


Turning out research beyond their years

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Middle school science fair reveals slew of sophisticated projects



by: PAMPLIN MEDIA GROUP: JOSH KULLA - Wood Middle School eighth-grader Kjel Pettenger-Wiley discusses his project with CREST Director Bob Carlson.

Studying the manner in which different materials absorb and reflect light is probably a topic outside the capability of the average adult.

But don't even think of suggesting that to Wood Middle School eighth-graders Kjel Pettenger-Wiley and Luke Puppo.

The pair recently demonstrated that the sky is the limit when it comes to their academic futures by grabbing four awards, including Best Overall Team Project, at the West Linn-Wilsonville Middle School CREST-Jane Goodall Middle School Science Fair, held Feb. 22 at Wood Middle School in Wilsonville.

Pettenger-Wiley and Puppo's research on the absorptive and reflective properties of visible light also earned them a special award for Best Demonstration of Field Knowledge, first place in the Chemistry and Physics category and a Broadcom special award for excellence.

In addition to cash prizes, they also earned admission to the Oregon ISEF (Intel Science and Engineering Fair) competition for middle school students set for March 22 and 23 at Portland State University.

To hear Pettenger-Wiley tell it, though, the thought of the statewide competition is intimidating.

"We were thinking that we really don't want to go state, but we might change our minds," he said prior to the final awards ceremony. "I've actually gone to state twice, and there are people there doing cancer research and things like that, so it's a lot bigger."

Inspired by stealth technology used by the U.S. military's F-117 fighter plane, the project used visible light and a lux meter to measure the amount of light reflected by various shapes. They found that objects in the shape of the letter "W" — like the famous stealth fighter — do this most efficiently.

"We wanted to know how some planes were able to avoid (radar)," Pettenger-Wiley said. "So we used different materials and different shapes and put them in the center of a box. And because we don't have enough money for radar equipment, we had to use a lux meter."

That is just one of the dozens of projects filling the Wood gymnasium. In addition to chemistry and physics, other disciplines included medicine and health sciences, life sciences, consumer product testing, engineering, energy and transportation, environmental science and behavioral science.

by: PAMPLIN MEDIA GROUP: JOSH KULLA - Rosemont Ridge Middle School student Aaron Markstaller took second place in the Chemistry and Physics category.

Projects were judged by a panel of 37 adults from Wilsonville and West Linn, all of whom possess expertise in one or more of those areas. It was an authentic scientific experience for all involved, said Bob Carlson, director of the school district's Center for Research on Science and Environmental Technology.

"It's great for them to have the chance to talk to judges," said Carlson as he strolled around the gym talking with students from Wood, Rosemont Ridge and Athey Creek



middle schools. “They get to talk to scientists who can give them feedback, so it makes it a great value for them.”

The importance of this can’t be overestimated, said Amy Schauer, CREST program coordinator.

“When you have those adults who are experts in their fields, and the kids are presenting their work to those adults and getting appreciation and feedback,” Schauer said, “I think that’s what adds a lot of power to this.”

Having your work judged by others still can be a challenge, said Rosemont Ridge Middle School seventh-grader Aaron Markstaller, who took second place in the

Chemistry and Physics category.

“It made me really nervous,” said Markstaller, who wanted to find out what shapes work best at reducing wind resistance in vehicles. “I wasn’t really looking forward to this morning until I came here. I’ve been working a lot, especially building the wind tunnel and testing for a long time, and I’m kind of just glad it’s over.”

His project involved a homemade, scale-model wind tunnel powered by an old weed-eater. His research showed that a teardrop shape produces the least drag.

“My dad (Matt Markstaller of Daimler Trucks North America) helped build the Swan Island wind tunnel built for semi-trucks,” Markstaller said. “So I thought this would be a cool project to do. I’m trying to find the most aerodynamic car design, because if you have a more aerodynamic car it will use less fuel, and now that we’re running out of fossil fuels it would probably be better.”

West Linn-Wilsonville Superintendent Bill Rhoades said the involvement of parents in the ISEF process is critical for student success.

“Sometimes when we talk to (judges) we can’t figure out who enjoyed the day the most, because students absolutely impressed them every time,” Rhoades said. “We couldn’t pull this off without the tremendous support, oftentimes inspiration, guidance, mentoring, coaching, giving up the garage, giving up the kitchen, giving up the living room, whatever it takes to get into your partners’ homes and garages to get the work done. There’s no doubt how important a role our parents play in making this possible for us.”

Pettenger-Willey and Puppo drove that point home.

“It was really, really fun,” Pettenger-Willey said. “We met a judge who was a programmer for stealth cruise missiles, so he actually had something to do with this.”

That kind of collaboration is exactly what the district wants to promote, said Schauer.

“It’s awesome,” she said, “because the kids come in and they’re so nervous about that. They think it’s going to be the worst part, but they walk out and they say, ‘That was the best part!’ ”

by: PAMPLIN MEDIA GROUP: JOSH KULLA - Wood Middle School eighth-graders Kjel Petterson-Willey (right) and Luke Puppo react to their Best Team Project award.



by: PAMPLIN MEDIA GROUP: JOSH KULLA - The scale-model wind tunnel constructed by Rosemont Ridge Middle School student Aaron Markstaller earned second place in the Chemistry and Physics category.



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