

BATH COUNTY SCHOOL BOARD

AGENDA ITEM: INFORMATION { X } **ACTION { }** **CLOSED MEETING { }**

SUBJECT: GOOD NEWS IN BATH COUNTY SCHOOLS

A. BCHS Band

The BCHS Band traveled to the *Blast in the Draft* held at Stuarts Draft High School on Saturday, September 23rd. Twenty bands participated in the event. Bath competed in class AAA and took 1st place in Color Guard; Music; Marching; General Effect; Visual Effect; and in its class. As the highest scoring band, BCHS was awarded Grand Champion.

On September 25th the BCHS Band performed in the opening ceremony at the D-Day Memorial Golf Tournament at the Cascades Golf Course. This was the band's third year performing for the tournament. The band was able to meet Coach Frank Beamer, LPGA Hall of Famer Donna Andrews, and three WWII Veterans.

B. KidWind

The latest issue of the VSBA Newsletter (2017, Issue 7, p.4), features a division spotlight article on Bath County Public Schools submitted by Ed Ozols, *Developing STEM Skills using an Iterative Design Process for a Wind Turbine Competition submitted by Bath County Public Schools*

C. Two BCHS students auditioned for, and were selected as, members of the New "Old School" Virginia Opry Junior Pros. This project is designed to highlight our talented young traditional musicians and promote our Region's musical heritage.

Guitarist Zach Whitmore (BCHS Sr.) and Fiddler Eli Phillips (BCHS Freshman) will perform with this regional band at the Virginia Opry at the Historic Stonewall Theatre in Clifton Forge, Va. The competition was open to traditional musicians ages 10-20 from Alleghany, Bath, Botetourt, Craig, and Rockbridge counties.

D. VSBA School Board Academy Awards

Based on participation in board development activities the following recognitions are presented:

Award of Distinction (Starfish pin) Roy Burns
Sue Hirsh
Cathy Lowry

Award of Honor (Gold pin) **Rhonda Grimm**

Award of Excellence (Silver pin) Bryan Secoy







Division Spotlight: Bath County Public Schools

In each newsletter VSBA will spotlight a recent initiative or best practice taking place in a school division in Virginia. If you have a story you would like to submit for inclusion in the spotlight section of the VSBA Newsletter, please contact Samantha Bosserman, director of communications and board development, for more information. We look forward to hearing about the great things going on in your divisions.

Developing STEM Skills using an Iterative Design Process for a Wind Turbine Competition

Submitted by Bath County Public Schools

Bath County Public Schools have been participating in KidWind, a wind turbine design competition, for three years. Beginning with the second year, the students have utilized an iterative design process. Participation in KidWind employs a schema where students begin with the turbine built the previous year, along with the feedback and experience gained during the wind turbine design and competition. The high school team provided experience and knowledge to the younger students. Students have also been exposed to jobs in renewable energy crossing a broad range of education, from high school graduates to PhDs. Some of the students who have competed in KidWind have gone on to study engineering, renewable energy, and programming.

KidWind is a competition where students design a wind turbine to produce electricity. In addition to generating electricity, students keep an engineer's notebook and must present their work before a panel of judges. There is also a written test assessing knowledge of the concepts that are utilized in the development of the turbine. Each of these items contributes to the final score, so just having a good turbine alone is not sufficient to earn an award. Schools meet to compete on a regional or state level each spring. This program is a combination of after school and in-class activities.



Students continually ask, "Why do I have to learn this?" asking about their classes. Students who participate in the competition put in hours after school to complete their entries. The participants report that they enjoy the activities and parents report that the students talk about what they did in preparation for the competition. Students learn about science, technology, engineering, and math as they prepare a presentation for panel of judges. The presentation itself hits several English SOLs as the students prepare a written notebook and an oral presentation. An added benefit is students reporting that they feel more confident with regular classroom STEM activities.

The first-year project was a hands-on activity to expose students to various aspects of the Career and Technical Education areas of study. Their teachers collaborated with each other and showed the students, by example, how to collaborate. Each student acted in a leadership role as the skills required to complete a competition level turbine changed. One student designed gears on a 3D printer. Different gear ratios were explored and tested until the team settled on a ratio that produced the most power. Some of the team members utilized the carpentry shop to create the components of the turbine. This required exact measurements for angles, diameter, circumferences, and area. Other team members created the oral and written presentations and coached the rest of the team to improve their presentation style.

The first competition was held at Virginia Tech and the team was awarded a 3rd place win along with a trophy for their design. The 3rd place win got the team an invite to the Eastern United States finals held at James Madison University. At the Eastern United States finals, the team garnered an additional trophy for design. Before the school year was over, the students designed and built a wind tunnel to better test future designs. The team presented the project at an energy fair and at the Virginia Society for Technology in Education. The presentation and handouts were polished and the feedback received from the audiences was positive. It was clear that the students had learned the material.

During the design phase of the competition, the students took the previous year's turbine and made significant changes to it. A second group of students took the basic design and changed gear ratios, materials, and axis. The notebooks from the previous years helped the students go beyond their first-year effort. Because of this, the team could increase their depth of knowledge. At the competition, the teams won first and second place along with trophies for both designs.

The students earned an invitation to the national competition held in conjunction with the American Wind Energy Association national convention in New Orleans. While the team was there, a college level competition took place and the students circulated through that area getting ideas that they could use in the future.

The division has found KidWind to be an authentic, project based learning activity that assists the students in earning STEM curriculum as well as learning about 21st century jobs and gaining the skillsets that will be required for their futures.