

The Director's View is a publication of the Applied Arts Practicum Students
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THE DIRECTOR'S VIEW

BRADLEY COUNTY SCHOOLS



"MAKE A DIFFERENCE"

Today's job market has changed and the demands of a STEM-savvy workforce are necessary for a resilient economy. As we look at how teaching Science, Technology, Engineering and Math (STEM) can prepare our students for current and future jobs; teachers are beginning to incorporate components of STEM in the content areas. STEM is multidiscipline based, incorporating the integration of other disciplinary knowledge into a new whole. Technology helps us communicate; Math is the language; Science and Engineering are the processes for thinking; all this leads to Innovation. STEM Education is more than just presentation and distribution of information and cultivation of techniques. It is a process for teaching and learning that offers students opportunities to make sense of the world and take charge of their learning, rather than learning isolated bits and pieces of content. In the STEM environment, there is less emphasis on activities that demonstrate science content and a greater focus on those activities that allow students to engage in real world problems and experiences through project-based, experiential learning activities that lead to higher level thinking. Learning in a STEM environment requires students to understand issues, refine problems, and comprehend processes that lead to innovative solutions. Students learn through experience where they talk and engage in discourse. They learn by finding evidence to support arguments and solving problems in the course of a continuous process of asking questions, experimenting, designing, creating, and gathering supporting evidence. Through the implementation of STEM education and the best practices and strategies it promotes, teachers can construct a learning environment where students are given the opportunity to experience, talk, debate, discover, design, create, and build. They can learn to lead the way to innovation through engaged learning today and laying a foundation for the future workforce of tomorrow.

-Dr. Linda Cash, Director of Schools

OCTOBER EDITION HIGHLIGHTS

- Introduction, Linda Cash, Director of Schools.
- Volunteer Spotlight with Tabitha Charles from Taylor Elementary School
- STEM-Ready at Ocoee Middle School
- Michigan Avenue's second grades participates in STEM Activities.
- North Lee Elementary promotes STEM through First Lego League
- Student Spotlight with Amber Bell, WVHS Student Body President
- STEM at Parkview Elementary
- Charleston Elementary welcomes Candice Belt
- Tennessee Promise and higher education
- Teacher Spotlight with Lake Forest Middle's Gypsy Armstrong
- STEM at Taylor Elementary.

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This Month's Focus:
STEM and how Bradley County Schools incorporates it into the classroom.



VOLUNTEER SPOTLIGHT

The spotlight on a parent volunteer this month is about Tabitha Charles. She is an amazing support person at Taylor Elementary School and is appreciated throughout the school's community. Mrs. Charles plays a significant role in numerous projects and events such as the student dances and festivals that take place throughout the year. She shared with us this month her passion for serving at TES through her work in the PTO, classrooms and in the YMCA "After School Program." She is a wonderful blessing to Taylor Elementary School!

STEM-READY AT OCOEE MIDDLE SCHOOL



Ocoee Middle School believes STEM is an innovative approach to education focused on giving students real-world learning experiences in science, technology, engineering and math. Through STEM, students learn to think critically, work collaboratively, and implement solutions. Lessons focus as much on how students learn as what students learn. Ocoee Middle School STEM teacher, Dustin Fromm, utilizes various programs in his STEM Lab such as EV3 Robotics, C.A.D, 3D Printing, JAVA, HTML, PIXAR Animations, and Roller Coaster Design to teach students the engineering and design

processes. These are only some of the many opportunities students get to experience while spending time in the STEM Lab with Mr. Fromm. Ocoee wants to generate a STEM-Ready-Student who thinks critically to solve problems, works collaboratively with teams, shows perseverance in pursuit of solutions, has effective communication skills, confidence to challenge existing models, respect for alternate viewpoints, and strong competencies in math and science concepts.



MICHIGAN AVENUE'S SECOND GRADERS PARTICIPATE IN STEM ACTIVITIES

Second grade Michigan Avenue School students in Mrs. Brantley's class recently had the opportunity to experience the following Science Standards:

GLE 0207.Inq.2 Ask questions, make logical predictions, plan investigations, and represent data.

