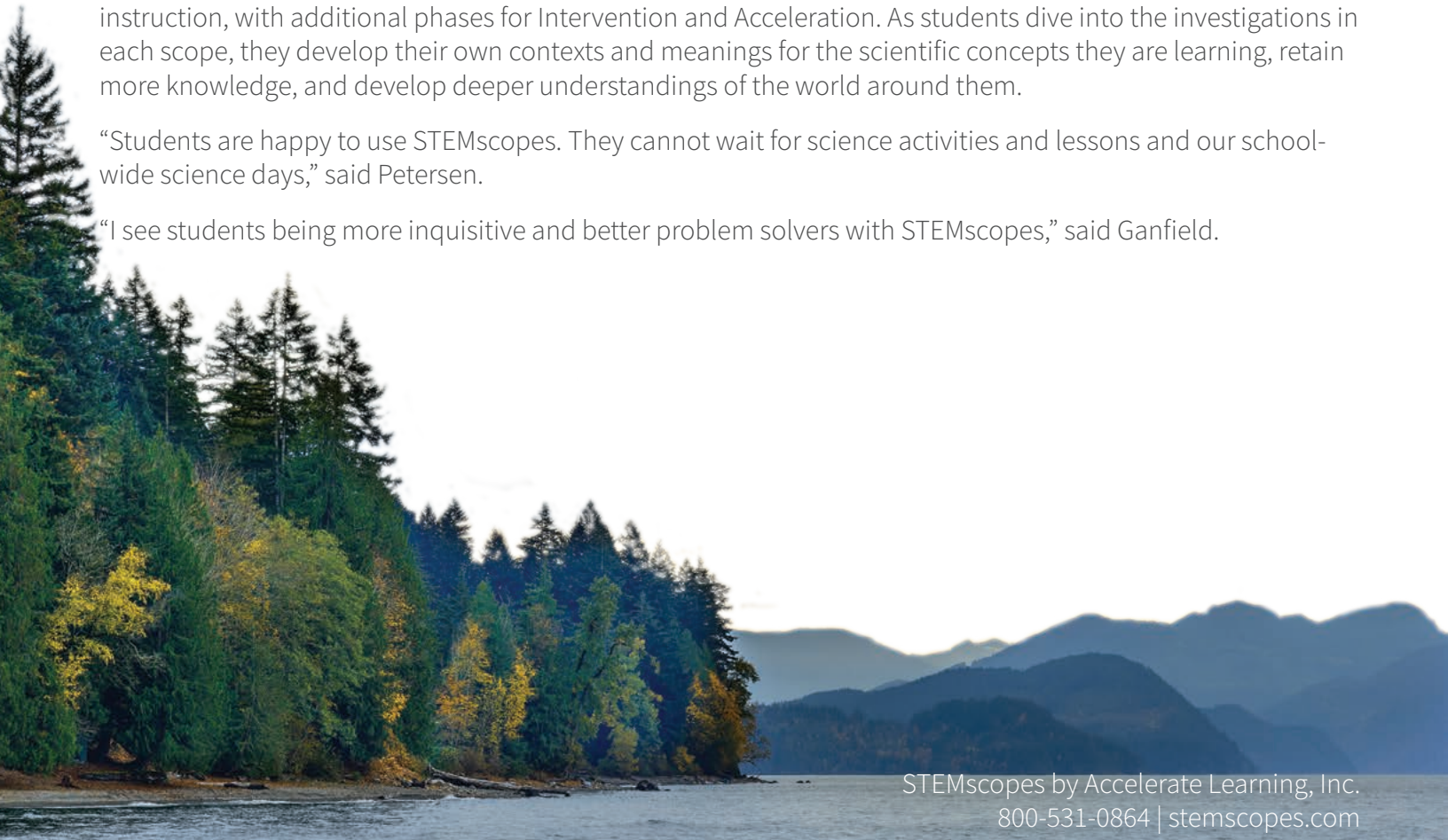
"STEMscopes energized science in our school by providing a complete curriculum and making everything readily available to teachers. It makes science instruction simpler," said Petersen. "I was just talking with my fifth grade teachers and they were discussing how to tie everything together to make sure their students are ready for the state assessment. Before, when we'd discuss these activities, I'd offer to run to the store to grab supplies. Now, with the STEMscopes kits, they literally have everything they need. It makes it much easier for our teachers," said Petersen.

Providing hands-on, inquiry-based learning for students

Each STEMscopes unit is developed around the 5E (Engage, Explore, Explain, Elaborate, Evaluate) model of instruction, with additional phases for Intervention and Acceleration. As students dive into the investigations in each scope, they develop their own contexts and meanings for the scientific concepts they are learning, retain more knowledge, and develop deeper understandings of the world around them.

"Students are happy to use STEMscopes. They cannot wait for science activities and lessons and our school-wide science days," said Petersen.

"I see students being more inquisitive and better problem solvers with STEMscopes," said Ganfield.



Helping students who struggle

"Our students get really excited about doing science with STEMscopes kits. This type of hands-on, inquiry-based instruction is also effective in reaching different types of learners, like kids who struggle with reading. These activities get them excited about being at school because they want to explore and experiment and test things out," said Dyer.

"We've found that some of our students who struggle academically or behaviorally actually excel more with STEMscopes. The hands-on activities give them a chance to be at the top of the class because they are those types of learners," said Petersen. "That happened quite a bit last year. We had a group of three boys who struggled in every aspect of school except science."

RESULTS

From 2017 to 2018, the district's fifth grade proficiency rates improved on the Oregon Science Assessment.

Oregon Science Assessment Proficiency Rates

	2017	2018	Change
Casade	67.6%	73.8%	+6.2
State of Oregon	63.5%	63.1%	-0.4

"Our scores went up from 2016-17 to 2017-18, and I have to believe that part of it is the science curriculum we're using and how we're instructing our students with STEMscopes," said Moorefield.

In 2019, Oregon will complete its transition to the NGSS and launch a new statewide NGSS assessment. "It will be the first year that our students will be tested fully on the Next Generation Science Standards, and we're looking forward to seeing how they do," said Moorefield.