

Student scientists go 'Inside the NFL'

U.S. Army

LEESBURG, Va. (July 22, 2013) -- The excitement of the eCYBERMISSION STEM competition has died down and the student scientist teams have all gone back home, but some teams are still getting a lot of attention.

The Falcons of Skyview Middle School in Leominster, Mass., won the sixth-grade competition with a project that explored helmets and concussions.

The project has garnered media coverage from Boston-area television stations and will be featured late September or early October on Showtime's "Inside the NFL," a sports program on the Showtime network.

Charlie Bloom, CBS/Showtime producer, decided to feature the students' project.

"I came across a print story on these young men from Leominster, Massachusetts, who were experimenting," Bloom said. "They were Patriots fans and were concerned with head injuries to [Stevan] Ridley and Wes Welker during the postseason, and wanted to do something about it."

"They developed a project that showed if you put the padding on the outside of the helmet, that the results of the impact were more favorable," he continued. "It's pretty impressive."

Eric Jenny, Chris Mabie and John Liddy comprise the team.

"We thought that concussions are really serious and can kill someone, so we should do that [project]," Jenny said.

The students conducted research and interviewed subject matter experts about the causes of concussions and the design of helmets. The team decided on five helmet designs and a method to measure the force inside the helmet when it suffered an external impact.

"We brainstormed solutions of different types of padding and we thought outside the box and maybe putting the padding on the outside would be better than putting more padding on the inside," Jenny said.

They used the data they collected to produce a prototype helmet with the padding on the outside and continued their experiments. They found the prototype produced better results than other models.

"We all had a kind of a-ha moment," Liddy said.

Jenny said the whole team got excited.

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"Our eyes just lit up, so we knew that putting the padding on the outside of the helmet was actually really better," he said.

There were other advantages to having the padding on the outside, according to Liddy.

"When a player hits the ground, they slide across the ground rather than getting their heads stuck against the ground, flipping over and causing a rotational concussion," Liddy said.

They shared their findings with Dr. Doug Katz, medical director of the brain injury program at Braintree Rehabilitation Hospital, said he is always interested in young people who express an interest in scientific inquiry.

"I was particularly delighted to hear about these sixth-graders' goals, hypotheses and experiments on helmet design to prevent [traumatic brain injury], an area of great interest to me," Katz said. "I was impressed that they were thinking in a sophisticated and scientific manner about this problem and had done their homework on helmet design."

Katz feels that competitions like eCYBERMISSION are important because they get young people involved and interested in science and engineering early in their education, boosting the number of students aiming for careers in science and technology.

"I am delighted to have had a small role in the efforts and success of these sixth-graders in their competition," he said. "I think it is terrific that the U.S. Army Research, Development and Engineering Command invests the effort in promoting interest and education in science and engineering."

Bloom agreed and said the eCYBERMISSION competition is different from the science fairs he remembers.

"What's interesting [is that these] science projects benefit mankind, so it's not just a science project. There are some benefits for it," Bloom said. "You know, it's great when it gets the wheels turning."

"It kind of reminds me of the folklore story of the tractor trailer that gets stuck under the bridge and you get all the engineers from Northeastern University and MIT and wherever else trying to figure out, 'do we disassemble the bridge or the truck?' A kid rides up on his bike and says, 'why don't you let the air out of the tires?' Putting the padding outside the helmet is like, 'yeah, let's experiment more with that.' "

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