GLE 0207.Inq.3 Explain data from an investigation



Check for understanding:

Students recorded predictions and observations during the experiment. They discussed the results from the experiment when they were finished by answering specific questions from the teacher.



Question:

Can an egg float in freshwater? Can an egg float in saltwater??

The students wanted to know if objects/eggs float better in fresh water or salt water. Students used prior knowledge and came up with a hypothesis. Students made observations and took notes as they conducted their experiments. They discovered that objects do float better in salt water.

NORTH LEE ELEMENTARY: PROMOTING STEM THROUGH THE FIRST LEGO LEAGUE



North Lee Elementary has been fortunate enough to be chosen to take part in the First Lego League robotics competition. The First Lego League (FLL) introduces students (grades 4-8) to the fun and excitement of science and technology. Through the FLL program students will learn to program an autonomous robot (using the LEGO® MINDSTORMS® robot set) to score points on a thematic playing surface, create innovative solutions to a problem, all while being guided by the FLL Core Values. The students will be tasked with building their robot to do a variety of specified jobs. They will have the added challenge of pre-planning a robot program to translate onto the playing field by using complex math and problem solving skills to help them score points. These three elements - the Robot Game, Project, and FLL Core Values - make up what they call the yearly challenge. The FLL is a nationally recognized organization guided by the field's most prominent experts. Our students will be attending the FLL regional competition on December 12th at the University of Tennessee at Chattanooga.



STUDENT SPOTLIGHT

The student in our spotlight this month is Amber Bell, a senior at Walker Valley High School. Amber has been actively involved in leadership and has participated in competition through student clubs and organizations. She is the current Student Body President. Her teachers speak highly of her as Amber is an exemplary student and is an inspiration to her peers. When we met with Amber, she shared with us the many activity groups that she has been a part of which has become very important to her.

STEM AT PARK VIEW ELEMENTARY

Park View Elementary's mission is to build the foundation of 21st Century learners by equipping students to excel in all areas with a focus on science, technology, engineering, and mathematics (STEM) while fostering leadership, respect, and responsibility in the pursuit of excellence.

In September, the teachers received professional development from Keri Randolph from STEM Innovation Hub. Teachers learned about the STEM Planning Checklist and the process of connecting activities to standards. Park View is incorporating STEM as a way of teaching and embedding the program throughout the curriculum, rather than isolating STEM as another subject. In addition to the daily STEM curriculum, there are 25 students who are a part of a STEM program for the academically talented.



Second Graders working on Christopher Columbus' boat so that he can haul all of his necessary supplies



STEM club building a Lego Robot and programming its actions

Heather Hayes, STEM Fellow 2014-2015, states, "I love the way STEM makes a real world connection for students."

Destiny Chadwick, 4th grade STEM student, says, "STEM is AMAZING! One activity that was fun was to build monkeys out of robotics. We programmed them to move. It's really fun."



ADMINISTRATOR SPOTLIGHT

The spotlight on an administrator this month is featuring Candice Belt, the new principal for Charleston Elementary School. Mrs. Belt comes to us from Hamilton County where she was the assistant principal for the Chattanooga School for the Liberal Arts. She is originally from the Chattanooga region where her experience in education also includes teaching middle school math and working as an instructional coach. Mrs. Belt loves the community of Charleston and has a goal to support all members of the school community to ensure student success. As she is settling in at Charleston, Mrs. Belt spoke with us about her excitement to be a part of such a great school and community.



What is Tennessee Promise?

"Tennessee Promise is a last-dollar scholarship, meaning it will cover costs of tuition and mandatory fees not met from Pell, HOPE, or state assistance awards. As part of the program, students will be paired with a partnering organization and provided with a mentor who will support them during the college application process. High school seniors in Tennessee may apply for the Tennessee Promise scholarship, which will provide for two years of tuition-free attendance at a community or technical college in Tennessee." [TN Promise](#) Click on the link for scholarship application and program information. **The application deadline is November 2!**

Life beyond High School (Post-Secondary): Should we prepare ALL students for college?

