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Nuclear scientists, engineers wowed by elementary students

By Susan A. Romano, AFTAC Public Affairs

PATRICK AIR FORCE BASE, Fla. – Young scientists put their brainpower to work while volunteers from the Air Force Technical Applications Center here served as judges for Croton Elementary School's annual science fair Jan. 28.



Two dozen members of the nuclear treaty monitoring center converged on the Melbourne-area school to examine, review, evaluate and rank 250 science projects by students in grades 4 through 6. Each project fell into one of three categories: physical, environmental or biological. Students were required to choose a topic, develop a hypothesis, conduct research and follow the scientific method to lead to an outcome of their experiment.

The volunteers were given a rubric – a scoring tool used to evaluate and assess criteria and objectives – and were broken up into small teams to begin the judging process. Once the team reviewed a student's project, they were given the opportunity to meet with the budding scientists to ask them more about their research.

Rowan Bedesem, a 4th grader in Ms. Boyd's class, conducted his research on what kinds of materials can block a Wi-Fi signal. AFTAC judges Austin Hale, Capt. Justin Jones and Master Sgt. Ryan von Oven interviewed the 10-year-old about his project. He explained how he did three separate trials using various materials to obtain an average of which materials blocked the signal and which didn't.

"I was quite surprised by the attenuation of materials that I didn't think would affect the Wi-Fi signal," Rowan said. (Editor's note: yes, this young man really used the word 'attenuation' and used it properly!) "I was really challenged with this project, but it was also a lot of fun."

When asked what he wants to be when he grows up, he said, "I want to be an inventor. When I watch all these Sci-Fi movies and see the insane inventions that are created for the movie, I always say to myself, 'Why don't we have that stuff now?' So that's what I want to do – create really cool stuff that looks like it comes from the future!"

Logan Collins, a 6th grader in Mr. Breese's class, based his hypothesis on how the color of light affects plant growth. He said he enjoyed working on the project and watching how quickly his plants grew, but faced a significant challenge towards the end of his research.

"I went on vacation mid-way through my project, and while I was gone, my puppy ate my plants! Thankfully, I was still able to complete it in time for the Science Fair."

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One of the goals of the school's science fair is to promote an interest in science, technology, engineering and math and to encourage the students to pursue educational paths in STEM fields. AFTAC personnel, who work in a cross-section of STEM fields like physics, biology, chemical engineering and nuclear forensics, offered their respective scientific backgrounds to add dimension to the judging and scoring process.

Thomas Englert, a 5th grade teacher in his first year teaching at Croton, served as the school's science fair coordinator. Because of his love of science, he was excited to take charge of the program for the 4th, 5th and 6th grade participants.

"Some of the best parts of being involved with this program is seeing the students' creativity and watching them learn about the scientific process," said Englert. "But it's not just about science, per se; the kids are also required to undergo an interview as well as present their findings in front of their peers. It broadens their public speaking skills and exposes them to other aspects of learning that can help them develop skills and use them later in life."

He added, "Kids might learn facts and figures during science class, but because our curriculum is so tight and so structured, we rarely have enough time to go through the actual scientific process. Our science fair allows them to do just that."

Many of the AFTAC volunteers are repeat judges, some in their 4th year of participation. All of them were amazed at the depth and scope of the submissions.

"The caliber of projects that were on display was extremely impressive," said von Oven, a training manager with AFTAC. "I was pretty awestruck by some of these kids' ingenuity and level of intelligence, especially at the elementary school level. I'm sure their teachers and their parents are really proud of their hard work."

Laura Menendez, Croton Elementary's science committee community outreach coordinator, had nothing but praise for AFTAC's volunteers.

"In this day and age, excelling in science is critical for our students," said Menendez, "and STEM fields of study are the embodiment of imagination, invention and inspiration. We have come to rely on the folks from AFTAC who take time out of their schedule to serve as judges, and it's so refreshing to know that our school has the highest caliber of talent reviewing our students' projects. This is the fourth year that Air Force personnel have made our science fair such a success, and I think it's about time we made them all honorary Croton Cardinals!"

The winners of Croton's 2016 Science Fair are as follows:

Fourth Grade:

1st Place – Rowan Bedesem ("What materials can block a Wi-Fi signal?")

2nd Place – Abbie Luznar ("Does the pH of soil affect the breakdown of household food boxes?")

3rd Place – Caden Badis ("How much lunch waste do we produce?")



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Fifth Grade:

1st Place – Brooke Payton (“Which green bean plan will grow the tallest?”)

2nd Place – Eliahs Perez (“Will different types of water have an effect on how fast a plant grows?”)

3rd Place – Alannah Krieg (“Do sunflowers grow faster in mil, soda or orange juice?”)

Sixth Grade:

1st Place – Madison Magallanes (“Can static electricity move a paper clip?”)

2nd Place – Emma D’Amato (“Does adding salt to water make pasta cook faster?”)

3rd Place – Isaac Bakehorn (“Does the temperature affect how a tennis ball bounces?”)