

# Belle Sherman pupils get schooled in computer coding

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(Photo: KELSEY O'CONNOR / Staff Photo)

A roomful of second- and third-graders could barely sit still Tuesday at Belle Sherman Elementary School as they waited for their after-school class to begin.

"How many of you know what an algorithm is?" Cornell University graduate Arjan Nirh asked the group.

More than half of the 40 7- and 8-year-olds raised their hands.

Nirh and Ph.D. student Nikolai Rakhilin were met with similar responses as they asked about looping and debugging a code.

The pupils, as well as another group from kindergarten and first grade, have been spending an hour each week learning the basics of coding and working to the point where, on Tuesday, they were adding finishing touches to computer games they had created.

"There's a big push to get kids involved at an early stage," Nirh said. "Because everyone is using computers all the time, using iPhones and whatnot, you need to know a little bit about programming."



Niko Ross, left, and Simon King, both in third grade, work on a game they created. (Photo: KELSEY O'CONNOR / Staff Photo)

Called "Code-4-Kids," the program is a collaboration between Belle Sherman teachers, Cornell computer science students and the Triad Foundation to give children the opportunity to learn computer literacy and algorithmic thinking.

The program was a hit, school Principal Dan Breiman said. Fifty students signed up, and there were many more on the waiting list.

Rakhilin and Nirh had no idea how quickly the students would learn. They ended up skipping many exercises on the website [Code.org](http://Code.org) they use for lessons.

"We could never keep up with how quickly the kids were picking this stuff up," Rakhilin said.

Rakhilin learned to code later than he would have liked. He said he wished he had the opportunity to learn the skills earlier in middle or high school.

"I thought it would be a good way to help the next generation learn earlier," Rakhilin said. "If you don't have the opportunity, you never get into this world, and it kind of flies by you."



Children use colored blocks, the colors signifying functions in programming like events and loops, to create simple games. (Photo: KELSEY O'CONNOR / Staff Photo)

The kids were learning more than how to code dinosaurs to shoot fireballs or draw shapes; they also got lessons in Internet safety and bullying, teaching students that there are people behind the screen. And despite the focus on technology, Rakhilin and Nirh also stressed the importance of disconnecting.

"You can't be on the computer, on your phone, on your iPad 24/7. You need to switch it off. You need to take a break and maybe climb a tree," Nirh said.

Second-graders Ben Wahl and Tharun Ramachandran excitedly explained their game involving "killing villains and bringing happiness to the Earth," Ben said. When they clicked on the screen, the good-guy zombie would shoot fireballs and the bad guys would explode.

While explaining, they were tweaking the code to change the background or other effects.

"This is puzzles to them, and they're excited about it," Nirh said. The hardest thing is to keep the children focused and engaged, he said. In other classes, they showed the students the Google car and animation from the "Toy Story" movies for inspiration.

Niko Ross and Simon King, both in third grade, were creating a game that "is sort of like dodgeball, but with fireballs," Niko explained.

"We just learned this coding," Simon said. Niko and Simon said they now know it takes a long time to make a game. Coding is "pretty cool," they agreed, and they want to learn more about making games.

"They're creating something new," Breiman said. "Working together, they're building their own code. They're not playing a game, they're making one."

Next week, the children will show off their games and progress to their parents and the superintendent. Rakhilin said he hopes the program will continue and grow next year.



**About 40 students stayed after school for an hour-long coding class led by Arjan Nirh, left, and Nikolai Rakhilin. Nirh recently graduated with a master's in engineering and Rakhilin is a Ph.D. student. (Photo: KELSEY O'CONNOR / Staff Photo)**

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