In Bradley County College and Career Ready means establishing a foundation for life after high school whether the path is toward a career, military, technical school, community college, or four year university. So why prepare all students for college? Let's examine 3 reasons: Revised Definition of College, Early Access, and Career Technology.



Students learn college and career readiness at Cleveland State Community College.

Revised Definition of College

In the Tennessee Department of Education strategic plan “The majority of high school graduates from the class of 2020 will earn a post-secondary certificate, diploma or degree.” Preparing students for college includes preparing students for a credential after high school. A student “going to college” could be attending a Tennessee College of Applied Technology or technical school, a community college for 2 years, or a 4 year university. Students can also complete certification programs. [TN Goals](#)

Early Access

Early college credit opportunities make the transition to college more seamless than ever before. Dual Enrollment and Dual Credit, along with AP and Cambridge courses allow students to earn college credit while attending high school. Career Technical Education and other elective focus options have clear pathways toward development of course work and articulation with college. Early options can increase student success in college. [Post-Secondary](#)



A representative from Cormetech discusses college and career readiness through STEM occupations at "Make it Happen" Day 2015.

Career Technology

“The United States will need at least 4.7 million new workers with post-secondary certificates by 2018.” CTE Business and industry partners continually request employees possess similar skills as those needed for college: math, communication, problem solving, and critical thinking skills. Many employers will pay for college/technical training after the student has been employed for 1 year. So while a high school diploma will get the foot in the door, advancement opportunities require some training after high school. Therefore preparing students for college also prepares students for life.



TEACHER SPOTLIGHT

This month, the teacher spotlight is cast on Gypsy Armstrong, an amazing 6th grade Social Studies teacher at Lake Forest Middle School. Mrs. Armstrong has been in education for more than two decades. She began her work as a teacher at Black Fox Elementary School before moving to LFMS. Mrs. Armstrong is an Advisor for the Student Government Association and she teaches summer school. When speaking with Mrs. Armstrong this month, she shared with us what she loves the most about working with her students.

TAYLOR ELEMENTARY'S KAREN ALLEN

TEACHES STEM THROUGH HANDS ON ACTIVITIES



After attending a Title I conference, 1st grade teacher Karen Allen committed to implementing a series of literacy-based STEM lessons in her classroom. Using the classic literature of folk tales and fables and some creative hands-on activities, her students have learned the engineering design process: ask, imagine, plan, create, and improve. Her focus in these lessons is to have students successfully problem-solve and create group projects while increasing comprehension and critical thinking in literature-based units of study. Through a project-based learning approach, Mrs. Allen has increased student engagement and created opportunities for student to apply math and science skills. A few examples of the first graders STEM projects are:

1. The Tortoise and the Hare Soda Can Project - Students took an unopened soda can and added materials to try to make it roll more slowly. The items the students added had to slow the can's motion but still allow it to roll. Student's cans were tested and timed for success.
2. Dancing Raisins Project - Students predicted what would happen when they put raisins in different liquids. The raisins that were put in carbonated liquids danced (bobbed up and down in the liquid).
3. Pumpkin Investigation Project- Students predict how many pumpkin seeds were in an average pumpkin. The seeds were then counted in groups of tens to find out. Students measured the height of the class pumpkin using

cubes. Students predicted and then discovered if pumpkins would float or sink.

The most recent STEM project that Mrs. Allen's class tackled was The Three Little Pigs' Houses. In this project, students were challenged to design a house that the Big Bad Wolf could not blow away. Working in groups, the students designed and built houses for the three little pigs using any material they chose—toothpicks, marshmallows, cotton balls, construction paper, pipe cleaners, straws, raffia, tape, etc. They tested the homes to see if the Big Bad Wolf (a.k.a. a hairdryer with googly eyes and ears) could knock it down. Students then judged their test results against class-defined building standards. Students adjusted and improved their projects based on the outcome of the initial test.

The theme for next month will be "Service."

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